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O01

The role of the preoperative Systemic Immune-inflammation Index in bladder cancer patients treated with radical cystectomy

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Introduction

The heterogeneous behavior of bladder cancer (BC) demands for biomarkers (BM) with sufficient prognostic and predictive value. The preoperative systemic immune-inflammation index (SII) in patients who underwent radical cystectomy (RC) for BC was identified as an independent prognostic factor for worse survival outcomes in previous small-scale, single-center studies. The aim of this study was to validate these findings in a large, multinational cohort.

Material and Methods

Overall, 4335 patients who were treated with RC for BC were included. The cohort was stratified into two groups by preoperative SII using optimal cut-off determined by the Youden index. Uni- and multivariable logistic and Cox regression analyses were performed, and to assess the additional prognostic and predictive value of SII, reference models that did not include SII were fitted and compared with models including SII by their area under the curve (AUC) and concordance-indices (c-index), respectively. The additional clinical net-benefit was assessed using the decision curve analysis (DCA).

Results

A high preoperative SII (> 610) was observed in 1879 (43%) patients. On multivariable preoperative logistic regression, high SII was an independent predictor of lymph node involvement (LNI; OR 1.23, p = 0.004), pT3/4 disease (OR 1.55, p < 0.001) and non-organ confined disease (NOCD; OR 1.42, p < 0.001) with improvement of AUCs for predicting LNI (p = 0.01) and pT3/4 disease (p = 0.01). In preoperative multivariable cox regression, high SII was an independent prognostic factor for recurrence-free survival (RFS; HR 1.13, p = 0.028), cancer-specific survival (CSS; HR 1.18, p = 0.005) and overall survival (OS; HR 1.13, p < 0.006) without improvement of c-indices. On DCA, the inclusion of the SII did not improve the net-benefit for clinical decision-making regarding LNI, pT3/4 disease, NOCD and survival outcomes.

Conclusions

High preoperative SII is an independent risk factor for worse survival outcomes. Furthermore, we demonstrated its predictive value for pathologic features of aggressive disease. However, it did not improve the discriminatory margin beyond

established clinicopathologic features and failed to add clinical benefit for decision making. The implementation of SII as a part of a panel of biomarkers in future studies might improve decision-making.

O02

Dérivation urinaire cutanée continente cathétérisable type Indiana : suivi au long cours.

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Objectifs

La dérivation urinaire continente reste un défi chez les patients dont l'appareil sphinctérien est inutilisable pour des raisons oncologiques ou fonctionnelles.

Le but de cette étude est de présenter le suivi à long terme de la dérivation cutanée continente cathétérisable type Indiana, utilisant le colon droit et l'iléon terminal, dont l'avantage est la relative simplicité de confection et la fiabilité à long terme du canal de cathétérisation.

Matériel et méthodes

31 patients ont été opérés entre mars 1999 et décembre 2020 par le même opérateur. Les indications furent une vessie neurogène (n=7), une vessie non fonctionnelle (n=4), une cure de fistule pelvienne (n=2) et une conversion d'une dérivation type Bricker (n=3). Les indications oncologiques représentent 15 cas dont 13 pour un cancer urothélial de la vessie.

Résultats

16 femmes et 15 hommes ont été opérés à l'âge médian de 56 ans (IQR 45-64), avec une médiane de suivi de 76 mois (IQR 15-139). Sur le plan fonctionnel, les autosondages ont été effectués toutes les 3h30min pour un volume de 450 ml (médian, mesuré chez 20 patients). Parmi les complications précoces, nous retrouvons l'abcès pelvien nécessitant un drainage par ponction-CT (n=6), l'abcès de la cicatrice médiane traitée par soins locaux (n=3) ainsi qu'une reprise chirurgicale pour lâchage d'anastomose digestive, un iléus mécanique et une ischémie aiguë du membre inférieur. A long terme nous notons 9 décès (29%), dont 5 d'une progression tumorale urologique. Les complications à distance sont principalement associées à la non-compliance aux autosondages (n=5 ; 16 %) allant jusqu'à la rupture de la néovessie (n=2). De ceux-ci, 2 ont été undiversés par Bricker, 2 ont nécessité une sonde urinaire à demeure et le dernier a bénéficié d'un nouvel enseignement thérapeutique. 2 patients (6%) ont présenté une dysfonction du canal de cathétérisation, traités par une undiversion et une révision par laparotomie. 3 patients (10 %) ont présenté une sténose urétéro-néo-vésicale traitée chirurgicalement.

Conclusion

La dérivation continente cathétérisable type Indiana est efficace à long terme, avec un canal de cathétérisation qui s'est avéré fiable (6% de ré-opération). Une sélection soigneuse pré-opératoire et un suivi régulier sont indispensables afin de prévenir les complications à long terme notamment les undiversions (10 %), et éviter la non compliance aux autosondages (16 %).

O03

The role of modified immunoscore in prediction of progression free survival in patients with high-risk non-muscle-invasive urothelial bladder cancer

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Introduction/Objective

Tumour-infiltrating-lymphocytes (TIL) are a known prognostic marker in several different solid tumours. Recent studies were able to replicate these findings for muscle-invasive bladder cancer (MIBC). Intratumoural cytotoxic T-cells were found to be associated with prolonged overall- and progression-free-survival, indicating that immune system activation is potentially able to delay cancer development and progression. Only scarce data exists for the role of TIL in non-muscle-invasive bladder cancer (NMIBC). Immunoscore (IS) an established method to quantify lymphocytes and can be used to detect and count TIL. The aim of this study was to explore the role of a modified IS (mIS) in patients with NMIBC.

Methods

Two tissue micro arrays (TMA) containing 316 samples from 158 patients (two TMA cores per patient) diagnosed with NMIBC were immunohistochemically stained for CD4, CD8, FOXP3 and CD45Ro. Automated analysis was performed by digital pathology to detect stained TIL. Output was cumulated, averaged and then reported as density (positive cells per mm²). Cox proportional hazards regression was used to predict overall survival (OS), progression-free-survival (PFS) defined as upstaging, and recurrence-free-survival (RFS). Patients were stratified as "high mIS / favorable risk" and "low mIS / unfavorable risk" (cut-off: median of linear predictor). Kaplan-Meier analysis were used to test mIS within "European Organisation for Research and Treatment of Cancer" (EORTC) risk groups.

Results

The median age in our cohort was 68 years (Interquartile Range (IQR): 60 - 76) and 74% patients were male. A total of 26 patients (16.5%) were classified as EORTC low risk, 45 (28.5%) as medium and 87 (55.1%) as high risk. Median follow-up time after transurethral resection was 122.6 months (IQR: 74.5 – 192.6). Patients with low mIS showed a shorter, though statistically non-significant, progression-free survival (HR 2.9, CI 0.79 – 11.0, p = 0.082) compared to patients with high mIS in the subgroup of patients with high EORTC risk features. mIS was of no prognostic value in NMIBC for PFS with low and intermediate risk features (p > 0.05).

Conclusion

mIS holds some promise in prediction of cancer progression in high-risk patients with NMIBC. Therefore mIS might be useful to further stratify these patients for different follow-up/treatment schedules. These findings warrant further investigations and validation in larger cohorts.

O04

Results of a phase I/II single arm clinical trial assessing efficacy, safety, and tolerability of the recombinant Bacillus Calmette-Guérin (rBCG) VPM1002BC in patients with non muscle-invasive bladder cancer recurrence after BCG induction with or without

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Introduction & objectives

VPM1002BC is a genetically modified Mycobacterium bovis Bacillus Calmette-Guérin (BCG) strain with potentially improved immunogenicity and attenuation. We report on efficacy, safety, and tolerability of intravesical VPM1002BC for the treatment of non-muscle invasive bladder cancer (NMIBC) recurrence after previous BCG therapy.

Patients & methods

We designed a phase I/II single arm trial with a safety run-in phase I followed by a phase II (NCT02371447). Patients with recurrent NMIBC after BCG induction with or without BCG maintenance therapy and intermediate to high risk for cancer progression were eligible. The primary endpoint was defined as recurrence-free rate (RFR) in the bladder 60 weeks after trial registration. Sample size calculation was based on the assumption that $\geq 30\%$ of patients would be without recurrence 60 weeks after registration.

From September 2015 to April 2018, 42 patients (6 from phase I and 36 from phase II) consented to participate. Patients were scheduled for standard treatment of six weekly instillations with VPM1002BC, followed by a maintenance regimen of one year.

Results

After exclusion of 2 ineligible patients, the study population consisted of 4 female and 36 male patients (median age 72 years). All tumours were high grade (2004 WHO definition) and 27 (67.5%) patients presented with carcinoma in situ (CIS). Median progression score was 14 (range 7-21).

RFR in the bladder 60 weeks after the first instillation was 49.3 % [95% CI 32.1%, 64.4%]. At the same time, progression to muscle-invasive disease or to metastatic disease had occurred in 3 and 4 patients, respectively. Treatment-related grade 1, 2, and 3 adverse events (AEs) were observed in 14.3%, 54.8%, and 4.8% of the patients, respectively. No AEs grade ≥ 4 occurred. Main grade 2 AEs were genito-

urinary (GU) infections in 14 (35%) and frequency/urgency in 5 (12.5%) patients. One patient experienced BCG associated systemic reactions (grade 2) due to traumatic catheterisation. Grade 3 related AEs consisted in GU infections in 2 (5%) patients. No AEs grade ≥ 4 occurred.

Two (5%) out of the 40 patients did not tolerate ≥ 5 instillations during induction therapy. Fifteen patients (37.5%) received all scheduled instillations.

Conclusion

One year after start of treatment, therapy with VPM100BC resulted in freedom from NMIBC recurrence in the bladder in almost half of the patients with previous BCG failure. The treatment is safe and well tolerated.

O05

Offene versus roboterassistierte radikale Zystektomie: Eine retrospektive Analyse der peri- und postoperativen Ergebnisse in den Jahren 2015 bis 2020 am Kantonsspital Aarau

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Hintergrund und Ziele

Die Umstellung von der offenen Zystektomie (OC) auf die roboterassistierte (DaVinci) Zystektomie (RAC) ist in unserer Klinik in den Jahren 2017-2018 erfolgt. Gemäss Literatur sind die Komplikationsraten, Hospitalisationsdauer und Mortalität für beide Operationstechniken vergleichbar. Für die RAC ist ein geringerer Blutverlust und eine längere Operationsdauer beschrieben. Mit der vorliegenden Studie sollen die Ergebnisse an unserem Zentrum untersucht werden.

Material und Methoden

Retrospektive Datenanalyse bei n = 105 Patienten (n = 50 OC vs. n = 55 RAC), welche zwischen 01/2015 und 12/2020 im KSA mittels radikaler Zystektomie behandelt wurden. Prä-, peri- und postoperative Parameter, wie Tumorstaging nach TNM Klassifikation, Operationstechnik, Operationsdauer, Blutverlust und peri- sowie postoperative Komplikationsraten wurden aus der Patientenakte erhoben und statistisch ausgewertet.

Resultate

Das mediane Alter betrug in beiden Gruppen 71 Jahre, der mediane BMI 25.9 vs. 25.3 kg/m² (RAC vs OC, ns). Der Charlson Komorbiditäts-Index und das Tumorstaging waren vergleichbar.

Es zeigte sich kein signifikanter Unterschied bezüglich leichter Komplikationen Clavien-Dindo I-II innert 90 Tagen (58% RAC vs. 46% OC). Höhergradige Komplikationen gab es dafür bei der RAC signifikant weniger (22% vs. 50%, p = 0.003), hingegen 20% RAC vs. 4% OC (p = 0.01) hatten einen komplikationslosen Verlauf. Es kam bei der RAC zu einem signifikant geringeren medianen Blutverlust von 300 ml vs. 1000 ml (p < 0.001). Intraoperative Transfusionen waren bei der RAC keine erforderlich, gegenüber 12 Fällen mit durchschnittlicher Gabe von 2.83 Erythrozytenkonzentraten bei der OC (p < 0.001). Die mediane Operationsdauer war bei der RAC mit 414 vs. 351 Minuten länger (p < 0.001).

Die mediane Hospitalisationsdauer betrug 17 gegenüber 22 Tage (p = 0.001), RAC vs. OC.

Schlussfolgerungen

Die RAC an unserer Klinik weist trotz Lernkurve weniger Blutverlust und weniger schwere postoperative Komplikationen mit kürzerem Spitalaufenthalt auf gegenüber der OC bei vergleichbarem Patientenkollektiv. Die Operationszeit ist allerdings länger.

O06

Comparative outcomes of primary and recurrent high grade non-muscle invasive and primary and progressive muscle-invasive bladder cancer after radical cystectomy: results from a retrospective multicenter study

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Introduction

We aimed to compare oncological outcomes between patients with primary high-risk non-muscle-invasive bladder cancer (primHR-NMIBC), recurrent HR-NMIBC (rechHR-NMIBC), primary muscle-invasive bladder cancer (primMIBC) and progressive MIBC (progMIBC) after radical cystectomy (RC).

Material and Methods

This study included 908 patients treated with RC without neoadjuvant chemotherapy (NAC) for clinically non-metastatic bladder cancer (BC). Primary HR-NMIBC and primMIBC are defined as no prior history of BC, whereas rechHR-NMIBC and progMIBC are defined as previous treated NMIBC that recurred or progressed to MIBC despite intravesical therapy. Uni- and multivariable logistic and Cox regression analyses were used to identify predictors for pathologic features and survival outcomes; log-rank analyses were used to compare survival outcomes.

Results

Overall, 211 (23%) had primHR-NMIBC, 125 (14%) had rechHR-NMIBC, 404 (44%) had primMIBC and 168 (19%) had progMIBC. Patients with progMIBC experienced more often lymph node involvement (LNI; 48% vs 12% primHR-NMIBC, 22% rechHR-NMIBC, 27% primMIBC; $p < 0.001$) and pathological upstaging (69% vs. 47% primHR-NMIBC, 64% rechHR-NMIBC, 51% primMIBC; $p < 0.001$). Recurrence-free survival (RFS), cancer-specific survival (CSS) and overall survival (OS) were the lowest in progMIBC (41%, 47% and 39%, respectively) and were different compared to the other groups ($p < 0.001$ for all). Recurrent HR-NMIBC and primMIBC showed similar RFS, CSS and OS (60% vs. 61%; $p = 0.8$, 59% vs. 65%; $p = 0.7$ and 49% vs. 55%; $p > 0.9$, respectively).

On multivariable logistic regression, primMIBC (OR 1.85; $p = 0.02$) and progMIBC (OR 3.55; $p < 0.001$) were predictors for LNI and rechHR-NMIBC for pathological upstaging (OR 2.01; $p = 0.005$). On multivariable Cox regression, rechHR-NMIBC was associated with worse RFS (HR 1.66; $p = 0.02$), CSS (HR 1.82; $p = 0.01$) and OS (HR 1.47; $p = 0.02$) while progMIBC was associated with worse CSS (HR 1.78; $p = 0.01$) and OS (HR 1.57; $p = 0.006$).

Conclusion

Patients with progMIBC showed the worst survival outcomes while rechHR-NMIBC experienced similar outcomes as primMIBC. Given that rechHR-NMIBC and progMIBC are independent risk factors for worse survival outcomes, suggests a more aggressive tumor biology. Thus, improved risk stratification at the NMIBC stage using biomarkers or improved imaging is desirable, to select those who would benefit from early RC or NAC.

O07

Variant histologies as predictors of upstaging at radical cystectomy for urothelial carcinoma

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Introduction and objectives

Pathologic upstaging of bladder cancer (BCa) at radical cystectomy (RC) specimen is associated to poor survival outcomes. Literature lacks clear evidence regarding the role of variant histology (VH) on upstaging compared to pure urothelial carcinoma (UC). We sought to investigate whether presence of VH at transurethral resection of bladder (TURB) is associated to pathologic upstaging at RC specimen.

Materials and methods

We retrospectively analyzed data of 1,564 patients treated with RC and bilateral pelvic lymph node dissection (PLND) for BCa at seven tertiary referral centers between 1980 and 2018. Patients receiving neoadjuvant chemotherapy were excluded from the study. Upstaging was distinguished between overall upstaging (any increase from initial clinical T [cT] and/or cN stage) and upstaging from organ confined (OC) to non-organ confined disease (nOC) (any cT ≤ 2 cN0 BCa upstaged to pT3 and/or pN+) at RC specimen. VH were classified as follows: sarcomatoid, micropapillary, squamous, nested, small cell, adenocarcinoma and glandular carcinoma. Multivariable logistic regression (MLR) models predicting the risk of upstaging were fitted, after adjustment for clinical features.

Results

Overall, 26.4%, 61.5% and 12.1% of patients presented at TURB specimen with cT ≤ 1, cT 2 and cT 3/cT 4, respectively; 10.1% of individuals had cN+ on imaging. At RC specimen, 29.8%, 19.6% and 50.6% of patients were diagnosed with pT ≤ 1, pT 2 and pT 3/pT 4; pN+ was detected in 36.9% of the population. Overall upstaging was recorded in 59.5% of patients, whereas 58.1% experienced upstaging to nOC disease. In MLR models, overall upstaging was significantly associated with presence of VH at TURB specimen (odds ratio [OR]: 1.59, p = 0.01), cT 2 (OR: 1.89, p < 0.001), cN+ (OR: 0.53, p = 0.01) and over 20 LN removed (OR: 2.04, p < 0.001). Similarly, presence of VH (OR: 2.02, p = 0.003), cT2 (OR: 2.76, p < 0.001) and over 20 LN removed (OR: 2.30, p < 0.001) independently predicted upstaging to nOC. Among VH, adenocarcinoma and nested variant showed the highest risk of overall upstaging (predictive probability of 75% and 73%, respectively) and nOC disease upstaging (79% and 89%, respectively).

Conclusions

Presence of VH at TURB specimen represents a significant independent predictor of pathologic upstaging at RC specimen compared to UC. The findings of our study should be taken into consideration in addressing the decision-making process.

O08

Oncological outcome after local resection of localized upper tract urothelial carcinoma

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Introduction

Upper tract urothelial carcinoma (UTUC) accounts for 5% of all urothelial carcinomas. Beside distant recurrence and progression, recurrent bladder tumors following surgical treatment for UTUC remains a major problem. A single postoperative intravesical instillation with chemotherapy has been shown to reduce intravesical recurrence rate and is internationally recommended by guidelines in recent years.

Aim of the study

To report oncological outcomes of patients with UTUC who were treated with radical nephroureterectomy at the University Hospital of Zurich.

Patients and methods

Patients who underwent radical nephroureterectomy for UTUC were retrospectively reviewed. Pre- and postoperative clinicopathological features, treatment and tumor characteristics were recorded. Local bladder recurrence, distant metastasis and cancer-specific survival (CSS) and overall survival (OS) were noted during follow-up. Univariable cox-regression analysis was performed to search for predictors for CSS.

Results

Between January 2008 and December 2020, 63 patients (52 males and 14 females) were identified who underwent radical nephroureterectomy for UTUC with a median age at diagnosis of 74 years. Median (range) follow-up was 40 (1 -141) months. Intravesical recurrence occurred in 33 (52.4%) patients after surgical treatment at a median follow-up of 39 months. Five patients (7.9 %) received postoperative instillation of Epirubicin and none of them had bladder recurrence. Distant metastasis occurred in 18 (28.6%) patients at a median follow up of 30 months. Cancer specific death occurred in 13 (20.6%) and overall death in 20 (31.7%) at a median follow-up time of 38.5 months and 48.5 months respectively.

Any variables tested including stage, grading and nodal status did not predict CSS in univariable analysis.

Conclusions

Intravesical recurrence after UTUC treatment is high and beside close bladder surveillance, postoperative chemoinstillation should be performed whenever possible. Larger cohorts are needed for assesement of predictors of CSS.

O09

Survival outcomes after radical cystectomy versus conservative management for T1 high grade non-muscle invasive micropapillary bladder cancer: a multicenter collaboration by the European Association of Urology–Young Academic Urologists

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Introduction and objectives

At present no clear indication exists regarding the optimal treatment for non-muscle invasive micropapillary bladder cancer (NMI-MPBC). We compared cancer-specific survival (CSS) and overall survival (OS) after immediate radical cystectomy (RC) vs. conservative management for T1 MPBC.

Materials and methods

We retrospectively analyzed data of 121 T1 high grade NMI-MPBC patients treated between 2005 and 2019 at 15 tertiary referral centers, who underwent immediate RC vs. conservative management, including BCG immunotherapy or second-transurethral resection of bladder. First, we analyzed CSS and OS between the two therapeutic strategies; second, we assessed recurrence-free survival (RFS) and progression-free survival (PFS) among patients conservatively treated. Survival analyses were performed using Kaplan-Meier and compared with log-rank test.

Results

Immediate RC and conservative management were performed in 15.7% and 84.3% of patients, respectively. Median follow up time was 35 months (interquartile range: 19-62). Overall, 3-year CSS and OS were 47% vs. 58% ($p = 0.2$) and 47% vs. 59% ($p = 0.1$) for patients treated with immediate RC vs. conservative management. Overall, 57% and 41% of patients conservatively treated experienced respectively tumor recurrence and progression, with 1-year RFS and PFS of 23% and 47%. Among patients experiencing tumor recurrence, those who underwent delayed RC showed 3-year CSS of 65% compared to 29% of those who continued a conservative approach despite recurrence ($p < 0.001$). Overall, 48 patients underwent delayed RC after conservative management failure. Immediate and delayed RC cohorts showed 2-year RFS rates of 92% and 49% ($p = 0.015$). No significant differences in 3-year CSS and OS were observed among patients treated with immediate vs. delayed RC ($p = 0.2$ and 0.1 , respectively).

Conclusions

Bladder preservation through a conservative management seems an effective therapy in T1 MPBC patients recording similar survival outcomes to those observed after immediate RC. In case of tumor recurrence after conservative management, switching to delayed RC was found superior to a further maintained conservative management. In absence of trials evaluating the optimal treatment of this rare disease, our study represents the largest series available in the literature and should be taken in consideration when evaluating the best therapy to be performed.

O10

Salvage Lymph Node dissection for Nodal Recurrent Prostate Cancer –results from long-term follow up

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Background

Prostate cancer (PCa)-relapse after primary therapy with the suspicion of lymph node (LN) metastases (LNM) on PET/CT (positron-emission-tomography/computed tomography) can be treated by salvage lymph node dissection (salvage-LND) with postoperative radiotherapy (RT). Still salvage-LND is an experimental approach with regard to traditional androgen-deprivation therapy (ADT).

Objective

To evaluate the effect of salvage-LND with postoperative RT for treatment of nodal recurrent PCa with suspicions LN on PET/CT.

Design, Setting and participants: 136 patients with biochemical PCa-relapse and the suspicion of LNM on choline-or (Prostate-specific membrane antigen)-PSMA-PET/CT were included.

Intervention

Pelvic and/or retroperitoneal salvage-LND with postoperative RT.

Measurements

Biochemical response (BR) (prostate specific antigen (PSA) < 0.2 ng/ml), biochemical recurrence (BCR) (two consecutive PSA-rises) and clinical progression (CR) (detection of anew metastases at imaging) after salvage therapy was assessed. Kaplan-Meier-estimation for time to BCR, CR, initiation of ADT and overall survival (OS) was completed by binary regression-model and cox-regression to identify predictors. Percent of PSA-reduction at end of follow-up was analysed.

Results

Median follow-up was 41.5 months after salvage-LND. BR was achieved in 41% of the patients. Overall 3-yr BCR-and CP-free survival was 16% and 36.8% whereas 5-yr BCR-and CP-free survival was 15.5% and 39.2% for those men with complete BR. Pelvic LNM unilateral only on PET/CT and a lower number of overall removed LN were independent variables for BR (p=0.026, p=0.022). Men with absent PSA-Nadir, incomplete BR, omitting postoperative RT, were at higher risk for BCR (p < 0.001, p < 0.001, p=0.022). BR remained the only independent variable for estimating risk for CP (p=0.039). At end of follow-up still 62% of the men presented with reduced PSA-levels. 8-yr OS-rate was 70%. Limitations are the retrospective character of the study and the missing control-group.

Conclusions

Although the majority of the men will develop BCR after salvage-LND, 42% are still free of CP with reduced PSA-levels at end of follow-up. Only postoperative prediction of BCR and CP was possible; the extend of early BR is crucial.

Patient summary: Salvage-LND with postoperative RT may serve as an alternative to ADT, especially for men with pelvic LNM only at PET/CT.

O11

Paramètres pronostiques de récurrence biochimique post prostatectomie radicale laparoscopique robot-assistée intégrant le volume tumoral

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Contexte

Plusieurs facteurs sont associés au risque de récurrence biochimique (RB) après prostatectomie radicale robotisée (PR). Le but de cette analyse est de déterminer si, dans une cohorte de patients opérés dans un centre universitaire, le volume tumoral pourrait constituer un facteur pronostique indépendant.

Matériel et méthode

Identification depuis un registre prospectif de tous les patients opérés entre 2006 et 2015 d'une PR dans notre centre hospitalier. Exclusion des patients sans suivi postopératoire ou sans négativation du PSA. Mesure du volume tumoral basé sur un contourage des foyers tumoraux sur des tranches de sections transversales complètes de la prostate, qui est par la suite intégré dans un logiciel informatique.

Analyse de survie par un modèle de Cox univarié puis multivarié. Analyse du volume tumoral en volume relatif (Vrel) et absolu (Va), soit en variable continue ou en tertiles (< 2 mL, 2 - 4 mL, > 4 mL). Inclusion d'une variable d'interaction entre le volume relatif et l'ISUP dans le modèle final.

Résultats

De 562 patients éligibles, 43 patients ont été exclus. Le modèle de régression a été réalisé sur 519 patients qui avaient un âge moyen de 63 ans, dont 31% avaient un stade \geq pT3 et 30% score ISUP \geq 3. Les patients ont été suivis avec un suivi médian de 3.7 ans, avec 108 récurrences (21%). Le modèle de survie a montré une récurrence cumulative de 6%, 13%, 18%, 23%, 26% à 1, 2, 3, 4 et 5 ans en tenant compte des perdus de vue ($p < 0.01$).

Le stade tumoral, le Vrel et Va, PSA préopératoire, ganglions positifs sur le curage, réalisation d'une épargne, le score ISUP et le statut R1 étaient statistiquement significatifs en univariés et ont été inclus dans le modèle multivarié.

En multivarié, le principal facteur associé à la RB était le score ISUP avec un HR passant progressivement de 3.6 pour le grade ISUP 2 à 15.0 pour le grade ISUP 5 (comparé à l'ISUP 1).

Le volume tumoral relatif était statistiquement significatif en UNI ou MULTI (HR : 1.03 pour chaque pourcent supplémentaire, $p < 0.05$).

Conclusion

Le volume tumoral relatif, est significativement associé au risque de récurrence biochimique.

Le grade ISUP reste le principal déterminant de récurrence biochimique, notamment dans les ISUP élevés.

O12

Oncological outcomes of robot assisted prostatectomy for locally advanced prostate cancer

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Objectives

Locally advanced prostate cancer puts patients at high-risk of progression and relapse.

The aim of this study was to assess the outcomes for surgically-treated patients with or without adjuvant therapy.

Methods

Data from a prospective cohort including every patient undergoing a robot-assisted radical prostatectomy since 2006 at our institution were retrospectively reviewed. Inclusion criteria were patients with high risk locally advanced disease defined as pT3b or pN1 based on their pathological post-operative results. Patients were stratified in two groups (pT3b pN0 and anyT pN1). Primary outcome was recurrence-free survival (RFS) after initial therapy (recurrence = PSA level > 0.2ng/ml). Secondary outcome was overall survival (OS).

Results

A total of 108 patients were included: 56 pT3b N0 and 52 pN1. Preoperative demographics were consistent with a high-risk prostate cancer cohort and similar between groups and subgroups. Postoperative persistent PSA was more frequent in the N1 group with 39% versus 10% ($p < 0,001$) as well as the use of adjuvant therapy (N1: 64%, N0: 20%, $p < 0,001$). Positive surgical margins (N0: 35%, N1: 42%), ISUP repartition and preoperative PSA-level (N0: 9,9ng/ml, N1: 9,9ng/ml) showed no significant differences.

Both groups were then further substratified according to the use (A+) or not (A-) of adjuvant therapy, which mostly consisted in hormonoradiotherapy. Use of adjuvant therapy increased for R1 patients (R1 61%, R0 38%, $p 0,001$) and patients with postop detectable PSA (Detec 76%, Undetec 24%, $p < 0,001$).

In N0 group, RFS was similar between the two subgroups with median RFS of 56 months for patients with adjuvant therapy and 59 months for patients without ($p 0,84$).

In the N1 group, a trend was observed in median RFS towards higher risk of recurrence for patients without adjuvant therapy (34 month) compared to patients with adjuvant (44 month), however not statistically significant ($p 0,054$).

Both groups and subgroups had similar OS.

Conclusion

Locally advanced localized prostate cancer is a heterogenous disease that requires an individualised treatment plan. For highly selected patients, surveillance after prostatectomy seems to be equivalent in term of RFS and OS and may be an option discussed with the patient. Prospective randomized studies are required to better identify which patient might benefit from adjuvant therapy.

O13

PIRADS3 targeted biopsies with concomitant PIRADS4/5 targeted and systematic biopsies: always mandatory?

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Introduction

Nowadays, magnetic resonance imaging (MRI) of the prostate and targeted biopsies (TB) are part of the routine prostate cancer (PCa) detection pathway. PIRADS 3 lesions carry a much lower risk of harboring significant cancer than PIRADS 4/5 lesions and are therefore quite often omitted when performing TB. The aim of our study was to assess whether performing TB on PIRADS 3 lesions improve PCa detection when concomitant biopsies of PIRADS 4/5 lesions and systematic biopsies (SB) are performed.

Methods

Retrospective analysis of our prospectively accrued database of patients undergoing MRI followed by prostate biopsies in our PCa center was performed. Inclusion criteria were patients undergoing SB and TB for concomitant PIRADS 3 and PIRADS 4/5 lesions. Exclusion criteria were patients with less than two samples taken from each PIRADS lesion. Significant PCa was defined as any ISUP greater than or equal to 2 or ISUP 1 greater than 5 mm.

Results

57 patients were included in our study. Median age was 66 years (IQR 61-71 years), median PSA was 6.67 ug/l (IQR 3.65-8.35 ug/l) and prostate volume was 44.4 ml (IQR 31.5-51.5 ml).

PCa was found in the PIRADS 3 TB in 8/57 (14%) patients, so as in 18/52 (34.6%) and 8/13 (61.5%) in respectively PIRADS 4 & 5 TB. Overall cancer detection on TB was 25/57 (43.9%) and overall cancer detection including SB was 35/57 (61.4%). Only 2 patients (3.5%) were found to have a higher ISUP in the PIRADS 3 TB than in the

PIRADS 4/5 TB or SB. Without the PIRADS 3 TB, one (1.8 %) of those 2 patients would have been undergraded (low risk according to d'Amico risk classification instead of intermediate)

Due to the small size of the cohort, no statistical correlation could be made between PCa detection rate in PIRADS 3 TB and PSA value, DRE status, prostate volume or patient status (biopsy-naïve or not).

Conclusion

The results show that PIRADS 3 TB did not significantly change PCa detection and ISUP classification when concomitant PIRADS 4/5 TB and SB were performed. However due to the small size of the population studied, larger numbers are awaited to validate the omission of PIRADS 3 TB.

O14

Effect of prostate biopsy technique on nerve sparing during radical prostatectomy: Do transperineal template mapping biopsies in combination with mpMRI translate into more nerve sparing?

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The decision to perform a radical prostatectomy (RP) with preservation of the neurovascular bundles in potent men is mainly based on the results of the preoperative prostate biopsy. Traditionally, the Gleason Score and the laterality of the biopsy cores determined whether a uni- or bilateral nerve-sparing RP (NSRP) could be safely performed. Results from pre-biopsy mpMRI and transperineal template mapping biopsies (tpBx) help to better localize tumor regions and thus might improve preoperative planning with regard to nerve sparing. We investigated whether such a biopsy technique leads to more nerve sparing without compromising the margin status.

Single-institution retrospective observational study of patients undergoing RP for localized prostate cancer (\geq Gleason Group 2) between April 2004 and September 2020 in a tertiary referral center. Patients received either conventional transrectal biopsy (trBx; TRUS-guided; 12 cores; institutional standard before August 2014) or tpBx (40 cores, TRUS-guided with or without mpMRI fusion-guided targeted biopsy for lesions PIRADS \geq 3; institutional standard after August 2014). The following outcomes were assessed by univariable and multivariable logistic regression analysis (adjusted for age, Gleason Grade Group and preoperative sexual function): NSRPs, NSRPs with negative surgical margins, intended NSRPs, utilization of intraoperative frozen section examination (FSE) and positive FSE in anatomical region of neurovascular bundles. Effect sizes were presented as crude comparisons of proportions and adjusted odds ratios (aOR).

We identified 878 patients who fulfilled our inclusion criteria. Patients who received tpBx (N=340; 38.7%) were more likely to receive a NSRP (78.7% versus 57.2%; aOR 4.65, $p < 0.001$), a NSRP with negative surgical margins (59.8% versus 41.6%; aOR 2.61, $p < 0.001$) as well as an intended NSRP (78.7% versus 57.4%; aOR 4.59, $p < 0.001$). FSEs were more likely to be utilized in patients who received tpBx (71.0% versus 19.3%; aOR 13.41, $p < 0.001$). However, we found no difference when it comes to positive FSEs in the anatomical region of the neurovascular bundles (7.9% versus 8.8%; aOR 1.11, $p = 0.82$).

Among patients who undergo RP for localized prostate cancer, tpBx in comparison to trBx seems to be beneficial when it comes to nerve sparing. Our results suggest that tpBx is not only associated with more NSRP in general, but also with safer nerve-sparing behavior from an oncological perspective.

O15

Gleason grade group concordance between microUS-MRI fusion biopsy and final pathology

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Context

Multiparametric prostate MRI prior to biopsy enhances the detection rate of clinically significant prostate cancer as MRI-visible lesions can be targeted using MRI-ultrasound fusion biopsy. The inability of conventional ultrasound to distinguish between benign and malignant prostatic tissue is a key limitation which might be overcome if a micro-US at 29 MHz is used. The aim of this study was to assess the concordance between microUS-MRI fusion biopsy and final histology in terms of Gleason grade group and to identify potential factors predicting upgrading or downgrading.

Methods

In our institution, all prostate biopsies are performed using the micro-US system (Exact Imaging®) since May 2018. The standard procedure includes preoperative mpMRI, revision of mpMRI in a dedicated radiological meeting, microUS scan of the prostate, microUS-MRI fusion biopsy and systematic biopsies. For the purpose of this study we retrospectively selected consecutive patients who had undergone biopsies and radical prostatectomy in our institution from May 2018 till October 2020.

Results

67 patients were included, median age was 64 years (IQR 60 - 68), median PSA 7.8 ng/ml (6 - 12.1) and median prostate volume 36 ml (26 - 55). A median of 16 cores were sampled per patient (13 - 21) with a median number of 6 positive biopsies per patient (4 - 8). Overall, the median total cancer length was 31 mm (17 - 55). After a cross-tabulation between the grade group of biopsies and prostatectomy, we identified 38 (57 %) concordant cases ($p < 0.001$). 18 (27 %) and 11 (16 %) men were upgraded or downgraded, respectively, at final pathology. In 25 of 29 cases (86 %), the grade group migration was related to only one level (e.g. 2 to 3 or viceversa); in four cases there was a two-level grade group migration (two upgrading and two downgrading). Univariate analysis showed no significant predictor of discordance between the biopsies and prostatectomy grade groups.

Conclusion

MicroUS-MRI fusion targeted biopsies combined with systematic sampling can accurately predict final Gleason grade group. While discordance was observed in around one third of the samples, a significant inaccuracy that could have shifted clinical decision making was observed in a minority of patients.

O16

Active Surveillance for localized prostate cancer : significant drop-off and reclassification rate at medium term follow up

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Active surveillance (AS) is an option to manage low risk localised prostate cancer (PC). As yet, validated and universal criteria for inclusion in AS protocols are lacking. The primary outcome of this study is to assess the rate of patients remaining under an AS protocol at our institution. Secondary outcomes include time to progression and reclassification, evaluation of histopathological findings of prostatectomy specimens and drop-off rate.

We reviewed a cohort of patients under an AS protocol in our Prostate Cancer Center, from Jan 2010 until Feb 2021. Patients included in this protocol had, low risk PC defined as in EAU Guidelines, but also the “less-aggressive” intermediate risk profile Gleason 3 + 4 with low % of 4 pattern (under 5%). We retrospectively analysed their PSA evolution, MRI findings and histological progression, as well as changes regarding the disease management (reclassification).

A total of 115 patients were included. The mean age at the time of diagnosis was 63 y (\pm 39-74), the mean PSA was 6,74 ng/ml and the mean following time was 32 (\pm 5 - 111) months. The drop-off rate was 19% (n=22) and happened at a mean time of 28 (\pm 6 - 40) months after inclusion.

Triggered by PSA increase (n=5), local progression on MRI (n=9) or histological progression at biopsy (n=7), reclassification rate was 23% requiring a change in management: of these, 16 underwent radical prostatectomy (RP) and 5 managed by a systemic treatment. Of the RP patients 2 had a biochemical failure, both requiring salvage radiation therapy. Furthermore, 26 of our patients (28%) reached the age limit of 75 y and were switched to a watchful waiting protocol.

For those who underwent radical prostatectomy 75% (n=12) showed a Gleason score progression and a Gleason score of 4 + 3 or higher was found in 31% of the cases. Histological pT3 staging was found in 24% of the operated cases, whereas 1 patient had a positive margin (pT2). The mean tumour volume was 2.66cc which represented 4% (\pm 0,59 to 19) of prostatic volume. The overall survival rate was 99%. The data show an acceptable drop-off rate, so as a significant reclassification rate, stressing the importance of patient compliance and close follow-up. The number of patients with disease recurrence after second intention treatment (2 out of 21) and those that could be switched to a watchful waiting without recurrence is respectively low and high. This witnesses the relevant opportunity to strive to select patients for AS.

O17

Der Einsatz des PSA-Screening im persönlichen Umfeld: Eine Umfrage bei Urolog*innen und Internist*innen in der Schweiz

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Hintergrund und Ziele

Der Nutzen des PSA-Screening (PS) wird kontrovers diskutiert. EAU Leitlinienkonform wird gut aufgeklärten Männern ab 50 Jahren ein PS zur Früherkennung des Prostatakarzinoms angeboten. Hausärzte spielen bei der Implementierung eines solchen Screening-Programms im Gesundheitswesen eine bedeutende und mutmasslich einflussreichere Rolle als Urologen. Ziel der Arbeit war es, mittels einer Umfrage über das PS-Verhalten im persönlichen Umfeld mehr über die Bereitschaft von Urologen*innen und Internist*innen zu erfahren, ein PS anzubieten.

Material und Methoden

SGU- und Schweizerischen Gesellschaft für Allgemeine Innere Medizin (SGAIM)-Mitglieder wurden im August 2020 zur Teilnahme an der Onlineumfrage zum PS-Verhalten bei Ihnen selbst, Brüdern, Vätern und Partnern angefragt und konnten während 6 Wochen die Umfrage beantworten. Die statistische Auswertung der Antworten erfolgte mittels Chi-Quadrat- und gepaarten T-Tests.

Resultate

An der Umfrage nahmen 190/295 (64%) der SGU- und 894/7400 (12%) der SGAIM-Mitglieder mit einem Durchschnittsalter von 55.3 Jahren teil. 276/1084 (31%) waren Ärztinnen. Von den Befragten waren 72 (7%) in einem Universitätsspital, 173 (16%) in einem Kantonsspital und 839 (77%) in einer Praxis tätig. Urolog*innen nahmen öfter ein PS bei ihren Vätern, Brüdern und Partnern (0.43 [95%CI 0.36-0.50] vs. 0.23 [95%CI 0.20-0.26], $p \leq 0.0001$), aber gleich häufig ein Selbst-Screening vor (0.6 [0.53-0.67] vs. 0.56 [0.52-0.60], $p = 0.36$). Beim PS war das eigene Alter sowie das Alter des Bruders unter den Urolog*innen signifikant tiefer (selbst: 47.6 Jahre [46.4-48.8] vs. 53.6 [53.0-54.3], $p \leq 0.0001$; Bruder: 48.4 Jahre [46.0-50.7] vs. 52.4 [50.9-53.8], $p = 0.005$). Eine positive Familienanamnese lag mit 31% am häufigsten vor, wenn die Brüder getestet wurden. In 95% der Fälle wurden Angehörige über Nutzen und Risiken des PS aufgeklärt. PS wurde signifikant häufiger durch Ärzte als Ärztinnen (63.3% vs. 35.9%; $p \leq 0.0001$), und öfter durch Urolog*innen als Internist*innen (Ärztinnen: 81.8% vs. 32.2%, $p \leq 0.0001$; Ärzte: 77.4% vs. 59.5%, $p = 0.001$) durchgeführt.

Schlussfolgerungen

Die urologische Spezialisierung und das männliche Geschlecht gehen mit einer höheren Bereitschaft einher, im persönlichen Umfeld ein PS durchzuführen. Die Gründe hierfür lassen sich demnach nicht alleine auf unterschiedliche Leitlinien hinsichtlich des PS zurückführen und sollten zum besseren Verständnis weiter untersucht werden.

O18

Prostatic Artery Embolisation Versus Transurethral Resection of the Prostate for Benign Prostatic Hyperplasia: 2-yr Outcomes of a Randomised, Open-label, Single-centre Trial

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Background

Prostatic artery embolisation (PAE) for the treatment of lower urinary tract symptoms secondary to benign prostatic obstruction (LUTS/BPO) still remains under investigation. This study compares efficacy and safety of PAE and TURP in the treatment of LUTS/BPO at 2yr of followup.

Material and Methods

A randomised, open-label trial randomized 103 participants aged ≥ 40 yr with refractory LUTS/BPO to PAE or TURP. Outcomes included IPSS and other questionnaires, functional measures, prostate volume, and adverse events. Changes from baseline to 2 yr were tested for differences between the two interventions with standard two-sided tests.

Results

The mean reduction in IPSS after 2 yr was 9.21 points after PAE and 12.09 points after TURP (difference of 2.88 [95% confidence interval 0.04-5.72]; $p = 0.047$). Superiority of TURP was also found for most other patient-reported outcomes except for erectile function. PAE was less effective than TURP regarding the improvement of maximum urinary flow rate (3.9 vs 10.23 ml/s, difference of -6.33 [-10.12 to -2.54]; $p < 0.001$), reduction of postvoid residual urine (62.1 vs 204.0 ml; 141.91 [43.31-240.51]; $p = 0.005$), and reduction of prostate volume (10.66 vs 30.20 ml; 19.54 [7.70-31.38]; $p = 0.005$). Adverse events were less frequent after PAE than after TURP (total occurrence $n = 43$ vs 78, $p = 0.005$). Ten patients (21%) who initially underwent PAE required TURP within 2 yr due to unsatisfying clinical outcomes.

Conclusions

Inferior improvements in LUTS/BPO and a relevant re-treatment rate are found 2 yr after PAE compared with TURP. PAE is associated with fewer complications than TURP. The disadvantages of PAE regarding functional outcomes should be considered for patient selection and counseling.

V01

APPORT DE LA RECONSTRUCTION 3D VISIBLE PATIENT IMPORTEE DANS LA CONSOLE DA VINCI POUR UNE TUMEUR POSTERIEURE DANS UN REIN EN FER A CHEVAL

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Contexte et objectif

Très peu de cas de néphrectomies partielles robot-assistées sur des reins en fer à cheval sont décrits dans la littérature. Nous présentons la situation d'un patient de 48 ans en bonne santé habituelle avec un BMI à 28 chez lequel une tumeur du rein droit de 3,5 cm de diamètre a été mise en évidence fortuitement par échographie dans un rein en fer à cheval.

Matériel et méthodes

Un scanner injecté retrouve la tumeur de la lèvre postérieure du pôle inférieur du rein droit sur un rein en fer à cheval sans aucune composante graisseuse, ni caractéristiques radiologique évoquant une tumeur bénigne de type oncocytaire. L'étude vasculaire au temps artériel confirme le caractère unique de l'artère rénale droite avec des branches de division qui s'insinuent en avant de la tumeur dans le sinus rénal droit.

Pour préciser la stratégie opératoire, une reconstruction 3D avec segmentation des images est effectuée par Visible Patient (www.visiblepatient.com) qui permet de visualiser sélectivement ou simultanément les composantes tumorale, vasculaires, excrétrices, parenchymateuses et osseuses du site opératoire dans un modèle qui peut être orienté et agrandi librement.

Résultats

L'intervention se déroule sans difficulté à l'aide du robot da Vinci XI après avoir séparé les deux reins pour accéder à la face postérieure du rein droit. Un clamage ultrasélectif prend en bloc une artère rénale périphérique et une veine collée à elle issue de la face postérieure de la cave bien visible sur la reconstruction 3D. Sa justesse est confirmée par fluorescence Firefly après injection d'ICG. L'échographie intra-opératoire montrant bien une tumeur encapsulée, l'excision suit le plan de la capsule. Un point en X sélectif sur une artère assure l'hémostase sans recours à une rénorrhaphie. Le pont entre les deux reins est reconstitué avant de repositionner l'angle colique droit. Les suites opératoires sont simples. Il s'agissait d'un oncocytome de 3,5x3x3cm excisé en marges saines.

Conclusion

La néphrectomie partielle dans un rein en fer à cheval nécessite une bonne planification opératoire. La modélisation 3D avec des images importées dans la console du robot associée à l'échographie et la fluorescence intra-opératoires apporte une sécurité supplémentaire dans la dissection.

V02

A simple early incision at the bladder neck facilitates single-lobe Holmium Laser Enucleation of the Prostate (HoLEP): The key-hole technique

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Background

Performance of HoLEP using a single lobe approach with early apical release provides several clear advantages including a single definition of the enucleation plane, improved visibility due to a smaller irrigation cavity and decreased operation time.

However, preparation of the base of the median lobe can be difficult, especially in the presence of a large median lobe protruding underneath the bladder neck. This is especially challenging during the learning curve and, thus, might represent a reason to abstain from a single lobe enucleation.

Materials and Methods

This video is a compilation of real-life cases in which a short early incision at the bladder neck was applied to facilitate the dorsal single-lobe enucleation performed later on (key-hole technique). While the single lobe enucleation with early apical release is demonstrated in general briefly, the main focus is on the difficulties during the dorsal preparation and the advantages provided by the key-hole technique. The operations were performed by surgeons with a wide variety of case numbers.

Results

The key-hole incision is a fast and easy procedure that does not compromise the advantages of single lobe enucleation while simplifying one of the most difficult steps of en-bloc enucleation. Thus, early detection of the key-hole during the dorsal preparation provides a better orientation and might help to prevent complications such as undermining of the bladder neck or damage of the ureteral orifices.

Conclusion

The key-hole technique can be performed with little efforts and facilitates dorsal preparation during single-lobe enucleation of the prostate without compromising the advantages of this technique.

V03

Saphenous sparing ascending video-endoscopic inguinal lymph node dissection (VEILND-AS+) using a leg approach: surgical technique, perioperative and pathological outcomes

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Background

Open inguinal lymph node dissection (oILND) has a high morbidity. Ascending saphenous sparing video-endoscopic inguinal lymph node dissection (VEILND-AS+) represents a minimally invasive alternative with potential benefits.

Objective

To describe our VEILND-AS+ technique and compare outcomes to oILND.

Design, Setting, and Participants: Retrospective cohort study of penile cancer patients.

Surgical Procedure: VEILND-AS+ was performed according to the technique described in the supplementary video.

Outcome measurements and statistical analysis: Comparison of perioperative and pathological outcomes.

Results and limitations

In 206 men we performed 40 VEILND-AS+ and 251 oILND. VEILND-AS+ compared to oILND had a longer operation time (185 vs 120 minutes) but shorter hospital stay (2 vs 4 days). A median of 8 resected lymph nodes with a median of 1 affected node per groin was observed in both groups with extra nodal extension in 30% after VEILND-AS+ and 35% after oILND. Both groups had a median of 13 days of drainage. Wound infections were observed in 38% after VEILND-AS+ and 27% after oILND. Skin necrosis or wound break down occurred in 0% and 6% after VEILND-AS+ and oILND, whilst lymphoceles were drained in 18% and 7% respectively. Following VEILND-AS+ and oILND 20% and 14% were referred to lymph oedema clinic.

Conclusions

VEILND-AS+ is a safe procedure and compared to oILND and offers shorter hospital stay and possibly has a lower risk of skin necrosis or wound break down. Further improvement of the VEILND-AS+ technique is required to decrease complications associated with dead space and injury to lymphatic vessels..

V04

Aquablation of the prostate: A troubleshooting guide to overcome technical difficulties during the learning phase

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Background and objectives

Aquablation is a robotically guided, water jet based prostate resection under transrectal ultrasound control that emerged during the last years and is now recommended by evidence-based guidelines.

Materials and Methods

This video is a compilation of real life cases. It explains the aquablation procedure in general, addresses potential technical difficulties that might arise during the operation and presents solution strategies to overcome these problems.

Results

The aquablation procedure is presented step-by step. Situations that might cause difficulties are emphasized and practical solutions to overcome these difficulties are presented. The presented solution strategies include generation of optimal ultrasound images, optimization of aquablation settings, avoidance of excessive fluffy tissue following aquablation, and optimization of hemostasis.

Conclusion

Although aquablation has been shown to be safe and effective, technical difficulties can arise, especially during the learning curve. These difficulties can be largely resolved by simple and effective measures.

V05

Igloo-technique for robot-assisted radical prostatovesiculectomy (RARP): maximum nerve sparing for early recovery of continence and sexual function

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Introduction

Preservation of the anatomical suspension of the prostate including the neurovascular structures might accelerate early continence and erectile function rates. Here we present a complete circumferential intrafascial dissection technique with a single lateral approach in RARP for low-risk prostate cancer: the Igloo-technique.

Methods

Operation was standardized into 10 steps

1. Exposition of right lateral prostate
2. Incision of endo-/periprostatic fascia
3. Mobilization of right neurovascular bundle
4. Dissection of seminal vesicles and dorsal prostate plane
5. Dissection of bladder neck
6. Mobilization of left neurovascular bundle
7. Mobilization of dorsal venous complex
8. Dissection of apex
9. Vesico-urethral-anastomosis
10. Closure of endopelvic fascia

Results

10 patients underwent Igloo-technique since March 2020. Median operation time was 197min [160-316min]. Transurethral catheter was removed in median at 3rd [3-11d] postoperative day (POD). Postoperative histology showed pT2a (n=2), pT2c (n=6), pT3a (n=1), pT3b (n=1). Low and intermediate risk Gleason scores were confirmed in 9 of 10 patients. In 2 cases positive surgical margins (0,5-2mm, Gleason 3) were found. Early continence was evaluated using pad tests. In the first 24h after catheter removal the median loss was 5,5g/24h [0-25g/24h]. At 10th POD and 12 weeks control dry pads were reported. 12 weeks postoperatively a median IIEF-15 of 52,5 points [27-65] was achieved using PDE-5-inhibitors.

Conclusion

The Igloo-technique as a complete circumferential nerve sparing with a single lateral approach is feasible, safe but technically demanding. Excellent early continence and midterm erectile function can be achieved. Nevertheless, the Igloo-technique is only to be used for patients with low-risk-profile cancer.

V06

Extraperitoneal Extravesical Robotic-Assisted Simple Prostatectomy (EE-RASP) with vesico-urethral anastomosis excluding the prostatic fossa: a new operative technique to treat large adenomas

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Introduction

Robotic assisted prostate adenomectomy (RASP) was first demonstrated by John et al. 2007 at the AUA 2007, followed by Sotelo et al. 2008). Meanwhile simple robotic prostatectomy has been modified using different techniques.

We propose a new operative technique with extraperitoneal approach, extravesical prostate adenomectomy and reconstruction of the prostatic urethra by running suture of the bladder neck with the intraprostatic urethra (EE-RASP), that has become our preferred approach in the routine for large prostate adenomas.

Surgical techniques

Standardized extraperitoneal access is performed with balloon dilatation and placement of a 4-arm daVinci Xi® System under visual control. The bladder neck and the proximal prostatic urethra are prepared and dissected.

The enucleation of the prostate gland is performed with blunt dissection followed. Thereafter, the urethral tract is reconstructed by direct continuous double armed suture 4-0 Stratafix® according to van Velthoven of the bladder neck with the intraprostatic urethral stump - thereby excluding the prostatic fossa totally. The prostate capsule is adapted onto the ventral bladder wall. Suprapubic and transurethral catheters are placed.

Results

We performed EE-RASP in 25 patients with a median age of 72 and a prostate size of 120 ml. The operative time of 175 min was observed (skin-skin) with a blood loss of 200 ml. The median preoperative residual urine and Qmax were 125 ml and 6.7 ml/sec respectively compared to postoperative 0 ml and 19 ml/sec. respectively. The hospital stay was 3 days, the transurethral catheter was removed on the first postoperative day, the suprapubic catheter on the eighth. Two patients presented initially an anastomotic leak. Two patients showed a urinary tract infection postoperatively. Two months after the operation, no incontinence-pads were used. The trifecta rate in our population was 72%.

Conclusion

The EE-RASP with vesico-urethral anastomosis is a minimal invasive technique with low complication rate and good functional outcome. The reconstruction of the prostatic urethra, thus excluding the prostatic fossa completely, prevents postoperative complications from the prostatic fossa as postoperative prostate fossa bleeding, urgency, frequency, bladder neck and urethral strictures. In plus, even transurethral irrigation has become obsolete.

EE-RASP has become our preferred operative method to treat large adenomas.

P01

Comparaison de l'utilité des biopsies prostatiques randomisées lors de biopsies ciblées entre abord transrectales versus périnéales

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Contexte

Le progrès de l'IRM prostatique associé à la biopsie ciblée par la fusion des images et le guidage échographique améliore la précision de la détection des adénocarcinomes prostatiques (CaP). A l'heure actuelle, les biopsies randomisées sont toujours recommandées en association aux biopsies ciblées pour détecter les CaP cliniquement significatifs (CS). Notre étude compare l'utilité des biopsies randomisées entre biopsies transrectales et transpérinéales.

Matériel et méthode

Recueil de données de 272 patients sur le registre prospectif biopsiés entre 2021 et 2014 dans notre centre hospitalier (plateforme Koelis). Un abord transrectal puis, depuis mai 2020, périnéal a été utilisé. Exclusion des patients (n = 10) n'ayant pas bénéficié de biopsies à la fois randomisées et ciblées. Une tumeur Gleason 3 + 3 = 6 est considérée comme cliniquement non-significative.

Résultats

L'âge moyen est de 64 ans (64 pour les transrectales, 65 pour les périnéales). Le PSA moyen est 9,0 ug / L (9,1 ug / L pour les transrectales, 8,8 ug / L pour les périnéales) et le volume prostatique moyen est de 51mL dans les deux groupes. Le nombre moyen de cibles est de 2 dans les deux groupes.

201 biopsies ont été effectuées par voie transrectale et 61 par abord périnéal.

Sur 262 biopsies effectuées, 145 (55%) identifiaient un adénocarcinome prostatique (108 par abord transrectal, 37 par abord périnéal).

Transrectales

Parmi les 108 biopsies transrectales positives, 55 patients (51%) présentaient un CaP CS.

Parmi ces 55 CaP CS, 84% ont été identifiés sur les biopsies randomisées et 85% sur les ciblées. Aucune des deux méthodes n'est supérieur à l'autre.

Périnéales

Parmi les 37 biopsies périnéales positives, 18 patients (49%) présentaient un CaP CS.

Parmi ces 18 adénocarcinomes significatifs, 9 ont été identifiés sur les biopsies randomisées et 16 sur les ciblées. Ainsi, 2 sur 18 (11%) CaP CS n'ont pas été diagnostiquées sur les biopsies exclusivement ciblées et 9 sur 18 (50%) sur les randomisées.

Conclusion

Les résultats montrent un taux de détection global de CaP CS similaire selon l'abord utilisé. Bien que la valeur ajoutée des biopsies ciblées améliore la détection des CaP non-significatifs par abord périnéal, l'utilisation de biopsies systématiques reste nécessaire dans la détection de CaP CS dans les biopsies périnéales (malgré une diminution de la détection des CaP CS).

P02

Clinical benefit of a high concordance between transperineal targeted plus systematic mapping biopsies and radical prostatectomy

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Accurate diagnosis in men with suspected prostate cancer (PC) is essential when several alternative treatment options to radical prostatectomy (RP) such as active surveillance, brachytherapy, radiotherapy, and focal treatment are available. The selection of treatment options heavily depends on the accuracy of tissue sampling during prostate biopsy. However, the concordance of ultrasound guided systematic transrectal prostate biopsy (SB) and RP specimens is limited. To improve the diagnostic accuracy of biopsy results, multiparametric MRI (mpMRI) of the prostate followed by transperineal targeted biopsies (TB) using MRI ultrasound scanning fusion with additional systematic mapping biopsies (SMB) is increasingly used to obtain tissue from men with suspected prostate cancer. The aim of our study was to quantify the concordance between mpMRI-TB-SMB and RP in patients undergoing RP for PC.

Patients undergoing RP for ISUP 2-5 PC in a tertiary referral center were included in this retrospective analysis. Whereas SB included systemic biopsies of 12 predefined regions in the prostate, mpMRI-TB-SMB was performed by taking biopsy cores from 20 predefined regions of the prostate and from MRI-suspicious lesions after fusion. Concordance was descriptively assessed by confusion matrices.

We identified a cohort of 873 patients of which 530 (60.7%) underwent SB while 343 (39.3%) received mpMRI-TB-SMB. In men with biopsy proven ISUP 2 PC, upgrade to ISUP 3-5 using mpMRI-TB-SMB compared to SB decreased from 35.2% to 28.2% and downgrade to ISUP 1 decreased from 3.5% to 0%. In men with ISUP 2-3 PC, upgrade to ISUP 4-5 decreased from 14.4% to 5.4% and downgrade to ISUP 1 decreased from 2.7% to 0%.

The improved concordance between mpMRI-TB-SMB and RP compared to SB and RP offers patients more accurate treatment allocation and may improve outcomes.

P03

Tranperineal vs transrectal micro-ultrasound and mpMRI targeted prostate biopsies: propensity score-matched study

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Aim and objectives

Micro-ultrasound (micro-US) is a novel precise US-based imaging modality that allows real-time targeted prostate biopsies with mpMRI fusion. Its high resolution relying on a 29 MHz transducer allows real-time visualisation of prostate cancer lesions. Micro-US integrate a transperineal and a transrectal hardware which allows the operator to tailor the biopsy approach to each patient. We aimed to compare cancer detection rates in patients who underwent transrectal (TRUS-PB) versus transperineal MRI fusion guided micro-ultrasound biopsy (TPB).

Methods

Out of 322 biopsy procedures, 56 TRUS-PB and 266 TPB were carried-out. All prostate biopsies were performed using high resolution ExactVu™ system with mpMRI image fusion. Systematic biopsies were performed in addition to targeted biopsy in both modalities. 1:2 propensity score match-pairing was performed prior to statistical comparison. Men with anterior lesions were excluded as it has already been shown that in this subgroup TPB perform better than TRUS-PB. Clinically significant disease (csPCa) was defined as Gleason pattern 4 or higher. Potential predictors for detection of csPCa were analysed by univariable and multivariable logistic regression. Detection rate of csPCa according to micro-US findings was also evaluated.

Results

47 men undergoing TRUS-PB and 88 undergoing TPB were matched in terms of age, PSA, clinical stage, mpMRI score, number of mpMRI visible lesions, prostate volume, and indication to biopsy. The detection of csPCa was not different between two groups (44% TPB vs. 43% TRUS-PB, $p = 0.8$). There was no statistically significant difference in likelihood to detect any PCa as well (55% TPB vs 57% TRUS-PB $p = 0.7$). Both approaches were equal in csPCa detection rates in targeted biopsies only (31% TPB vs 28% TRUS-PB, $p = 0.6$). Micro-US detected non-MR visible csPCa and insignificant disease in 13 (10%) and 12 (9%) men, respectively. In univariable analysis age, prostate volume and previous biopsy status were all associated with csPCa. In multivariate analysis only age and prostate volume remained independent predictors.

Conclusions

In our initial experience, the detection rate of csPCa was high at 55-57% regardless the biopsy approach. TRUS-PB seems to be as precise as TPB, at least in sampling posterior areas. These findings might be related to the high resolution of micro-US allowing real-time visualisation of regions of interest and/or to the selected study population.

P04

Robotic assisted MRI-US fusion guided target saturation biopsy of the prostate – diagnostic accuracy and clinical implications

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Purpose

MRI-targeted prostate biopsy improves detection of clinically significant prostate cancer (PCa) and reduces over-detection of clinically insignificant cancer. However, up to 70% of PCa lesions display intralesional tumor heterogeneity. Current target sampling strategies do not yet adequately account for this finding.

Methods

This prospective study included 88 patients who underwent transperineal robotic assisted biopsy of the prostate at the University Hospital Basel between January 2020 and 2021. We identified a total of 47 PCa-positive PI-RADS lesions. We compared diagnostic accuracy of a target-saturation biopsy strategy to the accuracy of single, two, or three targeted biopsies, respectively, and analyzed potential clinical implications.

Results

Intralesional detection of clinically significant cancer (ISUP ≥ 2) was 78.9% (30/38) for target-saturation biopsy and 28.9% (11/38), 39.5% (15/38), and 50% (19/38) for one, two, and three targeted cores, respectively. Target-saturation biopsies led to a significantly more accurate characterization of PCa in terms of Gleason score and significantly reduced rates of missed cancer ($p < 0.05$). Compared to one, two, and three targeted biopsies, target-saturation biopsies led to intensified staging procedures in 11 (28.9%), 9 (23.7%), and 7 (18.4%) patients, and ultimately to a potential change in therapy in 19 (50%), 15 (39.5%), and 11 (28.9%) patients, respectively.

Conclusion

This work presents the concept of robotic-assisted target saturation biopsy. The robotic assisted technique enables high precision biopsy and target saturation sampling provides representative diagnostic coverage of lesions. This technique has the potential to improve diagnostic accuracy and thus individual staging procedures and treatment decisions.

P05

Accompanying the prostate cancer patient pathway: evaluation of novel clinical decision support software

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Introduction

Physicians spend more than half of their workday interacting with health information systems to care for their patients. Effective data management that provides physicians with comprehensive patient information from various information systems is required to ensure the future quality of clinical decision making.

Objectives

We evaluated the impact of a novel, CE-certified clinical decision support tool on physician's effectiveness and satisfaction in the clinical decision-making process.

Methods

Using pre-therapeutic prostate cancer management as a use case, we compared physician's expenditure of time, data quality, and user satisfaction in the decision-making process comparing the current standard with the software. Ten urologists from our department conducted the diagnostic work-up to the treatment decision for a total of 10 patients using both approaches.

Results

A significant reduction in the physician's expenditure of time for the decision making process by - 59.9 % ($p < 0,001$) was found using the software. System usage showed a high positive effect on evaluated data quality parameters completeness (Cohen's d of 2.36), format (6.15), understandability (2.64), as well as user satisfaction (4.94).

Conclusion

The software demonstrated that effective data management can improve physician's effectiveness and satisfaction in the clinical decision-making process. Further development is needed to map more complex patient pathways, such as the follow-up treatment of prostate cancer.

P06

Diagnostic accuracy of PSMA-PET-CT for pelvic lymph node staging in men with prostate cancer undergoing radical prostatectomy and pelvic lymph node dissection

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Introduction & Objectives

In men with newly diagnosed prostate cancer only limited data describes the diagnostic accuracy of PSMA PET/CT as a staging tool. Most series only compared PSMA PET/CT with conventional imaging but rarely with endpoints including histopathology and clinical follow-up. In this retrospective cohort study, we assessed the diagnostic accuracy of PSMA-PET-CT before radical prostatectomy (RPE).

Materials & Methods

Men treated with RPE and pelvic lymph node dissection (PLND) with preoperative 68Ga-PSMA-11-PET/CT and no visible PSMA bone lesions were reviewed. The composite endpoint was defined as either any histologically confirmed lymph node involvement in the PLND specimen (pN1), elevated/recurring PSA, or further cancer treatment after RPE. Diagnostic accuracy was determined by 2x2 tables in a per patient analysis.

Results

Of 150 men with a median age of 66 years and a median preoperative PSA of 8.8 ng/ml, 61 (41%) had a biopsy proven Gleason Score of 7 and 89 (59%) a Gleason Score of 8-10. A median of 22 [IQR 17-28] lymph nodes were resected and pN1 was detected in 39 men (26%). Elevated/recurring PSA was observed in 46 (31%) men after a median follow-up of 1 year. The composite endpoint being pN1 or elevated/recurring PSA was observed in 56 (37%) men. The sensitivity and specificity of PSMA-PET-CT were 0.27 (95%CI 0.16-0.40) and 0.97 (95%CI 0.91-0.99). In this cohort this diagnostic accuracy resulted in a positive and negative predictive value 0.83 (95% CI 0.59-0.96) and 0.69 (95% CI 0.60-0.77). In the 18 men with positive pelvic lymph nodes on PSMA-PET-CT and a median follow-up time of 7.5 months (IQR 3-16), 14 showed pN1 disease, 1 pN0 with a biochemical recurrence and 3 pN0 without biochemical recurrence.

Conclusions

Our data suggests that in men with intermediate and high-risk prostate cancer staged with PSMA-PET-CT before RPE, 1 out of 5 men with PSMA-PET-CT suspicious nodes may finally be staged as pN0 and does not need further treatment at least during short-term follow-up. Similarly, a negative PSMA-PET-CT does not rule out LNI as 1 out of 3 men with a negative scan had pN1 disease or needed further treatment. In conclusion, men with positive lymph nodes on PSMA-PET-CT should not be withheld curative treatment and further studies should use strong endpoints including histopathology and clinical follow-up.

P07

Focal transperineal laser ablation (TPLA) treatment of localized prostate cancer: short-term functional outcomes and toxicity

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Introduction and Objective

Standard radical therapy of localized prostate cancer (PCa) has a high risk of side effects, such as incontinence and erectile dysfunction. As an alternative, several focal ablative techniques are under investigation. SoracteLite™ TPLA is such a novel minimal invasive treatment that is expected to result into reduced side effects with an acceptable toxicity profile. In order to evaluate if TPLA preserves urinary and sexual function with low toxicity we analyzed prospectively collected data on patients with localized PCa that opted for TPLA. We analyzed short-term functional outcomes and the toxicity profile after TPLA.

Methods

SoracteLite™ TPLA was performed in 60 patients with localized disease from May 2018 until February 2021, of which 6-months follow-up data was available of 44 patients (treatment naïve n=31, salvage TPLA n=13). TPLA was performed using a one- or multi-laser fiber configuration at 3W or 5W, dependent on PCa distribution on MRI and biopsies. TPLA procedures were conducted under continuous ultrasound guidance using the Echolaser device and general anesthesia (n=41) or local anesthesia and sedoanalgesia (n=3). Functional outcomes (Qmax, IIEF-5, IPSS and QoL) and toxicity (adverse events) until 6-months follow-up were compared with baseline.

Results

Median patient age was 70.5 years, and median prostate-specific antigen (PSA) was 6.2 (IQR 4.94) ng/mL. Gleason score was 3+3=6 in 16 (36.4%), 3+4=7 in 23 (52.3%), 4+3=7 in 4 (9.1%) and 4+4=8 in 1 (2.2%) patient(s). Tumor stage was T1c in 37 (86%) and T2a in 6 (14%) patients. No adverse events were reported until 6 months follow-up (n=44). There were no significant differences between baseline and 6 months follow-up regarding urinary and sexual function (figure 1).

Conclusions

These results show that TPLA is a safe minimal invasive focal treatment of localized PCa that preserves urinary and sexual function with no toxicity, oncological outcome has to be awaited.

Source of Funding: None to declare.

P08

Analysis of tumor foci in HIFU-eligible patients undergoing radical prostatectomy

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Aim

The aim of this study was to characterize tumor foci in patients that were eligible for focal therapy for prostate cancer but ultimately underwent radical prostatectomy.

Patients and methods

Identification of patients eligible for focal therapy from a prospectively held radical prostatectomy database within a certified cancer center. Patients underwent targeted and systematic biopsies after a previous mpMRI (median no. of cylinders: 12). MRIs were read by dedicated uro-radiologists. Inclusion criteria were: PSA < 15, ISUP grade 1-3, tumor stage cT1-T2b cN0 cM0 on DRE, unilateral disease not involving the apex at biopsies. Tumor locations were categorized as apical, mid and basal left or right. Concordance between biopsy and MRI localization was verified. In order to avoid overestimating residual cancer after therapy, we hypothesized the use of hemiablation protocols.

Patients were operated between 2013 and 2021. Two dedicated uro-pathologists performed histologic analysis with whole mount sections followed by computer-based, volumetric analysis of the prostate and tumor foci. Significant disease was defined according to Stamey.

Results

Of 541 screened patients, 61 meet the inclusion criteria. Median age was 64, median PSA 6,68. Thirty-eight patients (62%) had cT1 disease, 18 (30%) cT2a and 4 (7%) cT2b. ISUP grades were 1 on 21 biopsy sets (34%), 2 in 28 (46%) and 3 in 12 (20%).

Side concordance between MRI and biopsies was found in 35 of 61 patients (57%). Of these, contralateral disease (initially neither detected on MRI or biopsies) was found in 29 (82%). It was significant in 17 (59%). Capsular penetration was seen in six (21%).

9 patients (25%) had neither significant contralateral disease, nor capsular penetration. Tumor involvement of the apex was found in 5 of them. At least in 2, this (potentially undertreated) apical disease was significant.

Generally, in the 61 radical prostatectomy specimens, capsular penetration was seen in 16 (26%): 12 with pT3a (20%) and 4 stage pT3b (6%). ISUP grade 4 was found in 5 (8%) patients, grade 5 in one (2%).

Interestingly, results did not significantly change with more restrictive HIFU inclusion criteria (PSA < 10 ug/l; ISUP 1-2).

Discussion

In this cohort considering hemiablation, more than a half of the patients would have had significant residual tumors. These results underline the need for precise upfront staging, potentially by saturation biopsies, and close follow-up after treatment.

P09

3D Magnetic Resonance Imaging–based Printed Models of Prostate before and after focal therapy

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In this prospective single-center feasibility study, we demonstrate that the use of three-dimensional (3D)-printed prostate models in minimal invasive focal therapy is useful to explain the therapy to patients and to help the surgeon in the planification and in the survey. The model was based in a 67years old patient with an intermediate-risk prostate cancer (Gleason 3+4). The patient-specific 3D resin models were printed based on preoperative multiparametric magnetic resonance imaging (mpMRI) to provide an exact 3D impression of significant tumor lesions. Focal Laser Therapy were planned based on the MRI and the software Dynacad. The 36-region Prostate Imaging Reporting and Data System (PI-RADS) v2.0 scheme was used to compare the MRI/3D print. We use a T2 vista axial 1mm slices sequences DICOM to segment the prostate, the tumor and the necrose vacuolization.

The different anatomic structures (bladder, seminal vesicle, tumor and urethra) were modeled and segmented with the software Mimics Medical 23.0 from Materialise (<https://www.materialise.com/en/medical/mimics-innovation-suite/23>). The material used was a photosensible resin polymerized with a UV laser. The printing cycle were prepared with the software Preform from Formlabs . The orientation of the model and the position in the support is important in order to obtain the same geometrie from the original.

Three 3D models prototype was printed in order to demonstrate the evolution of the treatment. All these three prototype based on MRI. First prototype demonstrates the prostate with the suspicious lesion targeted. Then the second prototype was the 10 days control after focal therapy with the vacuolization zone of necrosis and the third prototype is the control 1 year after focal therapy. Localization of the index lesion was correctly displayed by MRI and the 3D model. In addition, a significant correlation of the width, length, and volume of the tumor and prostate gland, derived from the printed model was also concordant

In conclusion, the use of three-dimensional (3D)-printed prostate models based on preoperative magnetic resonance imaging (MRI) may improve the comprehension of the patient in the focal therapy with an individual planification of the treatment, providing better orientation guide to help urologist and radiologist.

P10

A new model for prediction of high-risk features among unfavorable intermediate risk prostate cancer patients

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Background

High risk criteria (pT3-4 / pN1 stage and / or GGG IV - V) will be present in some unfavorable intermediate risk prostate cancer (UIR PCa) patients. These individuals should be prioritized for definitive therapy. We attempted to identify them.

Methods

A total of 2,024 UIR PCa patients treated with radical prostatectomy were abstracted from an institutional database (2000 - 2018) . Multivariable logistic regression models predicting high risk criteria (pT3-4 / pN1 stage and/or GGG IV - V) in IR PCa were developed, validated and directly compared with NCCN IR PCa stratification.

Results

All 2,024 patients were randomly divided between development (n=1,012, 50.0 %) and validation cohorts (n=1,012, 50.0 %) The development cohort was used to fit a new model (PSA level, clinical T stage, biopsy Gleason Grade Group (GGG), cumulative tumor length in available biopsy cores [all p < 0.001]) to predict high-risk criteria according to RP pathology, using. At RP, the rates of pT3-4/pN1, GGG IV-V and of both were 52.2, 3.7 and 55.9 %, respectively. Within the validation cohort, the new model outperformed any combination of NCCN UIR PCa criteria in accuracy (70.1 vs 63.0 %), calibration and decision curve analyses. The new model derived probability cutoff of 50.0% for presence of pT3-4/pN1/GGG IV-V identified 317 (31.1%) of 1,012 patients, in whom the rate of pT3-4 / pN1 / GGG IV - V was 65.9%, instead of average 44.6%.

Conclusions

The new tool can identify individuals at higher than average risk of non-organ confined prostate cancer and/or highly aggressive grade in unfavorable intermediate risk PCa patients.

P11

Prognostic value of pretreatment inflammatory markers in men with localised prostate cancer undergoing radical prostatectomy

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Introduction

Over the past decades, there is growing evidence of an association between inflammatory processes and cancer development and cancer progression. In different solid tumor entities, a pronounced inflammatory response is associated with worse oncological outcome. Elevated neutrophil count, neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR) and C-reactive-protein (CRP) are indicators of inflammation.

Known risk factors for biochemical recurrence (BCR) include level of pretreatment Prostate Specific Antigen (PSA), tumor stage, Gleason Score, and positive surgical margin (PSM) status.

Aim: In this study, we aim to evaluate the prognostic role of pretreatment neutrophil count, NLR, PLR and CRP in patients with localised prostate cancer (PCa) who undergo radical prostatectomy (RP).

Methods

A total of 641 men with localised PCa treated with RP at the Zurich University Hospital met our inclusion criteria and were followed prospectively. Pre- and postoperative clinicopathological features, history of BCR and treatment were recorded. Univariable logistic regression analysis and univariable Cox regression analysis were performed to analyze an association between preoperative inflammatory markers (neutrophil count, NLR, PLR and CRP) and tumor characteristics as well as biochemical recurrence free survival (BRFS).

Results

Median age at date of radical prostatectomy was 64 years. Gleason Score 7a was the most prevalent histology of PCa and was present in 41.0% whereas high-risk PCa (\geq Gleason Score 8) was present in 24.3%. Lympho-nodal metastasis and PSM were detected in 10.8% and 28.1%, respectively. No statistically relevant association could be shown between pretreatment inflammatory markers with worse pathological features like higher tumor stage, higher tumor grade, nodal positive disease or PSM (for all $p > 0.05$). Additionally, pretreatment inflammatory markers were not associated with a shorter BRFS ($p > 0.05$). Known risk factors (tumor grade, tumor stage, nodal positivity and positive surgical margins) were all associated with a shorter BRFS in univariable analysis (for all $p < 0.0001$).

Conclusion

Preoperative inflammatory markers were not associated with worse clinicopathological features or tumor recurrence in patients with localised PCa treated with RP. According to this large cohort, pretreatment inflammatory markers are of no clinical relevance in localised PCa. This might be different in more advanced or metastatic PCa patients.

P12

Medium term outcomes of modern active surveillance in men with low to intermediate risk prostate cancer

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Purpose

Although mpMRI and targeted biopsy are part of modern active surveillance protocols, there is a lack of reported long term outcomes with this approach. Our aim was to evaluate the clinical outcomes and potential predictors of active treatment for men with low to favorable intermediate risk prostate cancer managed within a standardized modern active surveillance protocol.

Materials and Methods

Retrospective study of men with low to intermediate risk prostate cancer followed by active surveillance from October 2008 to March 2021. Baseline assessment included mpMRI, extended systematic biopsy and MR-targeted biopsy in case of a visible lesion/s. Follow-up included biannual PSA check, mpMRI and control biopsy once a year for the first two years, afterwards mpMRI every two years with additional tests as clinically indicated. Potential predictors of active treatment were analyzed using univariate and multivariable Cox proportional hazards regression analysis. Statistical significance was set at a p value of < 0.05.

Results

164 patients were included. Median age was 70 (IQR 64-75) years, median PSA was 5.8 ng/ml (IQR 4.5-8.6 ng/ml). At baseline, a median of 2 (IQR 1-3) cores were positive out of 12 (IQR 12-16) cores; 68 men (45%) had visible PIRADS 4-5 lesions. Eleven men (8%) had Gleason score 3+4 at baseline biopsy while 153 (92%) had Gleason score 3+3. After a median follow-up of 50 months (IQR 28-82), 43 (26%) patients underwent active treatment with a median time in active surveillance of 43 months (19-72). Among treated patients, 21 (48%) had radical prostatectomy, 17 (40%) radiotherapy and 5 (12%) patients underwent focal treatment. No patient undergoing active treatment had a recurrence during the follow-up. Overall survival was 99% while cancer specific and metastasis free survival was 100% in our cohort. At univariate analysis PIRADS score (1-3 vs. 4-5), number of visible PIRADS 4-5 mpMRI lesions and Gleason score (3+3 vs. 3+4) seemed relevant predictors of transition to active treatment. In the multivariate analysis, only PIRADS score 4-5 and Gleason score 3+4 remained independent predictors for transition to active treatment.

Conclusions

Our data show that active surveillance in men with low to favorable intermediate risk prostate cancer seems to be safe mid-term. Higher Gleason and PIRADS scores are independent predictors for transition to active treatment.

P13

COMPARISON OF SALVAGE RADIATION THERAPY DELIVERED FOR PSA PERSISTENCE VERSUS PSA RELAPSE AFTER RADICAL PROSTATECTOMY: HOW IS THE OUTCOME CHANGING?

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Introduction & Objectives

It remains unclear whether the outcomes of SRT are similar when delivered to patients with PSA persistence compared to patients with undetectable PSA and subsequent relapse. As such, we aimed at assessing the outcomes of SRT in these two patient categories using a large multi-institutional series.

Materials & Methods

We identified 1536 patients who received local radiation to the prostatic and seminal vesicle bed at seven tertiary referral centres. Patients received SRT for either PSA persistence (Group 1: n=390; 25%) or PSA relapse (Group 2: n=1146; 75%) after RP. The use of concomitant hormonal therapy (HT), RT dose, and radiation field were left at the discretion of the treating physician. The outcome consisted of clinical recurrence (CR) after SRT identified by imaging. Multivariable Cox regression analyses tested the association between groups and CR. Covariates consisted of pT stage, pathological Gleason grade group, PSA level at SRT, field of radiation, and use of concomitant HT.

Results

At a median follow-up of 56 months, CR was detected in 69 (18%) and 148 (13%) patients in group 1 and 2, respectively. Kaplan-Meier analysis depicted 5-yr CR-free survival of 88% and 93%, respectively (p=0.056). At multivariable analysis, men with persistently elevated PSA did not show a significantly higher risk of CR compared to patients treated for PSA relapse (HR: 0.97, p=0.8). The interaction test for the hypothesis that risk of CR varied significantly by groups according to patient risk profile was not significant (p=0.7), suggesting that PSA persistence did not affect the risk of progression after SRT regardless of patient characteristics. These results were confirmed when only patients treated with early SRT (PSA level ≤0.5 ng/ml) were included.

Conclusions

In this large multi-institutional series of patients treated with SRT, we did not observe significantly different outcomes between patients treated for PSA persistence compared to those treated for PSA relapse. The combination of early timing of SRT, use of proper dose and field of radiation, and optimal duration of concomitant HT may lead to similar cancer control between patients with PSA persistence and patients with PSA relapse after achieving an undetectable PSA.

P14

Improved Radionuclide Therapy of Prostate Cancer - Preclinical Comparison of the Albumin-Binding [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA to [¹⁷⁷Lu]Lu-PSMA-617

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Background and Aims

Among a new class of PSMA-targeting radioligands comprising ibuprofen as an albumin-binding entity, [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA was identified as the most promising candidate due to its high tumor accumulation (1). In this preclinical study, the in vivo therapeutic efficacy of [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA was investigated and compared to [¹⁷⁷Lu]Lu-PSMA-617, which is currently in Phase III clinical trials (VISION, NCT03511664).

Materials and Methods

Preclinical therapy studies were conducted with athymic nude mice bearing PSMA-expressing PC-3 PIP tumor xenografts. Seven groups of mice (n = 6 – 12) were injected with [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA or [¹⁷⁷Lu]Lu-PSMA-617 at an activity of 2 MBq, 5 MBq or 10 MBq per mouse or only saline. The tumor sizes and body weights were monitored every second day over 3 months. Potential early side effects were assessed in a separate experiment in mice without tumors, 10 days or 28 days after the injection of 10 MBq [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA or [¹⁷⁷Lu]Lu-PSMA-617. Several biochemical blood plasma parameters, indicative for hepatic and renal function, were compared with those obtained from untreated control mice. Tissue sections of paraffin-embedded kidneys, bone marrow and spleen were (patho)histologically investigated.

Results

At all investigated activity levels, [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA was more effective to treat tumours than [¹⁷⁷Lu]Lu-PSMA-617. The median survival time of mice treated with 2 MBq [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA or [¹⁷⁷Lu]Lu-PSMA-617 was 34 days and 19 days, respectively. The majority of mice (8/12 and 5/6, respectively) treated with 5 MBq or 10 MBq [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA were still alive at study end (Day 84). In contrast, mice treated with 5 MBq or 10 MBq [¹⁷⁷Lu]Lu-PSMA-617 had a median survival time of 32 days and 51 days, respectively. Even the highest activity (10 MBq/mouse) of either radioligand did not affect blood plasma parameters investigated 10 days or 28 days after treatment. No histological abnormalities were observed in radiosensitive tissue (kidneys, bone marrow and spleen) of treated mice relative to untreated controls.

Conclusions

Our data revealed a significantly increased therapeutic efficacy of [¹⁷⁷Lu]Lu-Ibu-DAB-PSMA compared to [¹⁷⁷Lu]Lu-PSMA-617 when applied at the same activity while early side effects were not observed. These exciting results open new perspectives for the treatment of prostate cancer patients with this novel radioligand.

P15

THE KEY ROLE OF PSA DOUBLING TIME FOR PATIENTS WITH RECURRENT PROSTATE CANCER AFTER SURGERY: IMPLICATIONS FOR SALVAGE RADIATION THERAPY ADMINISTRATION

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Introduction & Objectives

Salvage radiation therapy (SRT) represents a curative treatment option for patients with prostate-specific antigen (PSA) relapse after radical prostatectomy (RP). However, a clear consensus regarding the clinical target volume has not been achieved yet. Moreover, the oncological profile of patients affected by PSA relapse is highly heterogeneous, and the addition of concomitant hormonal therapy (HT) may be spared to patients with less aggressive disease. As such we aimed at assessing the role of PSA doubling time (PSADT) to identify patients who would benefit from the addition of concomitant HT and extended field to SRT.

Materials & Methods

The study included 477 patients who received SRT at five tertiary referral centres for either PSA rising (n=418; 88%) or PSA persistence (n=59; 12%) after RP. All patients received local radiation to the prostatic and seminal vesicle bed (PF). Concomitant HT administration and the irradiation of the pelvic lymph nodes area (WPRT) were left at the discretion of the treating physician. The outcome consisted of clinical recurrence (CR) after SRT identified by imaging. Multivariable Cox regression analysis was used to predict CR. Predictors consisted of PSA level at SRT, pT stage, pathological Gleason score, and PSADT.

Results

Median PSADT was 8 (IQR: 4, 16) months. Concomitant HT was administered to 222 (47%) patients for a median duration of 6 (IQR: 6, 17) months. Radiation field consisted of PF in 366 (77%) patients, whereas the remaining 111 (23%) received WPRT. At a median follow-up of 113 months, 80 (17%) patients developed CR. At multivariable analysis, PSA level (HR: 1.29; p=0.001), pT3b/pT4 stage (HR: 5.00; p < 0.001), pathologic Gleason ≥ 8 (HR: 4.21; p < 0.001), and PSADT (HR: 0.98; p=0.026) were significant predictor of CR. The benefit of concomitant HT and WPRT became significant when PSADT was < 6 months (p < 0.001 by an interaction test). In particular, the use of concomitant HT (Figure 1A) and WPRT (Figure 1B) reduced the risk of CR at 8 years from 25% to 17% in patients with a PSADT < 6 months. On the contrary, this effect was not significant in patients with longer PSADT.

Conclusions

PSADT was a significant predictor of CR after SRT. In this large multi-institutional series, the threshold of 6 months was the optimal cut-off to identify patients who benefit from concomitant HT and WPRT.

P16

EVOLUTION DES INDICATIONS OPERATOIRES ET DES RESULTATS DE LA PROSTECTOMIE RADICALE ROBOT-ASSISTEE SUR 15 ANS : ETUDE D'UNE COHORTE PERSONNELLE DE 1054 PATIENTS ENTRE 2005 ET 2019

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Contexte et objectif

Au fil des années, la prostatectomie radicale robot-assistée (PR) a pu démontrer sa validité. Parallèlement, l'avènement de l'IRM multiparamétrique, de la surveillance active et des traitements focaux ont modifié le profil de nos patients. Nous voulons étudier le changement de la sélection des patients et son influence sur nos résultats oncologiques.

Matériel et méthodes

Registre de tous les patients consécutifs opéré par un des auteurs (CHR) à la Clinique Générale-Beaulieu à l'aide du système da Vinci entre 2005 et 2019. Documentation prospective des caractéristiques démographiques, oncologiques et fonctionnelles pertinentes. Analyse par période de 5 ans par un biostatisticien (RS) travaillant dans un registre des tumeurs.

Résultats

De 2005 à 2019, on observe sur les 1054 patients opérés un âge moyen qui augmente de 63 à 66 ans, un PSA initial moyen de 7.9 à 8.9. Les opérations pour tumeur à faible risque passent de 70% à 28% et les risques intermédiaires de 19% à 60%.

Sur les biopsies, la proportion des tumeurs Gleason 6 est passée de 70% à 27%, celle des tumeurs Gleason 7 de 19% à 60%. Le Gleason postopératoire de 6 est passé de 47% à 12%, celui de 7 de 44% à 78%. Cette tendance était déjà démontrée en 2014, date du changement de la nomenclature histopathologique. 32% des tumeurs étaient sous-gradées au moment du diagnostic. De 2005 à 2019 les stades pT2 sont passés de 75% à 65% et les pT3 de 24% à 31%. Les marges chirurgicales positives diminuent avec le temps de 16 à 11% pour les pT2 (7% pour les pT2 à faible risque) et de 37.5 à 19.5% pour les pT3. Les autres éléments d'analyse changent peu au cours de la période, sondage de 5-6 jours, hospitalisation de 5-6 jours, taux de transfusion passant de 4% à < 1%. L'analyse de survie univariée montre un risque de récurrence significativement plus élevé pour les patients opérés plus récemment, ce qui n'est plus le cas en analyse multivariée intégrant les facteurs pronostics établis. Depuis 2014, 14 patients ont été opérés après traitement focal, collectif présentant des tumeurs à pronostic moins favorable (9/14 pT3, 9/14 Gleason ≥ 4+3, 28% R1).

Conclusion

Le profil des patients subissant une PR a changé au cours des 15 dernières années au profit d'approches moins invasives, qui quant à elles comportent un risque de sous-traitement. Alors que nous opérons aujourd'hui une population plus à risque, le contrôle oncologique n'a cessé de s'améliorer.

P17

Trial update ProBio: An outcome-adaptive, multi-arm, open-label, multiple assignment randomised controlled biomarker-driven trial in patients with metastatic prostate cancer

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Background

Despite multiple retrospective studies have demonstrated the clinical validity of molecularly-guided therapy selection in metastatic prostate cancer (mPC), none have validated the actual clinical utility in the context of a randomised controlled trial. We hypothesize that treatment decisions based on plasma-derived cell-free DNA (cfDNA) profiling will increase progression-free survival, which would result in prolonged overall survival and improved quality-of-life.

Methods

The Prostate Biomarker (ProBio) trial is a adaptive, multi-arm, open-label, multiple assignment randomized controlled biomarker driven phase 3 trial in men with mPC. Men are randomized to receive either standard of care or an experimental treatment with abiraterone, enzalutamide, apalutamide, olaparib, docetaxel, cabazitaxel, or carboplatin based on molecular biomarker signatures, as inferred from our liquid biopsy profiling. Therefore a prostate-specific 1.48 Mb biomarker panel was designed and validated, which is capable of detecting 1) mutations in 78 genes, 2) genomic structural rearrangements in 11 prostate cancer-associated genes, 3) genome-wide copy number alterations, 4) 63 microsatellites to infer microsatellite instability, 4) tumour mutational burden and 5) estimate the circulating tumour DNA (ctDNA) fraction. The initial pre-defined biomarker signatures are defined as mutations in certain genes/pathways identified in the scientific literature as potentially important in prostate cancer treatment response encompassing the androgen receptor (AR), TP53, DNA-repair deficiency (DRD) and the TMPRSS2-ERG fusion. The statistical design of ProBio is novel, since the randomization probabilities for a given experimental systemic therapy are subjective to change as the trial evolves and learns from prior experience.

Results

Patient accrual in Belgium and Sweden are ongoing at 17 centers and by 05/2021 a total of 166 men have signed the ICF and 103 could be randomized (detectable biosignature based on ctDNA). Applications to the authorities in Switzerland and Norway have been submitted and trial enrollment is expected in the second half of 2021.

Conclusion

Feasibility of a timely processing of samples for ctDNA analysis with consecutive randomization based on tumor characteristics has been demonstrated. University Hospital Basel will serve as a national coordinating center for Switzerland and may support interested sites to enroll patients.

P18

Financial impact analysis of the the Aquabeam system for benign prostatic hyperplasia aquablation

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Context

Benign prostatic hyperplasia (BPH) is a common pathology of the aging man. The treatments can be either conservative or surgical in complicated cases, causing a significant financial impact on our health system.

Currently, the surgical gold standard for prostates under 80ml is transurethral resection of the prostate (TURP) and the suprapubic transvesical prostatectomy (STP) for prostates over 80ml. Aquablation enters the trend of minimally invasive surgery allowed by technological advancements which aims to improve patients safety and recovery time. It lowers the duration and therefore costs of hospital stays, albeit maintaining the same benefits as traditional surgery. Aquablation uses high-pressure saline to remove tissue through a heat-free mechanism of hydrodissection and can be used for prostates of any size.

Some multicentric studies have already proved the high clinical efficacy and strong safety profile of this technology. Its major strengths include high-speed resection time, improved potential for preservation of sexual function, shorter operative time and length of stay compared to traditional techniques. We confirmed these results at our institution in a test phase in 2019.

In this study we aim to evaluate the financial feasibility of implementing this technology at our hospital by comparing its costs and revenue to those incurred currently with the standard methods.

Method

We analysed the financial data of BPH surgeries performed in our department in 2018 and 2019, to assess the cost of the TURP and of the STP. Then, they were compared to the costs of the aquablation technique (Aquabeam®, Procept®, Sillicon Valley, Ca., USA).

Results

Aquablation resulted in shorter operating times (127 min vs 142 for TURP and 166 for STP) and length of stays (3.6 days vs 4.41 for TURP and 7.9 for STP) with otherwise similar costs to the traditional techniques. This results in theoretical savings of CHF 1'244.28 per patient when comparing Aquabeam and TURP and CHF 6'076.28 when comparing Aquabeam and PTV.

We estimate our need for Aquabeam to be of a 100 patients per year, 70 with prostates under 80ml and 30 with prostates over that size. This results in a yearly theoretical saving of CHF 269,388 per year.

Conclusion

This technology allows for important theoretical savings which entails that to achieve actual savings, the liberated resources (hospital beds and operating time) must be appropriately relocated.

P19

Diagnostic accuracy of preoperative lymph node staging of bladder cancer: a concordance analysis of a multicenter cohort

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Introduction and objectives

To assess the diagnostic accuracy of preoperative cross-sectional imaging in detecting lymph node (LN) involvement among bladder cancer (BCa) patients treated with radical cystectomy (RC) and pelvic lymph node dissection (PLND).

Materials and methods

We retrospectively analysed data of 1,297 patients who underwent preoperative LN staging with computed tomography or magnetic resonance imaging and subsequent RC with PLND for BCa between 1996 and 2017 at 8 tertiary referral centres. Patients receiving neoadjuvant chemotherapy were excluded. We assessed the concordance between clinical (cN) and pathological LN (pN) status, defined as the accuracy of imaging in detecting LN involvement using pathological specimen as reference; concordance was expressed according to Cohen's kappa coefficient. Location-based sub-analyses were performed, distinguishing among external iliac (EI), intern iliac (II), obturator (OB), common iliac, presacral and paraaortic LNs.

Results

Among 1,022 cN0 patients, 71.3% were confirmed pN0 at pathological report; among 275 cN+ patients, 53.5% were found with LN metastases at pathological specimen. Overall, imaging showed fair concordance (67.8%) between cN and pN stages (sensitivity: 33.6%; specificity: 85%). At sub-analyses, no agreement between cN and pN status was found for each LN location (concordances ranging from 0% to 31%). LNs from standard template (EI, II and OB LNs) showed the highest concordance rates (30%, 25.6% and 31%, respectively).

Conclusions

Overall, preoperative imaging exhibited a fair concordance between cN and pN status. Our location-based sub-analyses showed unsatisfactory results in each LN location; thus, further diagnostic tools are required in order to improve the accuracy of preoperative LN staging for BCa.

P20

Modified G8 screening as preoperative risk assessment for severe postoperative complications after robot-assisted radical cystectomy

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Introduction

Impaired geriatric G8 screening scores can indicate increased risk for complications after major cancer surgery in the elderly population. Recent studies could show that the modified G8 (mG8) score, which consists of 6 items only, seems to provide higher sensitivity and specificity. The aim of this study was to assess the predictive value of the mG8 score for severe postoperative complications after robot-assisted radical cystectomy (RARC) and to compare it to the Charlson comorbidity index (CCI) and age groups.

Methods

We reviewed all patients who underwent RARC with intracorporeal and extracorporeal urinary diversion between 2011 and 2020. Urinary diversions included Bricker's ileal conduit or Studer's orthotopic neobladder. We defined an impaired mG8 score as a binary variable using the suggested threshold of ≥ 6 points. We used logistic regression analysis to investigate the association with 90d postoperative complication Clavien-Dindo ≥ 3 and mortality.

Results

Overall, 155 patients with a median age was 69 (interquartile range [IQR] 63-76) years were included. The mG8 score was impaired in 49 (31.6%) patients. Twenty-one (13.5%) patients had a CCI of 3 or higher. Sixty-seven (43.2%) patients experienced postoperative complications Clavien-Dindo Grade 3 or higher, with 10 (6.5%) patients deceasing to it. In univariable analyses, impaired mG8 score was associated with severe 90d postoperative complications (odds ratio [OR] 2.94, $p=0.002$), while CCI ≥ 3 (OR 1.53, $p=0.4$) and age groups (≥ 76 years: OR 2.1, $p=0.07$; 66 – 75 years: OR 1.1, $p=0.8$; versus ≤ 65 years) were not. In multivariable analysis, mG8 score remained independently associated with severe 90d complications (OR 2.65; $p=0.008$). In univariable analyses, impaired mG8 score (OR 5.72, $p=0.015$) and age groups (≥ 76 years: OR 10.3, $p=0.033$; 66 – 75 years: OR 1.6, $p=0.7$; versus ≤ 65 years) were significantly associated with 90d mortality, while CCI ≥ 3 (OR 3.03, $p=0.13$) was not.

Conclusions

The modified G8 screening tool seems to better identify patients at risk for major complications after RARC in comparison to age or CCI. Its use could help to evaluate frail patients intended to undergo radical cystectomy for postoperative morbidity and mortality. These results are limited by the retrospective nature of the study, small sample size and require prospective validation.

P21

Pattern of recurrence after robot-assisted radical cystectomy for urothelial carcinoma: Comparison of intra- and extracorporeal urinary diversion

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Introduction

Robot-assisted radical cystectomy (RARC) for bladder cancer is increasingly performed with intracorporeal urinary diversion (ICUD) in contrast to extracorporeal urinary diversion (ECUD). The objectives of our study were to compare the rate and pattern of disease recurrence between ICUD and ECUD.

Methods

We reviewed all patients who underwent RARC with either ICUD or ECUD since 2011 at our institution. We performed ECUD until 2015 and ICUD from 2015 to 2020. Urinary diversions consisted of Bricker's ileal conduit or Studer's orthotopic neobladder. We reviewed all follow-up CT scans to identify the first location of recurrence. To compare recurrence rates the chi-square test was used.

Results

Overall, 128 patients, 41 (32%) with ECUD and 87 (68%) with ICUD, were eligible for analysis. The median age was 69 (interquartile range 63-76) years. The rates of orthotopic diversion were comparable between ECUD and ICUD, 13 (31.7%) versus 28 (32.2%), respectively. The rates of patients with pT3/4, pN+ and positive surgical margins in pathologic staging were 29.2%, 19.5% and 9.7% in the ECUD group versus 35.6%, 18.4% and 8.0% in the ICUD population. During a median follow-up of 39 and 22 months, 10 (24.4%) patients with ECUD and 17 (19.5%) patients with ICUD developed disease recurrence, respectively. These numbers correspond to the 2-year recurrence rates, which were not statistically different between the modalities ($p=0.5$). Within 1 year of RARC, 8 (19.5%) and 14 (16%) patients experienced recurrence, respectively ($p=0.6$). The pattern of recurrence for each modality is displayed in table 1.

Conclusions

Patients who received RARC with ICUD have a comparable recurrence pattern to patients who received ECUD. Increased laparoscopic duration did not result in specific changes in the pattern of recurrence, such as higher rates of local, peritoneal, or visceral recurrences.

P22

Ureteral stenting does not increase the risk of metachronous upper tract urothelial carcinoma in patients with bladder cancer presenting with hydronephrosis in comparison with percutaneous nephrostomy: a multicenter analysis

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Introduction and objectives

It has been hypothesized that patients with bladder cancer (BCa) presenting with hydronephrosis might develop upper tract urothelial carcinoma (UTUC) if the decompression of the upper urinary tract (UUT) is performed via ureteral stenting. We analyzed the impact of several factors at transurethral resection of bladder tumor (TURBT) on the occurrence of metachronous UTUC in patients with BCa presenting with hydronephrosis.

Materials and methods

We retrospectively analyzed data of 545 patients with BCa presenting with hydronephrosis and managed with ureteral stenting or percutaneous nephrostomy. All patients underwent TURBT and subsequent radical cystectomy between 1990 and 2019 at 23 tertiary care centers. Patients without hydronephrosis, not undergoing UUT decompression or with concomitant UTUC were excluded. A 1:1 propensity score matching (PSM) estimated using logistic regression was performed using clinical and pathological parameters at TURBT. Univariable (UVA) and multivariable (MVA) Cox regression analyses were used to predict the occurrence of metachronous UTUC after TURBT. Kaplan-Meier analyses predicted recurrence, cancer specific mortality (CSM) and overall mortality (OM) according to the drainage modality.

Results

After PSM we obtained 125 (50%) BCa patients managed with ureteral stenting and 125 (50%) with percutaneous nephrostomy. Hydronephrosis was due to direct BCa obstruction in 193 (77%) cases. Ureteral stenting was maintained in situ for a mean of 130 days, whereas percutaneous nephrostomy for 71 days ($p < 0.001$). Patients receiving percutaneous nephrostomy had a higher rate of muscle invasive BCa (74 vs 36%, $p < 0.001$) at TURBT in comparison with the ureteral stenting cohort. On

UVA and MVA we found no statistically significant association between clinico-pathological features at TURBT and the occurrence of metachronous UTUC. Similarly, the presence of hydronephrosis due to BCa obstruction and the duration of indwelling ureteral stent were not statistically associated with the development of metachronous UTUC. Lastly, the two cohorts didn't show differences in terms of CSM and OM (Log-rank 0.6 and 0.5, respectively).

Conclusions

Ureteral stenting does not increase the risk of developing metachronous UTUC in patients with BCa presenting with hydronephrosis requiring UUT decompression. The choice of managing the hydronephrosis in patients with BCa should not be based on concerns of developing metachronous UTUC.

P23

Patient trajectories of a real-world cohort initiating neoadjuvant chemotherapy for localized muscle-invasive bladder cancer: a population-based study analyzed by a multi-state modelling framework

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Introduction

The use of neoadjuvant chemotherapy (NAC) for localized muscle-invasive bladder cancer (MIBC) is supported by level-1 evidence. Opponents of NAC suggest missing a window of opportunity to deliver definitive radical therapy due to NAC-related toxicity or NAC-unresponsive disease. The aim of the current study was to investigate the proportion of patients initiating NAC who actually go on to receive definitive radical therapy for localized MIBC.

Methods

Province-wide bladder cancer pathology reports (April 2004 to December 2015; Ontario, Canada) were linked to the Cancer Activity Level Reporting database to derive a cohort of patients diagnosed with localized MIBC who had at least one administration of systemic therapy with neoadjuvant intent. Patients were followed for the receipt of radical cystectomy, initiation of trimodal therapy, or the occurrence of death (cause-specific). A multi-state modelling framework was utilized to describe the trajectory of these patients.

Results

We identified a cohort of 485 patients with a median age of 67 years (interquartile range: 60-73 years). A majority of all patients (N=422, 89.3%) received a NAC regimen containing at least one dose of cisplatin. Six months after NAC initiation, the probabilities to have received radical cystectomy, to have initiated trimodal therapy, to have died of bladder cancer, to have died of other causes, and to be alive without having received any definitive radical therapy were 36.6%, 3.5%, 4.2%, 3.9%, and 51.8%, respectively. Five years after the receipt of definitive radical therapy, the probabilities to have died of bladder cancer/other causes were 25.4%/29.6% (radical cystectomy) and 15.2%/45.5% (trimodal therapy).

Conclusions

In a real-world cohort that initiated NAC for MIBC, only about 40% of all patients will ultimately receive definitive radical therapy after six months. This study provides realistic estimates for patients being counseled about NAC in MIBC.

P24

Neoadjuvant Chemotherapy in Elderly Patients with Upper Tract Urothelial Cancer: Oncologic Outcomes from a Multicenter Study

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Introduction

The highest incidence of upper tract urothelial carcinoma (UTUC) is reported in individuals aged 70-90 years, and the treatment is mainly based on radical nephroureterectomy (RNU) and perioperative chemotherapy. Neoadjuvant chemotherapy (NAC) has shown promising oncologic outcomes in previous studies. In contrast to comparable surgical and oncologic outcomes after RNU between younger and older patients with good performance status, nothing is known about the oncologic outcomes of NAC in elderly patients. The objective of the study was to assess the impact of NAC on pathologic response and oncological outcomes stratified by age.

Material and Methods

This multicenter study included 170 patients treated with NAC and RNU for clinically non-metastatic, high-risk UTUC. The cohort was stratified into two groups according to median age. Patients received either cisplatin-based or non-cisplatin-based chemotherapies. Pathologic responses were defined as pathologic objective response (pOR; < ypT1N0) and pathologic complete response (pCR; ypT0N0). Univariable and multivariable logistic and Cox regression analyses were performed to identify predictors for pathologic response and survival outcomes.

Results

The cohorts' median age was 68 years with the elderly group (> 68 years) comprising 77 (45%) patients. Neoadjuvant chemotherapy included methotrexate-vinblastine-doxorubicin-cisplatin (MVAC) in 68 (41%), gemcitabine cisplatin (GC) in 66 (40%) and non-cisplatin chemotherapy in 32 patients (19%). Younger patients received more often MVAC (51% vs. 29%) while elderly received more GC (34% vs. 47%) or non-cisplatin chemotherapy (15% vs. 24%) (p = 0.021). Overall, pOR and pCR were similar across age groups (51% vs. 48%; p = 0.7 and 10% vs. 9%; p = 0.9, respectively). While GC and non-cisplatin chemotherapy showed a lower pCR of 5% and 3%, respectively, MVAC revealed a pCR of 14% (p = 0.037) and was independently associated with a higher pCR (OR 4.41; p = 0.04). Kaplan-Meier analysis showed no difference in recurrence-free and cancer-specific survival, whereas a lower rate was seen in overall survival for the elderly.

Conclusions

Elderly patients with high-risk UTUC eligible for cisplatin-based NAC prior to RNU may benefit from this multimodal therapy equally as their younger counterparts. Cisplatin-ineligible patients showed lower response rates and are more likely to benefit from immediate RNU or novel therapies such as immunotherapy.

P25

Open Radical Cystectomy versus Robot-Assisted Radical Cystectomy: A Nationwide Population-Based Cohort Study in Sweden

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Background

Limited data exists on the complication profile and oncological outcome of Robot-assisted laparoscopic radical cystectomy (RARC) with intracorporeal urinary diversion (ICUD) compared with open radical cystectomy (ORC). The objective was to evaluate perioperative, safety and survival outcome differences between RARC with ICUD and ORC.

Methods

We conducted a nationwide population-based, retrospective cohort study of patients who underwent RARC with ICUD (n=889) and ORC (n=2280) at 25 Swedish hospitals (RARC at 11 centers) between 2011 and 2018. We used propensity score matching to compare perioperative and survival outcomes.

Results

Compared to ORC, RARC was associated with a lower estimated blood loss (median 150ml vs. 700ml, $p < 0.001$), intraoperative transfusion rate (7.7% vs. 38.7%, odds ratio [OR]=0.13, 95%CI: 0.10-0.18; $p < 0.001$), and shorter length of stay (9d vs. 13d, $p < 0.001$), but with a higher lymph node yield (20 vs. 14, $p < 0.001$) and 90d re-hospitalization rate (34.3% vs. 26.1%, OR=1.48, 95% CI: 1.2-1.8; $p < 0.001$). Clavien grade \geq III (high-grade) and V complication rates were lower for RARC compared to ORC (17.2% vs. 23.9%, OR=0.66, 95%CI: 0.54-0.82; $p < 0.001$ and 0.8% vs. 1.8%, OR=0.45, 95% CI: 0.2-1.0; $p=0.058$). After a median follow-up of 47 months, five-year cancer-specific mortality and overall survival rates were 28% and 61% for RARC and 30% and 58% for ORC, respectively. In the propensity-score-matched analysis, RARC was associated with a lower all-cause mortality (hazard ratio 0.83, 95%CI: 0.72-0.96; $p=0.01$).

Conclusions

Compared to ORC, RARC with ICUD was associated with a lower overall mortality rate, fewer high-grade complications, and more favorable perioperative outcomes.

P26

Impact of antibiotic prophylaxis on post-operative infectious complications in cystectomies: the shorter the better!

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Context and objectives

Radical cystectomy (RC) is known as a highly morbid surgery. Despite the improvement of perioperative care, postoperative complications – and especially infectious complications - remain frequent. The aims of this study were 1) to evaluate whether the duration of perioperative antibiotic prophylaxis may impact the postoperative infectious complications and 2) to investigate the utility of preoperative urine culture.

Material and method

Data from 93 consecutive patients who underwent RC between 2017 and 2020 were retrospectively analyzed. The study population was divided into two groups according to the duration of the antibiotic prophylaxis of Cefuroxim and Metrodinazol: group 1, single dose (n=58), and group 2, 72 hours course (n=35). No systematic preoperative urinary analysis was performed, but 21 patients had a urine culture within 30 days before surgery were identified to assess the impact of a positive culture on postoperative (infectious) complications. The two groups were similar in terms of patient's demographics and oncological data. Overall and infectious (urinary tract infection [UTI], surgical site infection (SSI) and sepsis) complication rates were analyzed using chi-squared or Kruskal-Wallis test as appropriate. A p-value $\leq 5\%$ was considered as statistically significant.

Results

Overall, total of 28 patients with at least one infectious complication were identified, 18/58 (31%) in group 1 and 10/35 (40%) in group 2 (p= 0.6), of which 18/93 were urinary tract infections (19%), 14/93 were SSI (15%) and 19/93 were septicemia (20%). The rates of SSI and sepsis in groups 1 and 2 were 14% (8/58 patients) and 17% (6/35 patients, p= 0.6), and 22% (13/58 patients) and 17% (6/35 patients, p= 0.5) respectively. Of the 21 patients who had a preoperative urinalysis, 13 (62%) were positive. The rate of overall and infectious complications did not differ between patients with and without a preoperative urine culture neither among those with a symptomatic treated urinary infection compared to those with an asymptomatic bacteriuria not treated.

Conclusion

Single dose prophylactic antibiotic therapy did not increase the risk of overall and infectious complications compare to 72 hours treatment in our cohort. Thus, shorter antibiotic prophylaxis may be the preferred regimen as it limits bacterial resistance. Preoperative urine culture does not seem to impact the occurrence of infectious complications.

P27

Survival outcomes of urothelial carcinoma with squamous differentiation versus pure squamous cell carcinoma after conservative management among BCa T1 patients

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Introduction and aim

Urothelial carcinoma with squamous differentiation (SqD) and pure squamous cell carcinoma (SqCC) are generally considered as two distinct manifestations of squamous bladder cancer and treated differently. However, guidelines do not provide clear evidence supporting a different clinical and prognostic behavior among them. We aimed to analyze survival outcomes after conservative management among bladder cancer T1 patients with SqD and those with pure SqCC.

Materials and methods

We retrospectively analyzed data of 164 patients with diagnosis of T1 high grade SqD or SqCC at 13 tertiary referral centers between 1998 and 2020. Conservative management included intravesical BCG or second transurethral resection of bladder (TURB). Patients receiving neoadjuvant chemotherapy were excluded. Primary end point was to assess recurrence-free survival (RFS) and progression-free survival (PFS) among SqD vs. SqCC patients. Secondary end point was to evaluate cancer-specific survival (CSS) and overall-survival (OS) among SqD vs. SqCC patients who underwent radical cystectomy (RC) after conservative management failure. Survival analyses were performed using Kaplan-Meier and compared with log-rank test. Multivariable Cox regression models were applied to predict RFS and PFS; covariates included pathological findings at initial TURB specimen (presence of pure SqCC, concomitant lymphovascular invasion (LVI), and carcinoma in situ).

Results

Within this 164-patient cohort, 109 (68%) and 55 (32%) had SqD vs. pure SqCC, respectively. Median follow-up for survivors was 37 months (interquartile range: 20-72). Overall, 39% and 25% of patients experienced tumor recurrence and progression, respectively. 2-year RFS and PFS were 65% vs. 44% ($p = 0.02$) and 88% vs. 69% ($p = 0.01$) among SqD vs. SqCC patients, respectively. At multivariable Cox analyses, pure SqCC at initial TURB specimen was an independent predictor of tumor progression ($p = 0.03$), while concomitant LVI correlated with both tumor

recurrence ($p = 0.01$) and progression ($p = 0.01$). Overall, 71 patients underwent RC after conservative management failure. No significant differences were observed for 3-year CSS and OS among SqD and SqCC patients.

Conclusions

The present study shows a higher risk of tumor recurrence and progression after conservative management among pure SqCC compared to SqD, suggesting to prefer RC in patients with pure SqCC at initial TURB specimen in order to improve patient's prognosis.

P28

Survival outcomes after radical cystectomy versus conservative management for T1 high grade non-muscle-invasive squamous bladder cancer: a multicentre collaboration by the European Association of Urology–Young Academic Urologists

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Introduction and objectives

Literature lacks clear evidence regarding the most effective therapeutic strategy for non-muscle invasive bladder cancer (BCa) with squamous differentiation. We compared survival outcomes in patients who underwent immediate radical cystectomy (RC) vs. conservative management for T1 high-grade (HG) non-muscle-invasive squamous BCa.

Materials and methods

We retrospectively analysed 189 T1 HG squamous BCa patients treated between 1998 and 2020 at 16 tertiary referral centres. Patients were treated either with immediate radical cystectomy (RC) or conservative management with Bacillus Calmette-Guérin (BCG). Primary endpoint was to assess cancer-specific mortality (CSM) and overall mortality (OM) between the two therapeutic strategies; secondary endpoint was to establish independent predictors of tumor recurrence and progression after BCG immunotherapy. The cumulative incidence and Kaplan-Meier curves were carried out to evaluate survival outcomes and compared with the Pepe-Mori and log-rank tests. Multivariable Cox models, adjusted for pathological findings at initial transurethral resection of bladder (TURB) specimen, were adopted to predict tumor recurrence and progression after BCG.

Results

Immediate RC and conservative management were performed in 16 (8.5%) and 173 patients (91.5%), respectively. Median follow-up time was 36 months (interquartile range: 19 - 76). Overall, no significant difference was observed between immediate RC and conservative management, showing 3-year CSM of 25% vs. 13% (Pepe-Mori test $p = 0.5$) and 3-year OM of 27% vs. 19% (log-rank $p = 0.7$), respectively. At multivariable Cox models, lymphovascular invasion (LVI) and pure squamous cell carcinoma (SqCC) at initial TURB specimen were independent predictors of tumor recurrence (hazard ratio [HR]: 2.21; 95% confidence interval [CI]: 1.20 - 4.06; $p =$

0.01) and progression (HR: 2.24; 95% CI: 1.16 - 4.35; $p = 0.02$), respectively. Sub-analyses among patients receiving BCG showed 2-year recurrence-free survival and progression-free survival rates of 65% vs. 43% (log-rank $p = 0.02$) and 90% vs. 70% (log-rank $p = 0.007$) among patients with neither LVI nor pure SqCC vs. individuals with LVI or pure SqCC at initial TURB specimen, respectively.

Conclusions

Conservative management with BCG immunotherapy represents an effective therapeutic strategy for T1 squamous BCa patients with neither LVI nor pure SqCC at initial TURB specimen.

P29

Phage therapy in the treatment of urinary tract infections - In vitro testing of commercial phage preparations using isothermal microcalorimetry

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Background & Objectives

Antimicrobial resistance is drastically increasing worldwide. As the antibiotic pipeline is rather narrow, valuable alternatives are desperately needed. Phage therapy might be such an alternative. However, the efficacy of phage therapy for urinary tract infections (UTIs) has not sufficiently been investigated yet. In this study we used isothermal microcalorimetry (IMC) to assess the efficacy of commercial phage preparations against *E. coli* and *P. mirabilis* in sterile filtered and artificial urine.

Material and Methods

A microcalorimetry instrument (TAM48, TA Instruments, New Castle, DE) equipped with 48 channels was used to follow bacterial growth (or its absence). Bacteria were incubated in sterile filtered urine and artificial urine together with different dilutions (1% and 5%) of bacteriophage solution (*E. coli*/Proteus bacteriophage solution, NPO Microgen, 44, Gruzinskaya str., Nizhny Novgorod, Nizhny Novgorod region, 603950 Russia). Positive controls were performed using 3 mL of inoculated urine and negative (sterility) controls were prepared using uninoculated urine (i.e., filter sterilized urine). Measurement started after thermal equilibration procedure as recommended by the manufacturer and lasted until the signal rose and returned to baseline or for at least 120 hours.

Results

A clear drop of metabolic activity - representing bacterial death - was visible for each concentration (1% and 5%) of phage solution used. The metabolic heat rate of *E. coli* returned after to baseline after 3-4 hours. The growth of *Proteus mirabilis* growth was strongly reduced (growth rate decreased by 50% and lag phase increased by 4.6 hours) but not fully suppressed.

Conclusions

The commercial phage product used in our study was very effective in inducing bacterial death in *E. coli* and *P. mirabilis* in sterile filtered urine and artificial urine, respectively. IMC provides valuable additional information such as kinetics of bacterial death as well as prey-predator behavior. Furthermore, a phagogram might be obtained within 4-7 hours. In conclusion, IMC confirmed the potential of bacteriophages to induce death in uropathogens in urine.

P30

In vitro monitoring of *Neisseria gonorrhoeae* metabolism using microcalorimetry offering fast detection and drug susceptibility testing

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Background & Objectives

N. gonorrhoeae is responsible for sexually transmitted infection (STI) bearing its name. According to the World Health Organization (WHO) there are around 87 million new infections per year worldwide and the incidence is rising. Culture remains the gold standard. However, culturing of *N. gonorrhoeae* is difficult and time-consuming. Furthermore, upon culture results, additional biochemical, immunological, or spectrometric tests are necessary to differentiate *Neisseria* spp., and perform drug susceptibility testing. In this study we used isothermal microcalorimetry (IMC) to detect *N. gonorrhoeae* and perform drug susceptibility testing.

Material and Methods

A microcalorimetry instrument (TAM48, TA Instruments, New Castle, DE) equipped with 48 channels was used to follow bacterial growth and to assess the metabolic activity of *N. gonorrhoeae* in various media (urine and GC medium with different supplements). Due to the presence of starch and dried hemoglobin in the medium optical methods (such as flow cytometry or spectrophotometry) cannot be applied and make calorimetry very appealing. Finally, using the GC medium (with 1% isovitale X and 1% dried hemoglobin) we determined the sensitivity of *N. gonorrhoeae* to ceftriaxone.

Results

N. gonorrhoeae did not grow in urine even when adding supplements. On the contrary growth was strong using GC medium. The effect of Isovitale X supplement and hemoglobin were clearly visible in making growth even faster (up to 300% increase in growth rate) and reducing lag phase (50% shorter lag phase) and thus allowing rapid detection and drug susceptibility testing. Detection was achieved in 12 hours for ca 10'000 CFU/ml and drug susceptibility could be obtained in 12 hours as well.

Conclusions

Isothermal microcalorimetry does not require transparent media like other techniques (i.e., flow cytometry, spectrophotometry) to measure microbial activity. Therefore, this is well fitted for detection of fastidious microorganisms such as *N. gonorrhoeae* growing in cloudy or solid medium. In our study we could demonstrate that IMC is applicable to for rapid detection of *N. gonorrhoeae* and drug susceptibility testing, respectively.

P31

Treatment of post-traumatic urethral strictures: long term follow-up experience from a medium-volume center

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Introduction

Pelvic fracture urethral distraction defect (PFUDD) and urethral straddle injury (USD) may be associated with disabling complications, such as recurrent stricture and erectile dysfunction (ED), and their management remains a challenge. The aim of this study is to evaluate the long-term outcomes of transperineal urethroplasties performed in our institution for post-traumatic strictures.

Material and Methods

Single-center retrospective study of 25 patients with a mean age of 36 years-old (14 – 56) at trauma, including 18 patients with PFUDD and 7 patients with USD, who underwent transperineal urethroplasty between 2002 and 2019. Symptoms were assessed using post-operative uroflowmetry values and 3 validated questionnaires: IPSS, ICS and IIEF-5.

Clinical outcome was considered a failure if a subsequent procedure was needed.

Results

With a mean stricture length of 2,04 cm (IQR 1), all patients had differed transperineal anastomotic urethroplasty, except one patient who had a substitution urethroplasty with graft after straddle injury because of a stricture length of 3,5 cm. To achieve a tension-free anastomosis, all patients underwent urethral mobilisation to the suspensory ligament; in the PFUDD group, 13 patients required crural separation and 3 an inferior pubectomy.

We observed no major post-operative complications (Clavien-Dindo \geq III).

At a mean follow-up of 107 months (IQR 102), we achieved a success rate of 92%, with recurrence reported in 2 patients with PFUDD, needing a successful direct vision internal urethrotomy.

The functional outcomes were favourable, with post-operative mean peak flow rate of 22,21 ml/s (IQR 8) and no significant PVR (< 30 ml). No patient had postoperative major incontinence.

Regarding sexual function, 57% of patients complained of ED post-operatively, however 93% of them had already reported the problem pre-operatively. For most patients, this issue was well managed by PDE5 inhibitors, with only one patient who required a penile prosthesis implant for refractory ED.

Conclusion

Transperineal urethroplasty remains the cornerstone in the management of post-traumatic urethral strictures; PFUDD required specific steps to shorten the distance to be bridged. Overall success rate is efficient (> 90%) at a long-term follow-up of nearly 10 years. The most common complication is ED, however mainly due to the trauma rather than the surgery.

P32

Evaluation of quality, content and accuracy of online health information provided for the term “urethral stricture” with the most used internet search engine (Google) on a national and transnational scale

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Background/Aims

The main objective of this study was to provide an overview of the current www-informational landscape from a patient's view on the subject of urethral stricture, a most common urological pathology. By performing Google searches in different languages and locations we tried to unveil inequalities.

Materials and methods

Assessment of the keyword “urethral stricture” and the translation in German (“Harnröhrenstriktur”) and French (“sténose urétrale”) was done using the Google website. The queries were performed from different european cities (Basel, Berlin and Paris) in normal “log-off mode” and in “anonymous mode”. The first 50 hits were grouped in four categories: 1. university 2. hospital 3. governmental/medical prof. societies 4. commercial/NGO.

The QUEST-Score, a validated tool to evaluate online articles about health, was calculated by two independent investigators for the first 25 hits: in case of disagreement consensus was achieved. All result in a different language than the used keyword, double listing, information behind a paywall/necessity to sign up or every result unrelated to the objective of the study were excluded from analysis.

Results

Out of the 900 URLs the first 25 for each location and language were further processed:

Mean dropout-rate: 8% (2/25) for German, 53.3 % (13.3/25) for French, 42.6% (10.6/25) for English.

QUEST-scores in french were the lowest, while german language showed the smallest deviation of QUEST-score to the mean (0.176). Searches in french represented the smallest number of hits in the category “university” (n=1), compared to english (n=7) and german (n=16).

Conclusion

Our results suggest a more difficult information search in french compared to german and english.

Specially for multiethnic and multilingual countries, this study is of serious interest, as it shows the qualitative variance of search results in dependence of the used language. Medical professionals and countries officials should be aware of this informational bias and remediate, in order to assure informational egalitarianism in such a central topic as health.

P33

Antibiotic resistance in UTI pathogens: Challenges facing the urologists

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Introduction

Urinary tract infections (UTIs) represent more than 40% of all hospital-acquired infections, with the majority of cases being catheter-associated UTIs (CAUTI). Our goal was to evaluate whether uropathogen (UP) and antimicrobial resistance (AMR) characteristics vary depending on catheter association.

Methods

We analysed a dataset containing 27'158 urine cultures data from the ANRESIS database from calendar year 2019. Group differences in the proportions of bacterial species and antibiotic-resistant isolates from CAUTI and non-CAUTI samples were investigated using test statistics. A two-sided p value of < 0.05 was considered statistically significant. Samples of unknown origin were excluded. We analyzed the 4 most common pathogens and clinically relevant antibiotics for each pathogen.

Results

Escherichia.coli, Klebsiella pneumoniae, Pseudomonas aeruginosa and Proteus mirabilis together represented 70% and 85% of pathogens identified in CAUTI and non-CAUTI samples, respectively.

The overall resistance rate for often-prescribed empirical antibiotic treatments ciprofloxacin (CIP), norfloxacin (NOR), trimethoprim/sulfamethoxazole was between 13% and 31%.

E.coli from CAUTI samples were more often resistant ($p \leq 0.048$) to non-CAUTI samples to all classes of antibiotics analyzed (including 3rd generation cephalosporines used as surrogate for Extended Spectrum Beta Lactamase), except to nitrofurantoin. For K.pneumoniae, the difference in susceptibility was significant for CIP ($p = 0.001$) and NOR ($p = 0.03$), for P.mirabilis, for NOR ($p = 0.01$), with a lower resistance rate for non-CAUTI samples. P.aeruginosa from non-CAUTI samples were less often resistant to cefepime ($p = 0.02$) and piperacillin-tazobactam ($p = 0.04$).

Conclusions

The pathogens found in CAUTI and non-CAUTI samples were similar, with the exception of Pseudomonas, more often detected in CAUTI samples. CAUTI pathogens were more often resistant to antibiotics compared to non-CAUTI pathogens. The overall resistance rate for most commonly used empirical antibiotic treatments was relevant with up to 31%. This emphasizes the need for urine sampling and susceptibility testing before initiating a therapy in case of UTIs and the need for therapeutic alternatives.

P34

Engineered Bacteriophages as Antibiotic Alternatives for treating Catheter Associated Urinary Tract Infections (CAUTIphage)

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Background & Objectives

Urinary tract infections (UTIs) are the most common healthcare-associated infection worldwide, leading to extensive antibiotic use and creating a large reservoir for antibiotic-resistant organisms. At least 40% of all hospital-acquired infections are UTIs, with the majority being catheter-associated (CAUTIs). Their financial and societal burden is substantial, therefore there is an urgent need for therapeutic alternatives to antibiotics.

Bacteriophage (phage) therapy has been used for more than a century in former Soviet countries (e.g., Georgia and Russia) and has shown promising results in efficacy and safety. In this project, we aim to develop, evaluate, and produce genetically-engineered phages (CAUTIphages) to enhance their antimicrobial activity against causative pathogens of UTIs. CAUTIphages will be produced under good manufacturing practices conditions and then used in a clinical setting in Switzerland. We will also evaluate the biomedical, economic and social burden of CAUTIs.

Material & Methods

We will first conduct a prospective multicenter observational study to assess the current CAUTI epidemiology in Switzerland. The resulting UTI strain collection will be used to select for highly lytic candidate phages from environmental sources for genetic engineering.

Phages will be engineered to encode for payload proteins and tested in vitro for their antimicrobial and antibiofilm activity prior to evaluation in an animal model of UTI. To evaluate phage products for safety and efficacy, we will conduct clinical studies, starting with a single center phase 1 study to analyze safety and refine treatment protocols. Patients with indwelling catheters or under intermittent catheterization will be enrolled and treated with CAUTIphages. A subsequent evaluation in a multicenter phase 2 randomized controlled trial will be conducted comparing phage therapy to standard treatment.

Conclusions

CAUTIphages could present a solution in the fight against antibiotic-resistant organisms. Phages will be isolated from the environment and genetically modified. Through thorough preclinical evaluation we will be able to select the most suitable candidates for clinical studies to evaluate safety and efficacy of their intravesical application.

P35

A sham-controlled trial of sacral neuromodulation for neurogenic bladder

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Background & Aims

Sacral neuromodulation (SNM) is a well-established treatment for refractory non-neurogenic lower urinary tract dysfunction and might also be effective in patients with an underlying neurological disorder. However, there is a lack of randomized controlled trials (RCT) investigating SNM for treating neurogenic lower urinary tract dysfunction (NLUTD). It was the objective of the present study to assess the efficacy and safety of SNM for treating NLUTD.

Methods

Patients with refractory NLUTD and intended SNM were eligible for this sham-controlled, double-blind multicenter RCT. After minimally invasive bilateral tined lead placement into the sacral foramina S3 or S4, patients underwent SNM testing. If successful ($\geq 50\%$ improvement in key bladder diary variables), the neurostimulator was implanted for permanent SNM. For two months, the effectiveness of SNM was optimized using sub-sensory stimulation with individually adjusted parameters. Participants were then randomly assigned in a 1:1 ratio to either SNM verum or sham stimulation and re-evaluated after a two-month double-blind intervention phase. The primary outcome was success of SNM verum versus sham stimulation compared to baseline.

Results

Of 124 patients undergoing SNM testing, 65 (52%) tested positive and 60 could be randomized. After a two-month double-blind intervention phase, SNM remained successful in 22 (76%) of 29 patients receiving SNM verum and in 13 (42%) of 31 receiving SNM sham stimulation (odds ratio, 4.35; 95% confidence interval, 1.43 to 13.21; $P=0.009$). During the entire study period, there were 10 adverse events and 6 of those resulted in a study dropout. There was no dropout during the double-blind intervention phase.

Conclusions

Sacral neuromodulation is effective and safe for treating refractory NLUTD in well-selected neurological patients.

P36

Analysis of signal and contrast in a multi-echo gradient-echo sequence of the lumbosacral cord: recommendations for number of echoes and repetitions for prospective neuro-urological studies

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Many neurological disorders affect the lumbosacral cord, having profound clinical implications on bladder function. Atrophy of this region can be detected by measuring the spinal cord (SC), gray (GM) and white matter (WM) area. The feasibility of tissue-specific segmentation was demonstrated in the lumbar enlargement [1] and the conus medullaris [2], using spoiled multi-echo gradient-echo sequences, which provide good contrast between GM, WM, and cerebrospinal fluid (CSF). However, there is no consensus on the sequence parameters, limiting reproducibility of segmentations, the comparability of studies and hindering clinical adoption. Number of echoes and repetitions have profound effect on the signal and contrast properties of the image, affecting the segmentation. We aimed to provide recommendations on the number of echoes and repetitions for optimal segmentability, considering factors such as contrast and imaging time.

A Siemens FLASH sequence (3T Siemens Prisma) with 5 echoes and 8 repetitions was used to acquire 20 axial slices (5 mm thickness) in the lumbosacral cord of 10 healthy subjects. A series of images were created by averaging an increasing number of successive echoes and repetitions, resulting in a total of 40 images. Based on manual segmentation of SC and GM in one image of the series (echo 1-3, meas 1-8), binary masks were obtained to calculate signal-to-noise ratio (SNR) and contrast-to-noise ratio (CNR) in each of the 40 images. In addition, each image was rated by 5 experts for GM and SC segmentability.

We found that averaging several echoes increases the SNR of GM and WM and the CNR between tissues. When averaging more and more echoes, CNR between WM/CSF keeps increasing at an incrementally lower rate, while CNR between GM/WM shows a flat peak at 3-4 averaged echoes. SNR of GM and WM follow an approximate square-root dependency on the number of repetitions, but with diminishing improvements above 6 repetitions. CNR between tissues also follow a similar dependency, increasing minimally above 6 repetitions. Averaging 3 echoes was ranked highest in terms of SC and GM segmentability.

For optimal segmentation of SC and GM, we suggest a minimum of 3 and a maximum of 4 echoes using the shortest possible echo times and a minimum of 6 signal repetitions. This research and proposed sequence parameters represent a step toward standardized protocols in the lumbosacral cord, which can be readily introduced into prospective neuro-urological studies.

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Development of an appropriate sham procedure to investigate transcutaneous tibial nerve stimulation in randomized, sham-controlled, double-blind clinical trials

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Background

Tibial nerve stimulation (TNS) is an effective and safe treatment option for lower urinary tract symptoms (LUTS).[1,2,3,4] In contrast to the percutaneous approach, transcutaneous TNS (TTNS) is less common, but more attractive considering the lower costs, non-invasiveness and possibility for home application.[1] A few randomized controlled trials (RCTs) provide limited evidence for TTNS effectiveness in LUTS therapy[2], however, there is inconsistency in the sham and blinding setup which hampers the interpretability and only partially allows to control for non-specific TTNS effects.[1,2,4,5,6] Our aim was to develop a suitable sham protocol keeping the participant blind to the treatment with similar conditions to the established TTNS approach (procedure, electrode positions, size, threshold values and blinding) without significantly stimulating the tibial nerve.

Methods

TTNS (20 Hz / 0.2 ms) was performed at three sham electrode positions (lateral malleolus[7] / 5th metatarsal[5] / plantar calcaneus). Two different electrode sizes (diameter: 2.5 cm / 3.2 cm) were compared in 15 healthy subjects regarding feasibility, sensory / motor thresholds with type and localisation. Additionally, reliability of thresholds was investigated in a subset of the group. Standardized procedures were developed in order to maintain blinding and control for unspecific TTNS effects (e.g. stimulation setup, interaction time, etc.).

Results

With stimulation at the sole of the foot and lateral malleolus, no or only very high motor thresholds could be obtained. Well tolerable and detectable sensory as well as motor responses were found for the 5th metatarsal electrode position in the subjects. Higher sensory, but lower motor thresholds were found for 3.2 cm electrodes ($p < 0.05$). Motor responses were observed at 3rd / 4th / 5th toe. Standardized subject instructions could be implemented.

Conclusions

Among all tested electrode positions and electrodes, 3.2 cm electrodes at 5th metatarsal position proved to be most suitable as a sham-control condition for TTNS. Our optimized procedure comprising standardized stimulation setup and subject

instructions is a promising approach to control for unspecific effects of TTNS in a blinded setup. This is essential to investigate specific TTNS effects in RCTs to increase our knowledge in the field of Neuro-Urology and neuromodulation.

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Reduced reflex autonomic responses following intradetrusor onabotulinumtoxinA injections: A pre/post study in individuals with cervical and upper thoracic spinal cord injury

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Introduction

Urodynamic studies (UDS) can provoke autonomic dysreflexia (AD) in individuals with spinal cord injury (SCI) at and above the sixth thoracic (T6) spinal segment potentially leading to profound vagally mediated heart rate reductions. Intradetrusor onabotulinumtoxinA injections have been shown to reduce AD events during UDS in this cohort but evidence is lacking whether this treatment can improve reflex autonomic responses.

Methods

We assessed the effects of intradetrusor onabotulinumtoxinA injections on heart rate variability (HRV) responses to UDS in individuals, 18-65 years of age, with chronic (>1-year) SCI at or above T6 with confirmed neurogenic detrusor overactivity and AD during UDS. After enrollment, participants underwent UDS prior to and one month after intradetrusor onabotulinumtoxinA injections (200 units). The main outcomes measures were continuous electrocardiogram (ECG) and blood pressure (BP) recordings were used to assess RR-interval, time and frequency domain metrics of HRV (a surrogate marker of autonomic nervous system activity), and AD pre- and post-intervention.

Results

A total of 19 participants with SCI (5 women; mean [SD] age 42 [8.3] years) with complete ECG and BP data sets were suitable for autonomic analysis. During baseline UDS, an increase in RR-interval (adjusted mean difference, -0.08; 95% CI, -0.14 to -0.03; $p = 0.002$) as well as time and frequency domain metrics of HRV were detected.

To perform injury-level-dependent analyses, all participants in the present cohort with upper thoracic SCI ($n=6$ mean [SD]; age, 44 [8.83] years; time-post-injury, 20 [13.7] years) were assigned age matched (within 5 years) cervical SCI controls for comparison ($n=6$ mean [SD] age, 44.3 [10.2] years; time-post-injury, 14.3 [13.7] years).

Vagally mediated increases in high frequency (HF) power during UDS were larger in participants with cervical SCI compared to upper thoracic SCI (adjusted mean difference, 20.3; 95% CI, 3.3 to 37.2; $p = 0.013$). Intradetrusor onabotulinumtoxinA injections significantly reduced time domain metrics of HRV and HF power (adjusted mean difference, 9.1; 95% CI, 3.1 to 15.1, $p < 0.01$) responses to UDS across all participants.

Conclusions

Changes in HRV during UDS could be a potential indicator of improved autonomic cardiovascular function following interventions such as intradetrusor onabotulinumtoxinA injections.

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A dormant chance to better assess and understand human lower urinary tract afferent nerve function: A systematic review and meta-analysis

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Background & Aims

Lower urinary tract electrical sensory assessment (LUTESA), which includes current perception threshold (CPT) and sensory evoked potential (SEP) recording, has become a promising technique providing valuable information on the responsiveness of lower urinary tract (LUT) afferent nerves. The aim of this review was to summarize the literature on LUTESA, to discuss technical aspects and confounding factors of applied methods, and to explore their potential for LUT diagnostics.

Methods

The review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. The literature search was performed in three databases (from January 1, 1946 to October 13, 2020): Medline (PubMed), Embase, Scopus. Meta-analyses were performed and methodological qualities of the included studies were defined by assessing risk-of-bias (RoB) and confounding.

Results

After screening 9925 articles (without duplicates), 80 studies (5 randomized controlled trials (RCTs) / 75 non-RCTs) were retrieved. In total, 3732 patients and 692 healthy subjects were included. 61 studies applied CPTs and 19 studies reported on SEPs, with or without corresponding CPTs. The recording of LUTCPTs and SEPs was shown to represent a safe and reliable assessment of LUT afferent nerve function in healthy subjects and patients. LUTESA demonstrated significant differences in LUT sensitivity between healthy subjects and neurological patients as well as after interventions such as pelvic surgery or drug treatments. Pooled analyses showed that several stimulation parameters (i.e. stimulation frequency, location) as well as patient characteristics might affect outcome parameters of LUTESA (CPTs, SEP latencies, peak-to-peak amplitudes, responder rate). RoB and confounding was high in most studies.

Conclusions

Preliminary data show that CPT and SEP recordings are valuable tools to more objectively assess LUT afferent nerve function. LUTESA may complement already established diagnostic tools such as urodynamics to allow a more comprehensive neurophysiological workup of the patients. The high RoB and confounding rate was rather related to the inconsistency and inaccuracy in reporting of study population, methodological approach, and outcomes than the LUTESA technique itself. Therefore, it is crucial to advance standardization of LUTESA and to perform well-designed and powered RCTs to implement LUTESA as a diagnostic, clinical assessment tool.

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Der neue artifizielle Harnröhrensphinkter VICTO – eine wirksame Alternative bei der Behandlung der Post-Prostatektomie-Inkontinenz

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Einleitung

Die persistierende Inkontinenz nach radikaler Prostatektomie ist mit 8–30% eine substantielle Komplikation und hat enorme Auswirkungen auf die Lebensqualität der betroffenen Patienten. Je nach Ausprägungsgrad der Inkontinenz werden verschiedene Therapiekonzepte angewendet. Mit dem artifiziellen Harnröhrensphinkter VICTO gibt es seit ein paar Jahren eine adjustierbare Alternative.

Methode

Es handelt sich um eine retrospektive Datenerhebung der von März 2019 bis April 2021 implantierten artifiziellen Harnröhrensphinkter VICTO. Dabei wurden zum einen die verschiedenen Indikationen für die Implantation zum anderen Art und Zahl der Komplikationen sowie die Häufigkeit der Rezidiv-Inkontinenz in dieser Zeitspanne erfasst.

Ergebnisse

Im angegebenen Zeitraum wurden bei uns 30 Patienten der artifizielle Harnröhrensphinkter VICTO implantiert. Häufigste Indikation war erwartungsgemäß die Post-Prostatektomie-Inkontinenz (N=28). Weitere Indikationen für die Implantation waren die schwere Stressinkontinenz nach transurethraler Prostataresektion und post-Radiatio (N=2). Bei 25 Fällen handelte es sich um primäre Implantationen. Bei 5 Fällen wurde aufgrund einer Rezidiv Inkontinenz bei Patienten mit bestehendem AMS 800-Sphinkter (Flüssigkeitsverlust) ein Ausbau und Wechsel auf den VICTO durchgeführt. Bei keiner Implantation musste eine Revision durchgeführt werden. Ebenso kam es in keinem Fall zu einer Infekt-Komplikation. Das durchschnittliche Nachspritzen des Sphinkters lag zwischen 1 bis 3 Mal.

Diskussion

Der AMS 800 gilt als Goldstandard bei der Therapie der schweren Harninkontinenz, wobei in einer früheren Serie von uns eine soziale Kontinenz in 94% der Fälle erreicht werden konnte. Der adjustierbare, artifizielle Harnröhrensphinkter VICTO zeigt in unserer Studie eine ebenso gute Erfolgsquote bei weiter sehr niedriger Komplikationsrate. Der Zufriedenheitsgrad der Patienten liegt bei über über 95%. Einen Vorteil sehen wir in der Adjustierungsoption bis zum leak-Point. Somit ist der VICTO-Sphinkter bei richtiger Indikation und hoher Detailpflege bei der Implantation eine wirksame Alternative bei der Behandlung der post-Prostatektomie-Inkontinenz.

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Critical illness Polyneuropathy and urinary tract dysfunction, a retrospective observational study

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Background

Critical illness Polyneuropathy (CIP) and myopathy (CIM) are overlapping pathologies of diffuse and flaccid muscle weakness, occurring as complications of critical illnesses. From a urological perspective, these entities seem to increase the risk of lower urinary tract dysfunction, as shown by Reitz (2013). We aim to identify the consequences of these pathological entities on the lower urinary tract function, and examine their recovery rate.

Patients and Methods

We performed a retrospective, observational study on all adult patients admitted for rehabilitation between 2010 and 2021 with the diagnosis of CIP and/or CIM. Data regarding the patient characteristics, the severity of their disease, results of urological evaluations and their follow-up were extracted from electronic medical files.

Results

Between 2010 and 2021, 100 patients were identified with a diagnosis of CIP and/or CIM, of which 11 with an original diagnosis of COVID-19. The population was relatively young (mean age of 64 years) and primarily male (70%). All patients had been mechanically ventilated in the context of their acute illness. Almost half of the patients were admitted with an indwelling catheter (n=45), and 13 were discharged with indwelling catheter, either transurethral (7) or suprapubic (5). Of these 13 patients, 11 had an additional medical condition that can cause lower urinary tract dysfunction (other predominant neurological diagnosis, other urological diagnosis or acute deterioration of their general condition), 1 refused the catheter removal. Only one patient had no other diagnosis than CIP explaining the lower urinary tract dysfunction. For this last patient, a urodynamical examination showed an early-sensitive (60 ml), hypopacitary bladder (69 ml) with terminal detrusor overactivity. Among the discharged patients with spontaneous micturion, only 4 patients described a worsening of lower urinary tract function at discharge, and all of them also presented another neurological diagnosis that could explain this symptomatic.

Conclusions

Due to the low rate of urodynamical examinations performed on this cohort (n=5), we could not evaluate precisely the consequences of CIP/CIM on lower urinary tract function. However, patients with no other relevant neurological or urological disease seem to have a high chance of recovery. A catheter removal should therefore be performed as fast as possible, in order to reduce the risk of complications.

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Earlier detection of recurrences using serum micro-RNA371 during active surveillance in men with stage I testicular germ cell tumours in the Swiss Austrian German Testicular Cancer Cohort Study

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Introduction

Micro-RNA371 predicts the presence of macroscopic non-teratomatous germ-cell tumour (GCT). We hypothesised that micro-RNA371 can also detect recurrence during active surveillance (AS) of stage I GCT.

Methods

Between April 2019 and January 2021, we prospectively collected 143 serum samples of 33 men with stage I testicular GCT undergoing AS after orchiectomy who were registered in the Swiss Austrian German Testicular Cancer Cohort Study (SAG TCCS; NCT02229916). In addition, pre- and post-orchiectomy serum samples from 10 men who underwent orchiectomy but had non-GCT histology were used as controls. The micro-RNA371 results were not communicated to the treating clinicians and did not influence follow-up management.

Results

During a median follow-up time of 15 months (interquartile range [IQR] 7–20), 10 of the 33 patients (30%) recurred after a median of 7 months (IQR 6–14). Early after orchiectomy, micro-RNA371 levels were not elevated in any patient with available pre- and post-orchiectomy serum samples (n=15). However, all 10 patients with recurrences exhibited an elevation of their micro-RNA371 levels during follow-up (Figure 1). Patients without recurrence did not display this elevation except one patient, who had a single increased level which was no longer measurable at the next follow-up measurement. Recurrences were detected at a median of 2 months (IQR 0.5–3, range 0-5) earlier using micro-RNA371 than using the standard follow-up investigations. All micro-RNA371 levels of men with non-GCT histology were negative.

Discussion

In conclusion, micro-RNA371 levels immediately post-orchietomy are not predictive for recurrences and unfortunately cannot impact decision-making for AS vs. adjuvant treatment. However, micro-RNA371 detects recurrences reliably and earlier than the standard follow-up investigations. If this is confirmed in larger cohorts, monitoring micro-RNA371 could replace imaging in seminomatous GCT but only reduce the amount of imaging in non-seminomatous GCT as recurring pure teratomatous GCT cannot be detected by serum micro-RNA371. Furthermore, microRNA-371 monitoring during AS may allow earlier detection of disease recurrence which can result in a lower stage of disease at diagnosis and overall treatment burden in selected patients.

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Diagnostic accuracy of dynamic sentinel lymph node biopsy (DSNB) in men with \geq T1G2 penile cancer

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Introduction & objectives

Men with \geq T1G2 penile cancer harbour inguinal micro metastatic disease in >20%. The aim of this study was to assess the diagnostic accuracy of dynamic sentinel lymph node biopsy (DSNB) after negative ultrasonography (US) guided fine needle aspiration or biopsy.

Materials & methods

We performed a retrospective cohort analysis of men presenting with \geq T1G2 penile cancer staged with inguinal US and DSNB. Men with \geq T1G2 local recurrence during follow-up and non-squamous cell histologies were excluded. ILN involvement was defined as cancer detected during DSNB, ILN dissection or non-local recurrence. Descriptive analyses and 2x2 tables were performed.

Results

We included 403 men with 728 groins staged with DSNB. At least one sentinel node (SN) was visualised in 679 (93%) during the 1st and in 49 (7%) during the 2nd lymphoscintigraphy. Median SN visualised preoperatively was 1 and a median of 2 nodes were resected. ILN metastases were detected in 58/615 groins in men with non-palpable (cN0), in 17/101 men with palpable lymph (cN1) and 2/12 with unclear clinical lymph node status (cNx). Stratified by cN0 and cN1 disease, distant recurrence despite pathologically negative DSNBs was observed in 3/557 groins (0.5%) and 0/84 groins (0%). Limited to men with at least 24 months follow-up, non-local recurrence despite pathologically negative DSNBs was observed in 2/557 groins (0.4%) and 0/84 groins (0%). The sensitivity of DSNB was 96% and the NPV 100%.

Conclusion

At our institution DSNB with preoperative scintigraphy, a gamma probe and blue dye has a very high NPV.

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Risk of inguinal lymph node metastases in men with T1G2 penile cancer stratified by lymphovascular invasion

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In men with penile cancer, early detection and removal of inguinal lymph nodes (ILN) with metastatic disease is important as most patients can be cured with ILN dissection at this early metastatic stage. Current guidelines recommend invasive ILN staging in men with > T1G2 penile cancer and surveillance in ≤T1G1. In men with T1G2, the European Association of Urology guideline does not clearly specify whether invasive ILN staging is needed whereas the National Comprehensive Cancer Network guidelines only recommend invasive ILN staging in T1G2 with lymphovascular invasion (LVI). We analysed the risk of inguinal lymph node (ILN) metastases in T1G2 penile cancer and whether stratification based on lymphovascular invasion (LVI) is helpful in predicting ILN metastases.

This retrospective cohort included 477 men with a mean age of 65 years (±13), with pure squamous cell carcinoma in 90%, basaloid/warty/sarcomatoid variants in 7% and other variants or missing in 3%. During a median follow-up of 27 months (IQR 11-62), any ILN involvement was observed in 42/477 men (9%, 95% confidence interval (CI) 6-11%) of which 17/42 died, 5 because of penile cancer and 12 because of non-cancer associated reasons. LVI was present in 30, absent in 417 and missing in 30 men. Men with LVI patients had higher odds for ILN metastases compared to men without LVI (OR 3.9, 95% CI 1.5-6.5, p-value < 0.01). Expressed as proportions, men with LVI had a ILN metastases risk of 23% (95% CI 10-42%) compared to 7% in men without LVI (95% CI 5-10%, p-value < 0.01).

The current data set represents the largest retrospective cohort of men with T1G2 penile cancer treated at five high-volume European centres with centralisation of diagnostics and treatment with a sample size allowing stratification by LVI status. We could confirm that similarly to men with > T1G2 penile cancer [8] and other urogenital cancers [9], LVI is a rare but strong risk factor for ILN metastases in men with T1G2. Our results support invasive lymph node staging in all men with T1G2 with LVI. In T1aG2 we recommend balancing the risk of ILN metastases against the morbidity of ILN staging on a case-by-case decision taking life expectancy, age and comorbidity into account.

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Introduction of the Swiss second-opinion online portal on germ cell tumours

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Given the rarity of germ cell tumours, sufficient experience and up-to-date clinical knowledge regarding management is challenging. Inadequate treatment can have serious negative consequences for these young patients either in form of a higher relapse and potentially a higher mortality rate through under-treatment, or in form of excess late toxicities arising from overtreatment.

Supported by the Swiss Cancer League, we developed a web-based interactive online portal which can be accessed by physicians and patients to contact Swiss germ-cell tumour experts. These experts will be available to all physicians and patients free-of-charge, regardless of whether they work in clinical departments or private practices. Patients must sign an informed consent, which together with clinical data including original pathology, radiology and summary letter must be uploaded for review. In this presentation we will demonstrate the web-based tool to the Swiss Urology Conference attendees and answer remaining questions.

We expect that this online second opinion portal will have a major impact on the quality of care of germ-cell tumour patients in Switzerland. Through an initial pilot phase, we will assess second opinions regarding adherence to guidelines, the change of treatment plan and cancer specific outcomes. If successfully launched and used by clinicians, we will approach health insurance companies in Switzerland for reimbursement as already established in Germany. A recommendation from an online germ-cell tumour second opinion portal may become part of the routine care in the near future. In addition, this second opinion online portal may eventually serve as a model for other rare cancers e.g. penile cancer.

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How we implemented PCNL at CHUV: preliminary results of our PCNL cohort

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Background and objectives

The prevalence of nephrolithiasis is increasing over the past decades. Percutaneous nephrolithotomy (PCNL) is the intervention of choice for kidney stones > 2 cm according to current guidelines which makes it an essential procedure of the endoscopic armamentarium. As it was not commonly performed in the canton of Vaud in the past few years, we newly implemented the percutaneous technique at our University Center. We present the preliminary results of our cohort and the evaluation of the number of cases.

Material and methods

Retrospective analysis of a consecutive series of percutaneous interventions (Mini-PCNL; PCNL) performed at our institution since the introduction of the procedure in September 2018. Control of stone free rate was performed by intraoperative radiography.

Results

Seventy-eight procedures (51 PCNL, 27 Mini-PCNL) were performed from September 2018 to December 2020. In the initial 3 trimesters 1 – 2 patients were operated which increased up to 21 patients in the third trimester of 2020. Before 11/2019 (change of the Head of Department), 38% of patients were addressed by external doctors, while this ratio increased to 57% of patients subsequently even though more patients were treated by percutaneous intervention. Median stone size was 22 mm (IQR: 15 – 30). Stone analysis revealed calcium oxalate in 36%, struvite in 14%, and others in 50%. Median operative time was 104 min (IQR: 82 – 133), with Mini-PCNL being globally shorter (median 91 min (IQR: 70 – 118) vs 111 min (IQR: 87 – 157) for PCNL). 83% of patients were stone free after one percutaneous intervention and did not need further treatment: 85% (23/27) after Mini-PCNL; 82% (42/51) after PNL. Postoperative stone free rates were significantly associated with complexity of the intervention as measured by Guy's stone score (1-4)(1): 100% (14/14) with score 1; 85% (17/20) with score 2; 79% (27/34) with score 3, and 63% (5/8) with score 4. Overall complication rate was 38% (29/76). Eight patients (11%) presented post-operative complications Clavien-Dindo grade \geq 3: Post-operative bleeding (2/8), respiratory and cardio-vascular (2/8) and urinary (4/8).

Conclusion

Compared with literature reports our cohort experienced a lower number and severity of complications. Stone free rates are inversely associated with higher complexity. With the implementation of high quality PCNL procedures at CHUV an increasing number of patients are referred for percutaneous treatment.

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Super-mini percutaneous nephrolithotomy: preliminary series

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Introduction

Super-mini PCNL (SMP) is a novel method differing from other miniaturization techniques by offering continuous low pressure suction and controlled high pressure suction through the 16Fr disposable ClearPetra® sheath (Well Lead Medical Co., Ltd, China). The aim of this study is to present the outcome of an initial series in our institution.

Material and Methods

Retrospective review of all consecutive SMP performed at our institution between February 2020 and May 2021. Patients included presented renal stones not suitable for ESWL or retrograde intrarenal surgery (RIRS). Patient and stone characteristics, operative parameters, hemoglobin decrease, stone-free status, post-op hospital stay and complication rates were analyzed. Stone-free status was defined as no residual fragments ≥ 4 mm. The technique was performed by the same surgeon. Patients were placed in prone position. A 16Fr ClearPetra Sheath and a 11Fr nephroscope were used. Stones were fragmented using Holmium or Thulium laser. Post-operative drainage never required a nephrostomy tube, and could be limited to an antegrade ureteric stent positioned at the end of the procedure. Bladder catheter was removed on post-op day 1.

Results

11 patients had SMP, with a mean age of 55 ± 10 and a mean BMI of $26,6 \pm 2,5$ kg/m². Mean stone size was 21 ± 3 mm with a mean density of 1244 ± 193 HU. 6 were located in the pelvis, 3 in the lower calyx, 1 in the middle calyx and 1 in the upper calyx. Mean operative time was 176 ± 24 minutes. 10 patients had a mean hemoglobin decrease of $15,6 \pm 4,3$ g/l and one patient developed a retroperitoneal hematoma with a severe Hb drop of 65 g/l, with no need for blood transfusion nor embolization. 10 patients were stone-free (91%). Mean post-op length of stay was $1,9 \pm 1$ days, with 8 patients being discharged from the hospital on post-op day 1. 3 patients presented Clavien grade 2 complications (27% ; 2 post-op fever requiring antibiotics and 1 retroperitoneal hematoma) and were discharged from the hospital on post-op day 3 to 5. There were no Clavien complications ≥ 3 . Mean follow-up was 5,3 months; no patient presented with stone recurrence.

Conclusions

The data show that SMP seems to be a safe and effective technique for PCNL addressing stones of approximately 2 cm. It is associated with a high stone-free rate, low level of blood loss, short length of stay and limited low grade complications.

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Does the treatment of kidney stones impair urine pH and influence recurrence?

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Objectives

Nephrolithiasis is a worldwide health care problem. Treatment options include shock wave lithotripsy (SWL), retrograde intrarenal surgery (RIRS), percutaneous nephrolithotomy (PCNL), and conservative management. There is, however, a lack of knowledge about the impact of stone treatment on kidney function. Over the last three decades there was a change in stone composition with an increasing prevalence of calcium phosphate stones. Calcium phosphate crystallization is driven by urinary calcium phosphate supersaturation which rises with elevated urine pH. A recent animal study revealed an increase in urine pH of SWL treated porcine kidneys. We therefore evaluated the effect of kidney stone treatment on urine pH and the influence on recurrence.

Methods

Retrospective analysis of 884 patients referred for kidney stone treatment at a tertiary referral University Hospital between August 2004 to December 2018. 208 patients had to be excluded because of incomplete data on previous stone treatment and follow-up. The remaining 676 patients were distributed into 4 different groups according to their previous treatment: group 1, SWL (n=482); group 2, RIRS (n=47); group 3, PCNL (n=18); group 4, spontaneous stone passage (control group; n=129). The paired t-test and one-way ANOVA was used to compare the change of urine pH over time within and between the 4 different groups.

Results

Demographic data and kidney stone characteristics were comparable in the four different groups, with the exception of a larger stone size in patients undergoing endourological intervention, particularly PCNL. The mean urine pH before treatment was 5.92 and did not significantly differ between the 4 groups (p = 0.5). There was no significant rise in urine pH at follow-up visits in all groups. 365/676 (53%) patients developed a symptomatic recurrent stone during a median follow-up of 23 months (IQR: 4-56). Neither stone treatment (p = 0.496) nor mean urine pH after treatment (p = 0.921) were significantly associated with recurrence. There was no change in stone composition after SWL, particularly no increase in prevalence of calcium phosphate stones.

Conclusion

No significant increase in urine pH in the postoperative period was observed. This suggests that the tubular cell injury caused by kidney SWL is only temporary and does not lead to a long-term change in urine pH. The type of stone treatment did not impact recurrence rate nor stone composition of recurrence.

P49

Postoperative urosepsis after flexible ureteroscopy: impact of a revised irrigation fluid protocol with limited gravity irrigation pressure

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Introduction

High irrigation pressure has been suggested as a risk factor for postoperative urosepsis. Accordingly, this study evaluates the impact of a revised irrigation protocol with limited gravity irrigation pressure on postoperative urosepsis rate.

Methods

All patients undergoing flexible ureteroscopy for upper urinary tract disease between 2015 and 2019 in our institution were retrospectively analyzed. Patients with missing postoperative surveillance data were excluded.

Primary endpoint was postoperative urosepsis, defined by ≥ 2 of the following criteria: postoperative fever $>38.0^{\circ}\text{C}$, tachycardia or hypotonia. Study design did not allow for inclusion of other sepsis criteria.

Patient characteristics, operative data as well as a revised irrigation protocol were considered as potential predictors of urosepsis. Until October 2018, default irrigation pressure was set at 163 cmH₂O using an automated irrigation pump (Storz Uromat), whereas the revised irrigation protocol limited this pressure to 80 cmH₂O using gravity irrigation.

Results

A total of 1180 patients were available for analysis, with 363 females (31%) and 817 males (69%). Mean age was 53 years. Mean operative time was 85 minutes. Antibiotic prophylaxis was used in 973 patients (83%), with the remaining 206 patients (17%) under prolonged antibiotics. An UAS was used in 867 patients (74%), with 717/843 (85%) and 150/337 (45%) before and after implementation of the revised irrigation protocol, respectively. Postoperative fever occurred in 37 patients (3%), hypotonia in 169 (14%) and tachycardia in 103 (9%), accounting for 36 patients fulfilling the urosepsis criteria (3%). Independent significant predictors of postoperative urosepsis were female sex, increasing operative time and prolonged antibiotics. On multivariable analysis, UAS use was significantly associated with a higher risk of fever, whereas the revised irrigation protocol was associated with a significantly lower risk of hypotonia.

Conclusions

Postoperative urosepsis may occur in up to 3% of patients undergoing flexible ureteroscopy. No evidence suggests any impact of a revised irrigation protocol with low irrigation pressure on postoperative urosepsis rate. Nevertheless, the revised irrigation protocol seems to significantly reduce the risk of postoperative hypotonia. Of interest, UAS use does not impact on the risk of urosepsis either. Contrarily, UAS may be associated with a higher risk for postoperative fever.

P50

The impact of stenting prior to oral chemolysis of upper urinary tract uric acid stones

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Objectives

To evaluate the impact of ureteral stenting on the success rate of oral chemolysis (alkalization of urine) in the management of suspected uric acid upper urinary tract (UUT) stones.

Methods

Retrospective matched-pair analysis of 172 patients with UUT stones treated with oral chemolysis from 01/2010 to 12/2019 at a single institution. Patients with low density (upon non-contrast enhanced computer tomography [NCCT]), radiolucent (on plain radiography) urinary stones, low urine pH (< 6) and/or history of uric acid urolithiasis were included. Potassium citrate and/or sodium bicarbonate were used for alkalization with a target urine pH of 6.5–7.2. Patient 1:1 matching was performed for the presence of indwelling ureteral stent, stone diameter, stone density (HU), and stone location. Stone free status of each patient was evaluated after 12 weeks of oral chemolysis using NCCT. Multivariable logistic regression analysis was used to assess factors affecting the outcome.

Results

Mean patient age was 61 years (73% males). Mean stone size was 12 mm, mean stone density 415 HU. Overall success rates after 12-weeks of chemolysis for stones at any location in the UUT and ureteral stones were 60.5% and 77.3%, respectively. Smaller stone size (any location; OR = 0.94; CI = 0.888 – 0.992; p = 0.026) and lower pre-treatment urine pH (ureteral stones; OR = 0.131; CI = 0.023 – 0.737; p = 0.021) significantly increased the success of oral chemolysis. We could not show any impact of ureteral stenting on the efficacy of oral chemolysis.

Conclusions

Oral chemolysis is an effective treatment modality for patients with upper urinary tract stones suspected of uric acid content irrespective of ureteral stenting. Smaller stone diameter and lower urine pH at diagnosis increase its efficacy.

P51

Einflussfaktoren für spontanen Steinabgang bei einliegender Harnleiterschleife

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Einführung

Bei Patienten mit Ureterolithiasis erfolgt häufig die Harnleiterschleife. Hierunter kommt es teilweise zu einem spontanen Steinabgang, die Literatur zur Abgangsrate ist jedoch rar. Wir wollten die Häufigkeit und prädiktive Faktoren für die Passage von Steinen mit einliegendem Ureterstent identifizieren.

Methoden

Alle Patienten von Januar 2015 bis August 2020 mit Ureterolithiasis wurden auf die spontane Abgangsrate nach Einlage einer Harnleiterschleife untersucht. Wir analysierten Retrospektiv die Daten von präoperativen CT und Ergebnissen aus der sequentiellen Ureterorenoskopie. Es erfolgte eine multivariate logistische Regressionsanalyse zur Identifikation von prädiktiven Faktoren.

Resultate

Insgesamt wurden 401 Patienten untersucht. Die spontane Abgangsrate betrug 23,7% (n = 95) bei einem mittleren Steindurchmesser von 4,7 mm (IQR 3,3-5,6 mm). Die Abgangsrate bei einem Durchmesser von 0 bis 2,9 mm, 3 bis 4,9 mm, 5 bis 6,9 mm, 7 bis 8,9 mm und > 9 mm betrug jeweils 75%, 37,1%, 19,1%, 10,3% bzw. 8,2% (Tabl. 1). Die Steinlokalisation (OR 1,63, CI 1,31-2,06, p < 0,001), der maximale Steindurchmesser (OR 1,31, CI 1,11-1,55, p = 0,002) und das Steinvolumen (OR 1,01, CI 1,00-1,02, p = 0,008) waren unabhängige Prädiktoren für die Passage. Die Durchgangsrate der Steine im distalen, medialen und proximalen Ureter betrug 70,8%, 12,5% bzw. 16,7%.

Konklusion

Fast die Hälfte der Steine mit einem maximalen Durchmesser von < 5 mm zeigten einen Spontanabgang (42,6%). Aufgrund der Daten unterstützen wir die Einlage einer Harnleiterschleife bei Ureterolithiasis auch bei kleinem Steinvolumen. Bei ausgewählten Patienten sollte eine wiederholte Bildgebung vor der operativen Behandlung in Betracht gezogen werden, um weitere Behandlungsentscheidungen richtig treffen zu können.

P52

Remote ischaemic PreConditioning (RIPC) before partial nephrectomy prevents ischemia/reperfusion injury

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Background & Goals

Cardio-thoracic studies have demonstrated a renoprotective potential of “Remote Ischaemic PreConditioning” (RIPC). The RIPC intervention generates cycles of ischemia and reperfusion of the limbs before the actual ischemia of the target organ (e.g. kidney) is initiated. This study aims to investigate the renoprotective effect of RIPC in patients undergoing partial nephrectomy (PN) with ischemia/reperfusion injury (IRI) of the kidney.

Material and methods

Randomized controlled trial (1:1) with RIPC in the intervention arm. Urinary NGAL (Neutrophil Gelatinase-Associated Lipocalin), a biomarker for renal tubular damage, and serum creatinine were measured preoperatively for the first five days after surgery and three months postoperatively in the overall study population of 15 patients. Functional BOLD-MRI (blood oxygenation level dependent-MRI) was performed preoperatively and 48 hours after PN in 11 patients. Data are shown as median with interquartile range.

Results

The cumulative urinary concentration of NGAL in the first five post-operative days is significantly lower in the RIPC group ($p = 0.02$). The highest difference was seen six hours after surgery with NGAL being 65 % lower in the RIPC arm (8804 (4813-37319) pg/ml vs. 47936 (27113-134407) pg/ml, $p=0.04$). The rate of acute kidney injury (AKI) was 50% lower in the RIPC arm ($n = 2$) although not statistically significant. Chronic kidney failure was not observed in both groups. In Bold MRI $\Delta R2^*$ of the operated kidney dropped 3.8 times less postoperatively in the RIPC group in contrast to the noRIPC group ($\Delta R2^*$ in % preop/postop RIPC: 14.73/12.57 vs. noRIPC 11.20/3.25, $p=0.86$). The lower the value of $\Delta R2^*$, the more damage the renal tubuli have taken.

Conclusions

The study results indicate a reduction of IRI by RIPC, expressed by statistically significant lower urinary NGAL concentrations in the RIPC group. Bold MRI results are promising to measure IRI and can assume to measure a renoprotective effect of RIPC. A bigger study population is necessary to corroborate the study results.

P53

Should the follow-up schedule after radical nephroureterectomy be revised? An analysis on the timing and location of recurrences

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Introduction and objectives

The current European Association of Urology (EAU) follow-up scheme for high-risk upper tract urothelial carcinoma (HR UTUC) entails cystoscopies every 3 months for one year, semiannually till the 5th year and annually thereafter and imaging semiannually for 2 years and annually thereafter. All of them are “weak recommendations”. In this study we analyzed the risk of recurrence over time in an effort to evaluate whether the current EAU follow-up scheme should be revised based on the recurrence pattern.

Materials and methods

We identified 1,165 patients with HR UTUC from a multi-institutional database, 822 had no history of prior urothelial carcinoma (UC) while 343 had prior UC. Patients were followed up in compliance with the EAU guidelines. The crude risk of recurrence was evaluated against time from RNU with the Locally Weighted Scatterplot Smoothing. Patients were stratified based on their prior history of UC. Additionally, since adjuvant chemotherapy (AC) has been shown to reduce the recurrence risk, a sensitivity analysis was carried out on patients who received AC.

Results

Overall, there were 157 bladder recurrences and 328 in other sites. We create a scheme analysing the risk of bladder recurrence and the risk of other sites recurrence, stratified according to prior UC history; subsequently we compared the risk of any recurrence to the time points when cystoscopies or imaging should be performed, according to EAU Guidelines. Overall, the risk of any recurrence was higher in case of prior BCa. At 5-year, time point after which cystoscopies should be performed semi-annually according to EAU Guidelines, the risk of bladder recurrence was approximately 10%. At 2-year, time point after which imaging should be performed semi-annually, the risk of recurrence was approximately 45%. Thus, we suggest the intensification of cross-sectional imaging to semi-annually till the 4th year of follow-up. After this time point, patients can be counseled about obtaining imaging and performing cystoscopies annually.

Conclusions

Despite the rate of non-bladder recurrence is higher than the risk of bladder recurrence itself, the frequency of cystoscopies, as per guidelines, is higher than the one of imaging. Based on our findings, we suggest the intensification of the imaging scheme to semiannually till the 4th year.

P54

Perioperative safety and short-term oncological outcomes of minimally invasive retroperitoneal lymph node dissection

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Introduction & objectives

Open retroperitoneal lymph node dissection (RPLND) is a treatment option in men with stage 1 or 2 testis cancer and the standard of care in men with post-chemotherapy retroperitoneal residual disease. Minimally invasive RPLND (miRPLND) has been introduced by some centres but only limited data regarding safety and oncological outcomes are available.

Methods

International, multicentre, retrospective cohort study describing patient characteristics, perioperative safety and oncological outcomes of men scheduled for miRPLND.

Results

406 men (14 sites, 8 countries) were studied. Laparoscopic RPLND was performed in 57 and robotic RPLND in 349 men. Indications included pre-chemotherapy RPLND in 261 including 8 with recurrence after one cycle of adjuvant chemotherapy for stage 1 disease and post-chemotherapy RPLND in 145. The median retroperitoneal mass

size was 15mm (IQR 10-19, range 0-31) in pre-chemotherapy RPLND and 20 mm (IQR 15-30, range 0-104) in post-chemotherapy RPLND. Median operative time was 265 minutes (IQR 201-334). Median intraoperative blood loss was 75mL (IQR 50-200) with RBC transfusions in 11 men. Conversion to open surgery was performed in 13 (3%; access problems (6), bleeding complications (4) with blood loss of 1000-6000mL and extent of disease (3)). Intraoperative complications occurred in 15 (4%) men (bleeding (9), ureteric injury (4), bowel injury (1) and thoracic duct injury (1)). Postoperative complications in 28 (7%) men included ascites and/or pleural effusion (11), deep vein thrombosis (6), wound infection (3), rhabdomyolysis (2), incisional hernia (2), post-operative bleeding requiring transfusion (1), clostridia difficile infection (1), limb compartment syndrome (1) and pneumonia (1). Median length of stay overall was 3 days (IQR 2-4) and in men with complications 4 days (IQR 2-6). Within the first 30 days after operation 20 men (5%) were readmitted. During a median follow-up of 13 months (IQR 4-28), relapse was observed in 25 men (6%). Unusual sites of recurrence included the peritoneum around the sigmoid and port site in 1 patient each. At the latest follow-up 401 (98%) men were disease free, 3 alive under treatment and 2 had died from progression.

Conclusions

In an international cohort from experienced centres, low blood loss and short hospital stay was reported for selected men with small volume retroperitoneal disease undergoing pre- and post-chemotherapy miRPLND.

P55

Bladder Cancer: Patient-Derived Organoids as a Tool for Precision Medicine

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Introduction

Bladder cancer (BLCa) is the 10th most frequent cancer worldwide¹, classified as non-muscle invasive (NMIBC) or muscle invasive BLCa (MIBC)². High inter- and intra-tumoral heterogeneity and complexity exist, even within each NMIBC/MIBC subgroups (or subtypes). A more personalized characterization of the BLCa phenotype and drug sensitivity is crucial for patient stratification and tailored treatments. Patient-derived organoids (PDOs)³ are pre-clinical models suitable for drug screening⁴. Our study aims to determine and correlate PDOs drug response to genomic profiles.

Materials&Methods

To generate PDOs, tumor samples were dissociated into single cells and cultured in suspension conditions. Drug sensitivity was evaluated by viability assay after 48 hours of treatment. Whole exome sequencing was performed on genomic DNA from PDOs, parental tumor (PT) and blood (germline control) for each patient. Histological evaluation of the of PDOs and PT morphology was performed.

Results

We derived PDOs from 9 MIBC and 12 NMIBC samples. Genomic profiling showed concordance of mutational burden with the majority of the single nucleotides variants. PTs and PDOs shared relevant BLCa mutations (e.g. loss of p53 and Rb1 for MIBC and amplification of FGFR3 and ERBB2 for NMIBC). Moreover, we confirmed maintenance of tumor heterogeneity and phenotype in PDOs. PDO drug response was assessed using a panel of FDA approved drugs that included standard of care (SOC).

Interestingly, we observed a significant response to SOC only in 5 out of 18 cases. In the majority of these 8 cases, basal cells were predominant in the PDOs. In some cases, the non-SOC drugs, resulted even more effective than SOC drugs; yet no clear correlation between drug response and PDO phenotype was found. In this regard, a deep investigation of PDO mutations will allow us to identify alterations that explain the sensitivity/resistance to target therapy.

Conclusions

Our data support that PDOs are a reliable in vitro model of BLCa heterogeneity. The low sensitivity to SOC of patients highlights the need for novel therapies and the high genomic concordance between PT and PDOs supports the use of PDOs as a tool for this purpose. In addition to single sampling of tumor specimen per patient, we are also performing longitudinal studies by collecting tissue from patients overtime, a procedure that will allow us to investigate not only drug sensitivity but also acquired resistance during cancer progression

P56

Somatic features of response and relapse in non-muscle invasive bladder cancer treated with intravesical Bacillus Calmette–Guérin

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Introduction

Bacillus Calmette-Guerin (BCG) therapy is the gold standard of treatment for non-muscle-invasive bladder cancer (NMIBC). However, clinic-pathological factors predicting response to BCG remain limited in scope and utility. Despite high initial efficacy, 40 - 60% of cases experience local recurrence or progress to muscle-invasive bladder cancer (MIBC). Establishing genetic biomarkers for predicting treatment response will be vital to improving NMIBC patient outcomes.

Methods

We assembled a cohort of 134 NMIBC tumor tissue samples from 94 patients undergoing transurethral resection (TUR) prior to initiation of BCG monotherapy, and TUR or radical cystectomy (Cx) in the event of relapse. We applied an established targeted DNA sequencing strategy, covering recurrently-altered bladder cancer driver genes.

Results

FGFR3 mutations were mutually exclusive with TP53 mutations. The frequency of TP53 alterations was comparable to reports on MIBC and T1 high-grade cohorts (57% pre- BCG and 75% post-BCG). Several patients lost their initial FGFR3 mutation and gained a TP53 mutation. All post-BCG tumours were clonally related to the initial NMIBC. ARID1A-status at the initial biopsy was predictive of BCG-response (HR: 2.08; 95% CI = 1.39-4.02; p=0.028). ARID1A mutations also were more likely to be clonal. Furthermore, all patients with somatic hypermutation, each featuring over 10 mutations per MB, were BCG-responder. CCNE1 amplification was also prognostic for BCG-failure (HR 2.98; 95% CI 1.05-8.47; p=0.041), particularly for MIBC progression (HR: 5.09; 95% CI: 1.42-18-15; p=0.012). Lastly, around 40% of relapsed patients had a major somatic clonal switch over the course of BCG treatment indicative of strong selective pressure by BCG. The median shift in corrected VAF was 21% (R: 0.9%-94.8%), while the median R2 value was 0.886 (R: 0.012-0.999).

Conclusions

Resistance to BCG and progression of NMIBC to MIBC may be linked to loss of tumour suppressor genes and baseline clonal heterogeneity. Somatic hypermutation and ARID1A and CCNE1 mutation status may be predictive of therapy response. Temporal changes at relapse or progression are suggestive of dramatic clonal shifts in response to therapy, despite uniform presence of a common ancestral clone. These shifts include a switch in key driver pathways, i.e., loss of FGFR3 mutation and gain of TP53 mutation.

P57

A Novel Patient-Derived Model of Sarcomatoid Urothelial Bladder Cancer

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Context and objectives

Sarcomatoid urothelial bladder cancer (SARC) is a rare variant of bladder cancer (< 1% of cases) that frequently co-exists with conventional urothelial carcinoma and is linked to a poor prognosis. Given the rarity of SARC, there is limited knowledge on its clinical and pathological features and a lack of experimental models to study the disease pathogenesis. Here, we aimed at developing a clinically-relevant in vitro model of SARC derived from patient's material.

Materials and Methods

We collected a SARC tumor sample obtained from one patient undergoing transurethral resection. The tumor tissue was mechanically dissociated and enzymatically digested to generate a cell suspension that was seeded in Matrigel and immersed in growth-factor supplemented medium. The culture medium was changed every 4 days and the cells were passaged every 2 weeks. Cell growth and morphology were monitored with the Incucyte® Live-Cell Analysis System (Sartorius). Detailed histological and phenotypical characterization was performed in the tumor sample and its derived in vitro model (referred to as SARC-Bs1) through Hematoxylin and Eosin (H&E) staining, immunohistochemical (IHC) and immunofluorescence analyses. The mutational and Copy Number Variation (CNV) profiles of the parental tumor and the model were compared using targeted sequencing (OncoPrint Comprehensive Assay Plus, ThermoFisher).

Results

SARC-Bs1 cells maintained a steady growth for more than 15 passages (~200 days) and retained mesenchymal-like morphology in culture and H&E analysis. Immunofluorescence analysis revealed a marked expression of the mesenchymal marker Vimentin, and a lack of expression of epithelial markers such as E-Cadherin, CK5, and CK8, in both original tumor and SARC-Bs1 cells. Moreover, targeted sequencing unveiled a high degree of similarities in the mutational profile of the SARC-Bs1 model and its matched tumor. In particular, mutations were detected in genes often altered in SARC (TP53, RB1) and in additional hotspot genes (TERT, KRAS). Finally, CNV analysis uncovered a deletion in PTEN, whose loss of expression was confirmed by IHC in both SARC-Bs1 cells and parental tumor.

Conclusions

We successfully established a patient-derived SARC in vitro model, which recapitulates relevant features of the disease. We will next use this model to gain a deeper understanding of the mechanisms governing the pathogenesis of SARC and to test its response to clinically-relevant drugs.

P58

Prostate cancer patient-derived organoids: detailed outcome from a prospective cohort of 81 clinical specimens.

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Context and objectives

The establishment of prostate cancer (PCa) patient-derived organoids has been hampered by poor success-rates, which limits their broad use for translational research applications. There is an unmet need to identify determinants of success and failure in organoid generation.

Material and Methods

We attempted to derive organoids from 81 primary or metastasis samples obtained from 75 PCa patients with diverse clinical features. Organoid growth was assessed using bright-field imaging and was correlated with histological features of the matched tumor samples (Gleason score, tumor content, proliferation index). Tumor-organoid pairs were phenotypically and molecularly characterized using immunohistochemistry, immunofluorescence, fluorescence in situ hybridization, and targeted sequencing.

Results

We identified improved culture conditions favoring the generation of PCa organoids, yet no specific intrinsic tumor feature (i.e. histological or molecular) was broadly associated with sustained organoid growth. Morphological and immunohistochemical profiles of whole organoids altogether provided a fast read-out to identify the most promising ones. Primary samples were associated with an initial take-rate of 83 % (n=60 / 72) in culture, with maintenance of cancer cells displaying common PCa alterations, such as PTEN loss and ERG overexpression. These cancer-like organoids were however progressively overgrown by organoids with a benign-like phenotype. Out of 9 metastasis samples, we established a novel organoid model derived from a hormone-naive lung metastasis, which displays alterations in the PI3K/Akt and Wnt/ β -catenin pathways and responds to androgen deprivation.

Conclusions

Taken together, our comprehensive study explores determinants of outcome and highlights the opportunities and challenges associated with the establishment of stable tumor organoid lines derived from PCa patients. Building upon this study, we will now explore the contribution of distinct growth factors to organoid generation with the ultimate goal of developing optimal organoid models.

P59

The role of CRIPTO signaling in lethal prostate cancer

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Introduction & Objective

Prostate cancer (PCa) is the most frequently diagnosed malignancy and second leading cause of cancerspecific deaths in men in Western countries. Early stages of PCa can be treated with surgery and androgen deprivation therapy, but the cancer can become castration-resistant (CRPC), possibly due to pre-existing stem cell-like PCa cells that survive castration and re-initiate tumor growth leading to metastasis. Human tumors express high levels of CRIPTO, an oncofetal protein with multiple oncogenic effects both in vitro and in vivo. We hypothesize that CRIPTO is involved in tumor initiation and late progression of PCa and aim to investigate its oncogenic role in organoids derived from genetically engineered mice models (GEMMs) of PCa

Material & Methods

Impact of high/low CRIPTO expressing cells on disease progression was measured in a PCa tissue microarray (TMA) from the EMPACT cohort (N=210). To assess the role of CRIPTO in early and late PCa we triggered oncogenesis in NP (Nkx3.1CreERT2; Ptenflox/flox, R26 LSL-YFP/ LSL-YFP) and NPK (for Nkx3.1CreERT2; Ptenflox/flox; KrasLSL-G12D/+, R26 LSL-YFP/ LSL-YFP) animals. NPY animals develop high-grade PIN/carcinoma lesions with local invasive epithelium while NPKY animals develop invasive prostate adenocarcinoma with lung and liver metastasis. Single cells were isolated from the prostate tumors, the YFP+/- population recovered by FACS sorting and cultured as organoids. To test tumorigenic potential of the organoids derived from NPY and NPKY GEMMs, we will modulate levels of CRIPTO protein

Results

We measured the expression of CRIPTO in PCa TMA and we showed that elevated number of CRIPTO positive cells within the primary tumor correlates with PSA (p=0.002) and local/metastatic (p=0.00037) progression. NPY and NPKY animals were induced with tamoxifen both in intact and castrated/regenerated settings. Prostate tissue was collected, and organoids derived. Organoids' morphology varies from solid to cystic structures, diameters range between 40 to 250 um and positively express luminal (CK8) basal (p63) and proliferative markers (Ki67). We have successfully generated NPCrY and NPKCrY (CRIPTOflox/flox) GEMMs

Conclusion

High CRIPTO expression correlates with poor patient outcome. Our preliminary data support the role of CRIPTO in PCa progression. We are currently characterizing the phenotype of NPCrY and NPKCrY animals and working on CRIPTO modulation in the organoids derived from NPY and NPKY GEMMs

P60

Elucidating the stromal contribution to androgen deprivation therapy-resistance in prostate cancer

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Background & Aim

Cancer-associated Fibroblasts (CAFs) are the most abundant component in prostate cancer (PCa) stroma¹ with evidence suggesting that they promote resistance to androgen deprivation therapies (ADTs) (e.g. enzalutamide) and metastasis^{2–4}. In this work, we aim at developing in vitro 3D co-cultures of PCa cells and CAFs, to obtain a model mimicking the in vivo tumor interactions for the study of CAF contribution to ADT-resistance.

Materials & Methods

We obtained CAFs from patient-derived xenografts (PDXs) representative of different PCa stages: PNPcCa (androgen-dependent soft tissue metastasis⁵), BM18 (androgen-dependent bone metastasis⁶), LAPC9 (androgen-independent bone metastasis⁷). Explanted tumor pieces were grown in Petri dishes to allow fibroblast outgrowth. Due to the different species-specificity of the stromal (mouse) and tumor (human) components of these PDXs, we performed a magnetic-associated cell sorting to purify the mouse fibroblast fraction (Mouse Cell Depletion). We characterized the expression of CAF markers at the RNA (RT-qPCR) and protein (Western Blot and immunofluorescence) level. We performed cell viability assays (MTS assay) in response to enzalutamide 50, 10, 5, 1, 0.5 and 0.1 μ M.

Results

Derivation of PNPcCa, BM18 and LAPC9 tumor-derived fibroblasts was established under outgrowth culture conditions, in both low- and high-glucose containing media. Despite slow growth at early passages, cell propagation and lentiviral transduction (stable fluorescent marker) was achieved without evidence of quiescence. All established fibroblast lines express the CAF markers Vimentin, α -smooth muscle actin (α SMA), Tenascin C and Fibroblast-specific protein 1 (FSP-1) at both RNA and protein level. BM18 fibroblasts showed higher protein expression of α SMA and FSP-1, compared to the other fibroblasts. Androgen receptor (AR) is not expressed at the protein level. In line with this, inhibition of cell proliferation is obtained only with Enzalutamide 50 μ M in BM18- and LAPC9-derived fibroblasts.

Conclusions

PNPcCa, BM18 and LAPC9-derived fibroblasts express typical CAF markers however at different levels, suggesting different CAF composition. Fibroblasts were AR-negative and insensitive to enzalutamide in terms of cell viability, despite activation of AR pathway at the transcriptomic level⁸. Ultimately, PDX-derived mouse CAFs can be applied for the development of in vitro 3D-models to study (in)direct tumor-stromal interactions.

P61

The potential role of CTLH complex in the prostate cancer

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Introduction and Objective

Prostate cancer (PCa) is the most frequent malignancy and the second leading cause of cancer-related male death in Europe. Currently, markers fail in providing an effective patient stratification. Lethal cases receive new therapies once they have failed local and hormonal treatment. Ran Binding Protein 9 is a component of the mammalian macromolecular complex CTLH E3-ubiquitin ligase, characterized by well conserved CTLH domain and in DU145 cell lines its ubiquitin ligase activity increases cell radiosensitivity. This suggests that the CTLH Complex, through RanBP9, is potentially involved in the PCa tumorigenesis. The aim of this project is to investigate the role of RanBP9 in PCa progression.

Methods

We used in vitro and in vivo models with differential androgen receptor expression and activity. We measured RanBP9 expression in the PC3 (AR-) and LNCaP and C42B (AR+) human PCa cell lines. To study the role of RanBP9 in vivo we used patient derived xenografts (PDXs) BM18 (androgen-dependent), LAPC9 (androgen-independent) and GEMM for PCa: Nkx3.1CreERT2/+; Pten flox/flox; R26LSL-YFP (NP) and Nkx3.1CreERT2/+; Pten flox/flox; KRas LSLG12D/+; R26 LSL-YFP (NPK). The NP and NPK animals mimic different stages of PCa tumorigenesis. After tamoxifen treatment NP animals will develop high grade PIN lesions while the NPK animals will develop prostate adenocarcinoma with lung and liver metastasis. Additionally, the levels of RanBP9 were measured on a TMA (Tissue Micro Array) of 201 High-Risk PCa patients.

Results

The analysis of RanBP9 expressing cells in the PCa TMA revealed a higher level of RanBP9 associated with PSA progression, while we found an inverse correlation between the number of cells expressing NKX3.1 and RanBP9. In the GEMM models NP and NPK, RanBP9 expression was higher in the more aggressive phenotype (NP primary vs NPK primary and metastasis). Interestingly, the level of RanBP9 expression were higher in NPK metastasis vs NPK primary. Furthermore, levels of RanBP9 in both PDXs models were affected by castration. Currently, to explore the link between RanBP9 and the AR axis we are generating RanBP9-KD stable clones in PC3 and LNCaP cell lines.

Conclusion

Our results suggested that RanBP9 expression correlates with PCa progression. The modulation of the RanBP9 expression is probably regulated by the presence of testosterone due its downregulation following castration beyond the androgen-dependent or -independent profile of PCa

P62

Synergic AR and dual-mTOR blockade delays advanced prostate cancer growth and alters tumor heterogeneity

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Introduction and Objective

Dysregulation of the androgen receptor (AR) pathway is a common feature of castration-resistant prostate cancer (PCa), frequently appearing in association with mTOR pathway deregulations. In addition, cancer stem cell (CSC)-targeted therapy is currently being explored in advanced PCa, to reduce clonal divergence and preventing disease progression.

We used one castration sensitive and one resistant patient-derived xenografts (PDX) models of bone-metastatic PCa. We developed in vitro organoids assay and ex vivo tumor slice drug assays to investigate the effects of the mTORC1/2 inhibitor Rapalink-1 and of the aldehyde dehydrogenase (ALDH)-inhibitor disulfiram, targeting potential PCa CSC. We further tested individual and synergistic mTOR and AR blockade in vivo on both PDX models.

Methods

Organoids were cultured according to previously established methods and treated with sublethal doses of Rapalink-1 (0.1-0.01 μ M), disulfiram (0.1 μ M) or DMSO (0.1%) for 48h to assess metabolic and proteomic alterations. LAPC9 PDX was maintained in BALB/c CB17scid mice; mice were randomized by weight and treated with either vehicle (20% DMSO, 40% PEG-300 and 40% PBS) or Rapalink-1 (1.5 mg/Kg) every 5 days. Digested organoids or tissues were stained for CD44, DAPI and ALDEFuor and analysed by flowcytometry. Viability on organoids was assessed with CellTiter Glo 3D. Western blot analyses were performed on organoids and tissues using total lysate and probed for S6/p-S6S240/244, ULK1/p-ULK1S757 and Akt/p-AktS473 to assess mTOR activation status.

Results

In vitro viability of organoids derived from both PDXs could be effectively reduced by treatment with either disulfiram or Rapalink-1. This latter additionally blocked mTORC1/2 signaling, diminished the expression of metabolic enzymes involved in glutamine and lipid metabolism and significantly reduced the fraction of CD44+ cells. Mice treated with Rapalink-1 showed a significantly delayed tumor growth compared to control and cells recovered from the tumors of treated animals showed a marked decrease of CD44 expression. Combined castration and Rapalink-1 treatment further increased the tumor growth delay compared to either castration or Rapalink-1 treatment alone.

Conclusions

Taken together these results highlight the increased dependence of advanced PCa on the mTOR pathway and the therapeutic efficacy of combined AR and mTOR blockade, supporting the development of a targeted approach for advanced PCa

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Novel Urine Biomarkers for the Early Detection of Prostate Cancer

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The screening for prostate cancer (PCa) is based on the measurements of the prostate specific antigen (PSA) in blood. Men with elevated PSA levels have an increased risk of harboring a prostate tumor and are therefore eligible for a prostate biopsy. However, PSA testing has a high rate of false positives, leading to unnecessary biopsies in 50 - 75% of cases, and consequently exposes a relevant number of patients to potentially severe side-effects. We therefore aim to identify urine biomarkers that can complement PSA testing and increase screening specificity.

Urine samples from men with elevated levels of PSA were collected before prostate biopsy. A mass-spectrometry (MS) screening was performed on a cohort of 45 samples to identify biomarkers, which are differently distributed in tumor patients and healthy men ($p < 0.05$). Candidate biomarkers were then validated by ELISA on 159 urine samples from two independent cohorts.

Eleven novel urine biomarkers have been identified by MS screening and their quantification by ELISA show significant differences between patients bearing a tumor and patients resulting tumor-free. The preliminary analysis based on a multiple logistic regression, shows that different combinations of the analytes can detect the presence of a PCa prior to the biopsy with 35 - 80% specificity at 100% sensitivity (cohort 1, $n=66$). This high sensitivity indicates the lack of false negatives, thus not a single patient with PCa is mis-diagnosed as tumor-free, whereas the high-specificity shows that 80% of men without tumor would be spared from performing an unnecessary biopsy.

Our data demonstrate that urine can be a feasible source of non-invasive PCa biomarkers, with the advantage over other biological material of the simplicity of its collection and processing. Eleven potential biomarkers have been identified and validated in this study, showing a remarkable potential in improving the screening of prostate cancer, by significantly reducing the false positives of PSA. This study will continue with the analysis of a second cohort of samples collected at different time points during the day. Furthermore, we are in the process of developing a multi-plex immune-assay in order to quantify several biomarkers simultaneously and with higher specificity. The clinical implementation of such test will enable the early detection of prostate tumors and spare a relevant number of healthy men from unnecessary biopsies.

P64

EFFECTIVITY AND SAFETY OF A NEW IMPLANTABLE TIBIAL NERVE STIMULATION DEVICE (STIMROUTER) FOR THE TREATMENT OF OVERACTIVE BLADDER SYNDROME: 24 MONTHS RESULTS OF A MULTI-CENTRE STUDY

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Background & goals

After failing conservative treatment alternatives for these patients such as behavioral modification and pharmaceutical management, intravesical Botulinum toxin injection, sacral neuromodulation (SNM) and percutaneous tibial nerve stimulation (PTNS) are well-established third-line treatment options. SNM and PTNS, have not seen any significant improvement of the devices over the last decade or since FDA approval in 1997. In this study a new, battery-free implantable tined lead device (StimRouter™ by Bioness) in a multi-center study is evaluated.

Material and methods

From May 2019, 7 consecutive patients with urgency incontinence and detrusor over activity underwent a procedure under local anesthesia in which a battery-free tined lead electrode was implanted on the medial side of the ankle. This lead was implanted by the same surgeon in all cases through a single 5 mm incision and after the appropriate response of electrical stimulation, (flexion of the first toe and paresthesia of the foot) was looked. After identifying correct position, the lead was inserted through Seldinger technique and after a final electrical check of the appropriate responses, subcutaneously tunneled for 10 cm in the proximal direction of the medial side of the ankle. The total procedure time was 15-25 minutes. Patients were advised to stimulate their tibial nerve with a hand-held remote at home for an hour per day.

Results

All 7 patients reported an improvement (60 to 90%) in the urgency and incontinence episodes and a significant reduction of incontinence-pad use after treatment. In addition, both day-time as well as night-time frequency was reduced in all implanted patients.

Conclusions

Our multicenter data presented here are the first follow up data on feasibility and effect of the battery-free implantable tibial nerve stimulation device (Stimrouter) for the treatment of urinary incontinence. There were no adverse events and all implanted patients reported a significant improvement in urgency and incontinence episodes as well as pad use and day-time and night-time frequency. We can conclude that tibial nerve stimulation with Stimrouter could be a very promising therapy for patients with refractory idiopathic OAB.

P65

Detrusor sphincter dyssynergia: Can a more specific definition distinguish between patients with and without an underlying neurological disorder?

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Objectives

To evaluate if specific definitions of detrusor sphincter dyssynergia (DSD) might distinguish between individuals with spinal cord injury (SCI) and those with no underlying neurological disorder (NO ND).

Methods

A series of 153 individuals, 81 with traumatic SCI and 72 with NO ND, were prospectively evaluated and included in this study. All individuals underwent a clinical neuro-urological examination, a neurophysiological work-up and a video-urodynamic investigation and were diagnosed with DSD as defined by the International Continence Society (ICS). We determined the DSD grades/types according to the classifications by Yalla (grade 1-3), Blaivas (type 1-3) and Weld (type 1-2). Distribution of the DSD grades/types were compared between SCI and NO ND individuals. Associations between the various DSD grades/types and clinical parameters, such as risk factors for upper urinary tract damage (all individuals) or lower extremity motor scores, SCI injury levels and severity scores (only SCI group), were assessed.

Results

The distribution of all DSD types were similar between groups ($p > 0.05$). None of the DSD classification allowed risk assessment for upper urinary tract damage. A significant association between DSD type and other clinical parameters could not be found ($p > 0.05$).

Conclusions

The more complex classifications by Yalla, Blaivas or Weld cannot compete with the ICS binary yes-no definition which is pragmatic and straightforward for managing patients in daily clinical practice.

P66

Découverte d'une hyperparathyroïdie primaire à la suite d'une résection endoscopique de la prostate : rapport de cas

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Contexte et Objectifs

Du prostatisme à l'adénome parathyroïdien, le suivi d'une résection endoscopique de la prostate peut révéler quelques surprises.

Nous rapportons le cas d'un patient présentant une hyperparathyroïdie primaire décelée à la suite d'une symptomatologie atypique et d'une prise en charge urologique exceptionnelle.

L'objectif est de relater un cas inédit, dont nous n'avons pas trouvé similitude dans la littérature.

Description

Il s'agit d'un patient de 68 ans, souffrant de troubles urinaires classiques sur hypertrophie bénigne de la prostate, traité initialement par α -bloquant, puis bénéficiant d'une résection endoscopique de la prostate en octobre 2019. Les suites opératoires immédiates sont favorables mais le suivi régulier du patient montre la réapparition précoce de la symptomatologie, associée à des macro-hématuries occasionnelles et une algurie atypique, sans infection urinaire sous-jacente. Une échographie est réalisée et démontre des calcifications en surface de l'urètre prostatique. La prise en charge est complétée par une cystoscopie qui montre un tapissage de cristaux « jaunes clairs » au niveau du lit de la résection prostatique effectuée 7 mois auparavant. Ces cristaux sont acérés comme des lames de rasoir et pourraient expliquer la symptomatologie persistante. Le patient bénéficie d'une nouvelle intervention pour excision des dépôts, à l'anse diathermique, sans résection prostatique associée, en mai 2020. L'analyse des calcifications met en évidence du phosphate de calcium et de l'oxalate de calcium, ce qui pousse à un bilan plus complet et pluridisciplinaire permettant de poser le diagnostic d'hyperparathyroïdie primaire sur adénome parathyroïdien. Il bénéficiera d'une ablation de l'adénome en décembre 2020 et d'une seconde excision de dépôts phospho-calciques urétraux en janvier 2021. Par la suite, aucune récurrence urétrale n'est à signaler. Le patient se porte bien et la symptomatologie a disparue.

Conclusion

Le suivi assidu de ce patient a permis la mise en évidence de ce cas unique d'hyperparathyroïdisme primaire décelé au décours d'une manifestation atypique, jusqu'à présent non décrite dans la littérature.

Cette situation permet de mettre en avant la nécessité d'explorer toutes les possibilités diagnostiques en cas de résultats insatisfaisants d'une résection endoscopique de la prostate classique.

P67

In-hospital cost analysis of aquablation compared with transurethral resection of the prostate in the treatment of benign prostatic enlargement.

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Objectives

To compare in-hospital treatment costs of aquablation and transurethral resection of the prostate (TURP) in the treatment of benign prostatic enlargement.

Patients and Methods

Patient data and procedural details were derived from a prospective database. In-hospital costs were calculated using detailed expenditure reports provided by the hospital accounts department. Total costs including those arising from surgical procedures, consumables, personnel, and accommodation were analysed for 24 consecutive patients undergoing aquablation and compared to 24 patients undergoing TURP during the same period. Mean total costs and mean costs for individual expense items were compared between treatment groups with t-tests.

Results

Mean total costs per patient (\pm SD) were higher for aquablation at €10,994 \pm 2,478 than for TURP at €7,445 \pm 2,354. The mean difference (md) of €3,549 was statistically significant ($p < 0.001$). While the mean procedural costs were significantly higher for aquablation (md €3,032 ($p < 0.001$)), costs apart from the procedure were also lower for TURP, but the md of €1,627 was not significant ($p < 0.327$). Medical supplies were mainly responsible (md of €2,057; $p < 0.001$) for the difference in procedural costs.

Conclusions

In-hospital costs are significantly higher for aquablation than for TURP, mainly due to higher costs of medical supplies of the procedure. This difference should be taken into consideration, at least in patients for whom the different side effect profiles of both treatments are irrelevant.

P68

DaVinci-Salvageprostatektomie

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Einleitung

Bei einem Lokalrezidiv bei Z.n. Radiatio bzw. anderen thermischen Ablationsverfahren wegen eines Prostatakarzinoms – ist die Salvageprostatektomie eine der bevorzugten Behandlungsoptionen. Zumeist wird der Eingriff als offen chirurgisches Verfahren durchgeführt. Die gefürchtetste Komplikation ist eine Rektumverletzung und nachfolgend Ausbildung einer enterovesikalen Fistel. Wir haben seit 2015 die Salvageprostatektomie mit dem DaVinci-System durchgeführt, hier wird die Technik beschrieben und die klinischen Ergebnisse dargestellt.

Material und Methode

Zwischen 2015 und 2019 wurden insgesamt 12 Patienten auf eine identische Art und Weise operiert. Alle Patienten wurden primär strahlentherapeutisch behandelt und waren 67,3 zum Zeitpunkt der Primärtherapie 67,3 Jahre alt. Im Durchschnitt 5,5 Jahre später erfolgte die Salvageprostatektomie. Diese wird in Anlehnung an die Erstbeschreiber der laparoskopischen Prostatektomie Guillonnet und Vallancin transperitoneal und retrovesikal durchgeführt. Dieser Zugang ermöglicht es, zunächst die retroprostatistische Mobilisation durchzuführen. Sollte es hierbei zu einer Verletzung des Rektums kommen, kann diese verschlossen und dann der Eingriff beendet werden. Auf diese Art und Weise wird die Ausbildung einer enterovesikalen Fistel verhindert.

Ergebnisse

Alle 12 Patienten wurden auf die oben beschriebene Art und Weise operiert – eine Rektumläsion konnte sicher vermieden werden. Alle Rezidivtumore waren auf die Prostata beschränkt und konnten komplett reseziert werden. Bei 2 Patienten fanden sich Mikrometastasen in der Lymphadenektomie. Die transurethrale Katheter lagen mit 8,3 Tagen deutlich länger (4,7 Tage bei den primär operierten Patienten). Eine erhöhte Transfusionsrate konnte nicht beobachtet werden (0%). Neun Patienten sind aktuell ohne Hinweis auf ein erneutes Rezidiv. Bei einem Patienten entwickelte sich zwei Jahre nach Salvageprostatektomie ein erneutes PSA-Rezidiv. Er und die beiden Patienten mit Lymphknotenmetastasen sind unter einer hormonablativen Behandlung. Der Vorlagenverbrauch ist mit durchschnittlich 2,4 Vorlagen/die ebenfalls etwas erhöht, wobei ein Patient 5 Vorlagen benötigt.

Zusammenfassung und Fazit

Die Salvageprostatektomie kann mit dem DaVinci-System auf die beschriebene Art sicher durchgeführt werden. Die onkologischen Ergebnisse sind gut, allerdings muss im Vorfeld der Patient über eine etwas erhöhte Inkontinenzproblematik aufgeklärt werden.

P69

Nightmare: Der Mann mit den acht Schläuchen

K Röthlin

Vorgeschichte

Bei einem 63-jährigen Mann wurde bei einem Adenokarzinom der Prostata im Stadium pT2c pN0 cM0 R0 eine roboter-assistierte radikale Prostatektomie durchgeführt. Intraoperativ kam es bei einem Rezessus der Blase zu einer ca. 1 cm grossen, iatrogenen Blasenperforation am Blasenboden medial des linken Ostiums. Die Perforation wurde übernäht. Der Patient wurde bei unauffälligem Verlauf am 3. postoperativen Tag mit transurethralem Dauerkatheter in situ entlassen.

Albtraum

Zwei Tage nach Entlassung wurde der Patient notfallmässig mit starken Unterbauchschmerzen vorstellig. Im CT Abdomen zeigte sich ein grosses Urinom, weswegen Sog an den transurethralen Harnblasenkatheter angelegt und das Urinom drainiert wurde. Bei persistierend hohen Fördermengen über die Drainage und grössenkonstanten pelvinen Flüssigkeitskollektionen wurden sukzessive bilaterale perkutane Nephrostomien gestochen, zwei zusätzliche Urinomdrainagen und beidseits Mono-J-Ureterschienen eingelegt. Die Zystoskopie im Rahmen der Mono-J-Schieneneinlage zeigte eine Nahtinsuffizienz der Blasenperforation im Trigonum, wobei das linke Ureterostium direkt vom Perforationsrand, nach dorsal abgekippt, direkt nach extravesikal zu drainieren schien. Mit den beschriebenen Ableitungen wurde das Urinom vollständig trockengelegt. Im Weiteren wurde der transurethrale Katheter auf einen suprapubischen gewechselt und die Mono-J-Ureterschienen suprapubisch ausgeleitet. Schlussendlich konnten alle Urinomdrainagen entfernt, und der Patient mit fünf Urinableitungen in situ nach 32 Tagen im Spital nach Hause entlassen werden.

Morgenrot

Sechs Wochen nach Austritt zeigte sich eine unauffällige Zystographie. Zystoskopisch war die perforierte Harnblase ohne Defekt abgeheilt. Nach Mono-J-Entfernung zeigte die antegrade Pyeloureterographie links unauffällige Abflussverhältnisse. Der Patient wurde katheterfrei und mit primärer Kontinenz nach Hause entlassen.

P70

An Algorithm to Personalize Nerve Sparing in Men with Unilateral High-Risk Prostate Cancer

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Background

Current guidelines recommend against the preservation of the neurovascular bundles (NVBs) during radical prostatectomy in case of high-risk (HR) prostate cancer (PCa) and/or suspicious extracapsular extension (ECE). While in men with aggressive features, oncological control should be prioritized, a “one-fits-all” approach with bilateral wide excision does not seem justified in the era of precision surgery.

Objective

to evaluate when, in case of unilateral HR disease, contralateral NS should be considered or not.

Outcome measurements and statistical analysis

We relied on a multi-institutional dataset from 11 European centers. We selected patients with unilateral HR PCa defined as: unilateral ECE and/or SVI on mpMRI or unilateral ISUP grade 4-5 or PSA \geq 20 ng/ml. The outcome of the study was the presence of ECE on final pathology, contralaterally to the prostate lobe with HR disease. To evaluate when to perform NS based on the risk of contralateral ECE, we relied on the Chi-square automated interaction detection (CHAID), a recursive machine learning partitioning algorithm developed to identify risk groups for the outcome of interest.

Results and limitations

705 patients were identified. Contralateral ECE was documented in 87 (12%) patients. The CHAID algorithm identified groups: i) absence of SVI on mpMRI and index lesion's diameter \leq 15 mm; ii) index lesion's diameter \leq 15 mm and contralateral ISUP 2-3 or index lesion's diameter $>$ 15 mm and negative contralateral biopsy or ISUP 1 iii) SVI on mpMRI or index lesion's diameter $>$ 15 mm and contralateral biopsy ISUP 2-3. We named those groups as low- intermediate- and high-risk for contralateral ECE. The rate of ECE and positive margins across the groups were: 4.8%, 13.5%, 25.6% and 4.8%, 12.5%, 17.6%, respectively.

Conclusions

Our study challenges current guidelines by proving within a multicenter international study that wide bilateral excision in men with unilateral HR disease is not justified. Pending external validation, we propose performing NS and incremental NS in case of contralateral low- and intermediate ECE risk, respectively.

Patient summary

We developed a novel tool to better plan surgery in men with HR PCa. Our approach can potentially result in better patients' quality of life after surgery with no impact on prognosis.

P71

Visioning - Evaluation of a solely MRI-based, PSA-free prostate cancer screening program

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Introduction

Current literature clearly indicates a superior prognostic performance of prostate MRI in terms of csPCa detection as compared to PSA. This study aims to evaluate the implementation of bpMRI of the prostate as a screening tool for PCa.

Materials & Methods

Men with the wish for PCa screening were offered to participate in the study. The following inclusion criteria applied: biopsy naive, life expectancy >10 years, age >50 years (or >45 years for patients at high risk). Patients with acute UTI a/o NIH-CPSI >19 a/o IPSS \geq 20 underwent urologic consultation and therapy prior to imaging. All patients underwent bpMRI of the prostate. In case of detection of \geq 1 suspicious lesions (\geq PIRADS 3), targeted (3 cores per target) MRI-TRUS fusion biopsy without random biopsy was performed. In case of unsuspected MRI, template prostate biopsy was performed if DRE was suspicious a/o PSA exceeded 10ng/ml.

Results

110 patients were included in the study. Median age was 59 years [46–78]. Median PSA and PSA density were 1.24 ng/ml [0.21–56.8] and 0.051 ng/ml² [0.0117 – 0.993], respectively. BpMRI detected 14 PIRADS 3 lesions, 39 PIRADS 4 lesions and 5 PIRADS 5 lesions. 33 patients displayed 1 PIRADS \geq 3 lesion, 8 and 3 patients displayed 2 and 3 PIRADS \geq 3 lesions, respectively. Biopsy was performed in 45/110 (41%) patients. PCa detection rate was (12/110) 11%, resulting in a biopsy efficiency of 26.7%. We detected 4 iPCa (ISUP 1) and 8 csPCa (ISUP \geq 2). Median PSA and median PSA-density for patients with PCa were 3.47 ng/ml [0.81 – 39.7] and 0.096 ng/ml [0.03 – 0.9925], respectively. For patients with csPCa, values changed to 5.6 ng/ml [1.63 – 39.7] and 0.177 ng/ml [0.047 – 0.9925], respectively and 2.57 ng/ml [0.81 – 3.99] and 0.078 ng/ml [0.03 – 0.181] for patients with iPCa, respectively. Half of the patients with csPCa (4/8) had a PSA-density below 0.15 ng/ml² of whom 3 patients also had PSA below 4 ng/ml and unsuspected DRE. BpMRI followed by targeted biopsy identified 3 patients with csPCa and 3 patients with iPCa otherwise missed by classic screening. However, 33/45 (73%) patients were biopsied with no cancer detection

Conclusions

We could demonstrate the potential of bpMRI in a screening scenario to detect PCa otherwise missed by classic screening at a remarkably low PSA density. Since this was at the cost of unnecessary biopsies in 73% of the patients, our protocol has now been refined for the next series of screening in order to reduce unnecessary biopsies.

P72

Second-look transurethral resection for Ta high-grade bladder cancer: Is it necessary?

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Hintergrund und Ziele

The recommendations on second-look transurethral resection of the bladder (TURB) in patients with Ta high-grade urothelial carcinoma are inconsistent among current guidelines in Urology. The objective of this study was to investigate the prognostic value of second-look TURB for patients with primary Ta high-grade bladder cancer.

Material und Methoden

We retrospectively reviewed all patients who underwent complete first followed by second-look TURB since 2010. Primary outcome was the rate of early recurrence or residual disease at second-look TURB. We further assessed the rates of disease recurrence and progression during follow-up. Cox proportional hazard regression analysis was used to examine the association of second-look recurrence with recurrence and progression during follow-up.

Resultate

Overall, 84 patients were eligible for analysis. At first TURB, 72 (86%) resected specimens included detrusor muscle. At second-look TURB, 34 (40%) patients had recurrence or residual disease with one (1%) case of upstaging to T1. Second-look recurrence occurred in 23 (68%) patients at the same location, in 11 (29%) at different, and in one (3%) on both location types. Among 39 (46%) patients who received intravesical BCG therapy, 16 (41%) had induction only, and 23 (59%) induction including maintenance therapy.

During a median follow-up of 21 months, 28 (33%) and 5 (6%) patients experienced recurrence and progression, respectively. In Cox regression analyses, second-look recurrence was not associated with recurrence-free survival (hazard ratio [HR] 0.69, $p = 0.4$) or progression-free survival (HR 5.9, $p = 0.1$).

In univariable analyses among standard prognostic factors, only BCG induction including maintenance therapy was significantly associated with recurrence-free survival (HR 0.33, $p = 0.046$). In multivariable analysis, BCG induction and maintenance therapy could not retain significance (HR 0.35, $p = 0.065$).

Schlussfolgerungen

The prognostic value of second-look TURB in patients with Ta high-grade bladder cancer appears to be limited. Patients with second-look recurrence, suggested to be at high risk for disease recurrence and progression during follow-up, seem not to have a worse long-term prognosis. Prospective comparative studies are needed to answer this question and tackle possible overtreatment.

P73

Verhornende Plattenepithelmetaplasie der Harnblase: Ätiologie und Management am Beispiel eines Fallberichtes

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Fallbericht

Wir präsentieren den Fall eines 58-jährigen Patienten der sich mit rezidivierenden Harnwegsinfektionen vorstellte. In der Zystoskopie zeigten sich weissliche, mobilisierbare Auflagerungen der Blasenschleimhaut unter Aussparung der Ostien. Die Spülzytologie ergab reichlich verhornende Plattenepithelien ohne Hinweis auf Malignität.

Nach resistenzgerechter antibiotischer Therapie war der Patient in der Verlaufskontrolle beschwerdefrei, jedoch zeigte sich zystoskopisch eine Zunahme der Schleimhautveränderungen, sodass eine TUR-Blase durchgeführt wurde. Die Histologie zeigte eine verhornende Plattenepithelmetaplasie ohne Malignität.

Die verhornende Plattenepithelmetaplasie ist ein seltener Befund, welcher mit chronischen Irritationen der Blasenschleimhaut in Verbindung gebracht wird. Heutzutage tritt sie am häufigsten in Verbindung mit einer Schistosomiasis auf. In der Literatur wird die verhornende Plattenepithelmetaplasie häufig als Risikofaktor für die Entwicklung eines Blasenkarzinoms in Verbindung gebracht oder die Diagnose erfolgt zeitgleich, gilt somit als Präkanzerose. Hierbei zeigt sich in den häufigsten Fällen ein Plattenepithelkarzinom, aber auch Urothelkarzinome und undifferenzierte Karzinome werden beschrieben. Es wird dabei eine ähnliche, durch chronische Irritation vermittelte Entwicklung vermutet, wie sie zum Beispiel bei der Metaplasie-Dysplasie-Karzinom-Sequenz des Magen-Darm-Traktes vorkommt.

Die Therapie der Wahl der verhornenden Plattenepithelmetaplasie der Blase auch ist die transurethrale Resektion. Es zeigt sich jedoch eine hohe Rezidivrate und eine Progressionsrate zu Karzinomen in 10-50 % der Patienten, weshalb eine regelmässige zystoskopische Nachsorge empfohlen wird. Ob bakterielle Infekte zu der Metaplasie führen oder diese lediglich unterhalten ist nicht geklärt.

P74

Carboplatin-based adjuvant chemotherapy versus observation after radical cystectomy in patients with pN1-3 bladder cancer

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Background and objective

It has been observed that BCa patients with lymph nodes metastases only could achieve durable disease control or better oncological outcomes than patients with visceral metastases under carboplatin-regimens. We tested the impact of carboplatin-based adjuvant chemotherapy (ACT) on overall survival (OS) in patients with pN1-3 cM0 bladder cancer (BCa).

Materials and methods

Retrospective analysis was performed on 1057 patients with pTany pN1-3 cM0 urothelial BCa treated with or without carboplatin-based ACT after radical cystectomy and bilateral lymph node dissection between 2002 and 2018 at 12 European and North American hospitals. No patient received neoadjuvant chemotherapy or radiation therapy. Only patients with negative surgical margins at surgery were included. A 3:1 propensity score matching (PSM) was performed using logistic regression to adjust for baseline characteristics. Univariable and multivariable Cox regression analyses were used to predict the effect of carboplatin-based ACT on OS. The Kaplan-Meier method was used to display OS in the matched cohort.

Results

Of the 1057 patients included in the study, 69 (6.5%) received carboplatin-based ACT. After PSM, 244 total patients were identified in two cohorts that did not differ for baseline characteristics. Death was recorded in 114 (46.7%) patients over a median follow-up of 19 months. In the multivariable Cox regression analyses, increasing age at surgery (hazard ratio [HR] 1.02, 95% confidence interval [CI] 1.01-1.06, $p < 0.001$) and increasing number of positive lymph nodes (HR 1.06, 95% CI 1.01-1.07, $p = 0.02$) were independent predictors of worse OS. The delivery of carboplatin-based ACT was not predictive of improved OS (HR 0.67, 95% CI 0.43-1.04, $p = 0.08$).

Conclusions

Carboplatin-based does not improve OS in patients with pN1-3 cM0 BCa. Our results underline the need for alternative therapies for cisplatin-ineligible patients.

P75

Selecting the best candidates for cisplatin-based adjuvant chemotherapy after radical cystectomy in pN+ bladder cancer patients

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Background and aims

The role of cisplatin-based adjuvant chemotherapy (ACT) in pN+ bladder cancer (BCa) is poorly addressed. We tested the hypothesis that ACT has a heterogeneous impact on overall survival (OS) in pN+ BCa according to baseline characteristics.

Materials and methods

We retrospectively analyzed data of 1381 patients with pTany pN1-3 cM0 urothelial BCa and negative surgical margins treated with radical cystectomy (RC) and bilateral lymph node dissection with or without cisplatin-based ACT between 1990 and 2019 at 26 tertiary care centers. No patient received neoadjuvant chemotherapy or radiation therapy. A 1:1 propensity score matching (PSM) estimated using logistic regression was performed to adjust for baseline characteristics. A Classification and Regression Tree Analysis (CART) was applied to assess postoperative risk groups. Univariable and multivariable Cox regression analyses were used to predict OM after RC.

Results

Overall, 391 (28%) patients received cisplatin-based ACT. After PSM, two cohorts of 281 pN+ BCa patients each were obtained. The CART analysis stratified patients into 3 risk groups: favorable (pT≤2 and positive lymph node count (PLN) ≤2, odds ratio [OR] 0.43), intermediate (pT≥3 and PLN≤2, OR 0.92), and poor prognosis (pTany and PLN≥3, OR 1.36). At multivariable analysis, ACT was associated with reduced OM in the whole cohort (hazard ratio [HR] 0.73, confidence interval (CI) 95% 0.56-

0.96, $p = 0.02$). After stratification into risk groups, only patients with poor prognosis benefitted from ACT in terms of overall survival, regardless of other baseline features (HR 0.51, CI 95% 0.36-0.72, $p < 0.001$).

Conclusions

We found that pT stage plays an important prognostic role in patients with low burden nodal involvement. Moreover, we created the first algorithm that stratifies pN+ urothelial BCa patients into different prognostic classes based on the pT stage and the PLN. Lastly, we identified patients with a PLN ≥ 3 , regardless of the pT stage, as the most suitable candidates for cisplatin-based ACT.

P76

Safety of Magnetic Resonance Imaging in patients with Sacral Neuromodulation with InterStim™ Neurostimulator. A retrospective analysis.

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Objective

To retrospectively investigate the safety of magnetic resonance imaging (MRI) in patients under sacral neuromodulation (InterStim™ II).

Methods

Data of patients who received a sacral neuromodulator at the urological department of a Swiss center of tertiary care from 2007 to 2018 and subsequently received at least 1 MRI with implanted device were retrospectively analyzed. Patient characteristics, data on implantation, MRI characteristics and complications potentially related to the MRI were analyzed. In addition, patient interviews were performed to verify the data gathered from patient records.

Results

A total of 55 consecutive patients with a median age of 48 years (range 16-80 years) and a total of 191 MRIs (median 3, range 1 - 13) were included to the study. The majority of MRIs (92%) were performed with 1.5 Tesla. The majority of the 1.5 Tesla (58%) as well as 3 Tesla (56%) MRIs assessed body regions other than the head.

Complication possibly related to the MRI were only found in 2 (1%) MRI scans in two patients who reported on transient electrifying pain and heat sensation at the implantation site of the neuromodulator during MRI.

Conclusion

MRI scans in patients with an implanted InterStim™ II sacral neuromodulator and with the device being turned off seem to be safe, even if they involve body regions other than the head, at least with 1.5 Tesla.

P77

Continuous local anesthetic wound infiltration for postoperative pain management improves surgical recovery after radical cystectomy.

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Introduction & objectives

Radical cystectomy (RC) is a major urological operation with a high morbidity rate, despite dedicated perioperative programs of rehabilitation. Traditionally postoperative pain management was achieved with epidural catheter. However, its use could lead to anesthesiologic complication and could reduce early mobilization, a cornerstone of the enhanced early recovery protocol (ERAS®). The present study aimed to evaluate the impact of an alternative peri-incisional anesthetic infusion on postoperative recovery in patients treated with RC.

Methods

Since June 2016, patients who underwent elective RC received the ON-Q® Pain Buster (PB), which infused 0.2 % Ropivacaine via an elastomeric pump into the peri-incisional subfascial aspects of the wound as postoperative analgesia modality. Verbal analog pain score and recovery data on postoperative complication and length of stay (LoS) were investigated. Study population was compared to a control group of patients managed with epidural catheter analgesia from 2012 to 2016. All patients were treated according to ERAS® guidelines for RC.

Results

78 patients were included and compared to 103 patients in the control group. Demographics and oncological outcomes were comparable in both groups. In multiple logistic regression analysis, patient pain evaluations from postoperative day (PoD) 0 to PoD 3 were similar in both groups. So were patients self-reporting nausea from PoD 0 to PoD 3. Furthermore, oral pain control was achieved in 4 days (IQR 4-6) in the study group versus 6 days (IQR 5-8) in the controls ($p = 0.001$). Patients with PB could significantly faster tolerate solid food intake than those in the epidural group (6 days versus 8 days respectively, $p = 0.002$) and their LoS was 5 days shorter than the control group (12 days versus 17 days respectively, $p = 0.001$). No significant difference was found regarding readmission or major complication rate.

Conclusion

Continuous wound infiltration seems to have similar results as epidural catheter in terms of postoperative pain management in radical cystectomy patients. However, continuous wound infiltration positively affects early recovery and thus significantly reduces LoS.

P78

Continuous local anesthetic wound infiltration after radical nephrectomy: a new gizmo for an old operation.

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Introduction & objectives

Management of postoperative pain remains a fundamental aspect of enhanced recovery after surgery (ERAS®) protocols. Open radical nephrectomy (RN) using lombotomy as a surgical approach is associated with important postoperative pain that are usually managed by a thoracic epidural analgesia (TEA). However, TEA contraindication may limit its use. The present study aimed to evaluate the impact of continuous peri-incisional wound infiltration on postoperative recovery (pain, opioid use, length of stay [LoS]) in patients undergoing RN.

Methods

Between 01/2012 and 03/2021, 96 patients underwent open RN using a lombotomy as surgical approach. In 59 patients, pain management included the ON-Q® Pain Buster (PB) which infused 0.2 % Ropivacaine via an elastomeric pump into the peri-incisional subfascial aspect of the wound (PB group, n = 31) or TEA (peridural group, n = 28). All patients were treated according to the ERAS® guidelines for RN. Clinical parameters (verbal analog pain score [VAS], opioids used [yes/no], LoS) were retrospectively compared between the two groups using chi-square, Kruskal-Wallis, or one-way ANOVA test as appropriate. A p-value ≤ 5 % was considered as statistically significant.

Results

Demographic and oncological data were comparable in both groups (Table 1). VAS between PD 0 and PD 3 were significantly lower in the pain buster group. Consequently, less opioids were used in this group (0% vs 38.7 %, p=0.01). However, this did not translate into better scores for nausea and ileus (p= 0.82 and p= 0.76, respectively). Most important, however, LoS was shorter in the pain buster group compared to the peridural group (5.5 d vs. 6.5 d, p = 0.06), although not statistically significant. In our series, no patient was readmitted for a major complication within 30-days.

Conclusion

While TEA seems to provide better analgesia than continuous wound infiltration in the immediate postoperative course after lombotomy for RN, continuous wound infiltration with additional opioid use on demand provides better postoperative recovery and thus reduces LoS. Therefore, we changed our standard protocol for analgesia post lombotomy to continuous peri-incisional wound infiltration.

P79

Débitmètre à domicile

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Contexte et objectifs

La débitmétrie est à l'urologue ce que l'électrocardiogramme est au cardiologue! Néanmoins, la débitmétrie présente plusieurs inconvénients: vessie insuffisamment ou trop pleine, valeur unique, blocage psychologique «effet blouse blanche», ... Des éléments pouvant influencer les résultats sur lesquels le praticien se base pour définir un diagnostic et un traitement.

Confronté au problème, un patient a développé un débitmètre à domicile (DAD) simple, peu coûteux et efficace. Celui-ci permet d'obtenir des résultats débitométriques plus représentatifs des LUTS (Lower Urinary Tract Symptom) quotidiens du patient.

Le but de notre projet est de démontrer la fiabilité du dispositif et l'amélioration des résultats objectifs.

Matériel et méthode

Il s'agit d'une étude prospective débutée en 2020, comparant la débitmétrie en cabinet et à domicile. Elle a été réalisée en 2 phases, incluant 10 jeunes hommes sans LUTS pour tester le prototype, puis 100 hommes avec LUTS.

Nous leur proposons une débitmétrie en cabinet avec un dispositif professionnel et la réalisation de 4 à 6 débitmétries à domicile avec le DAD. Il s'agit d'une simple balance, programmée, et associée à un récipient quelconque dans lequel le patient urine. Les résultats sont lisibles par l'urologue grâce à un logiciel.

Critères d'inclusion : homme, LUTS, volumes mictionnels > 150 ml.

Critères d'exclusion : femme, miction assise.

Caractéristiques étudiées : nombre de débitmétries, débit maximum et moyen, durée du débit, volume mictionnel.

Résultats

L'étude est actuellement en cours.

Les résultats intermédiaires mettent en évidence un débit maximum plus facilement atteint à domicile. Plus de 90 % des patients ont un volume uriné > 150 ml et parviennent à réaliser, en moyenne, 4 débitmétries. Ils rapportent une facilité d'utilisation et une diminution du stress lié à l'examen. Nous n'observons que 7 % d'échec pour diverses raisons.

Le DAD montre une supériorité à la débitmétrie classique et a été jugé utile dans plus de 90 % des tests. Il a permis à l'urologue de modifier son attitude thérapeutique dans 15 à 20 % des cas et de la confirmer dans 75 %.

Le coût, estimé 10 à 15 fois inférieur aux débitmètres professionnels, pourrait permettre une utilisation dans les pays en voie de développement.

Conclusion

Le DAD permet une amélioration qualitative et quantitative des résultats pour un coût moindre. Il représente une source d'informations supérieure à la débitmétrie standard en cabinet.

P80

Urethral lithiasis in a Patient who underwent tension free vaginal tape ("TVT") 20 years before

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We describe a case regarding a 76 years old woman, presenting with a big urethral stone, formed on a migrated tension free vaginal tape (TVT).

TVT and TOT are currently considered the gold standard of SUI surgery. In both TOT and TVT operations, a nylon mesh tape is placed underneath the urethra. The complications of SUI surgery can be: lesions of the bladder or urethra, RAU, major bleeding, UTIs, urinary incontinence, rejection to the foreign body and mesh migration.

The patient had undergone several surgeries and among these TVT about 20 years ago. The gynecological and urological exams were without particularities.

We decided to perform a cystoscopy that showed a large lithiasis of the urethra and bladder neck.

We broke the lithiasis into smaller pieces (using the laser Holmium). During the procedure it has been possible to see a part of polypropylene mesh used in the previous tension free vaginal tape.

The erosion of surgical mesh materials into the genitourinary tract is a known but uncommon complication after TVT. The incidence of polypropylene mesh erosion is around 1% as described in the literature.

The best treatment is the surgical removal of the stone and the migrated mesh, and to observe the evolution by performing periodic cystoscopies.

P81

Higher lymph node counts in men with penile cancer undergoing robotic compared to laparoscopic or open pelvic lymph node dissection

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Introduction & objectives

Men with penile cancer metastases in the pelvis can be cured with pelvic lymph node dissection (PLND) but open PLND (oPLND) has a high morbidity. Given the experience in other urogenital cancers, minimally invasive PLND (miPLND) either laparoscopically (lapPLND) or with robotic assistance (robPLND) has been introduced. Given the rarity of the disease, evidence of outcome for those different PLND techniques is lacking.

Materials & methods

Patient characteristics, surgical technique, pathological and survival outcomes of penile cancer patients treated with PLND were extracted from electronic health records. Descriptive statistics was performed, and non-normally distributed continuous variables were compared with the Wilcoxon Rank Sum test.

Results

Of 992 penile cancer referred to the supra-regional penile MDT between 2008-2020 at the Christie, 21 (2%) men with squamous cell histology were treated with PLND. Median age was 57 (interquartile range (IQR) 51-62) years and bilateral PLND was performed in 6, left unilateral in 9 and right unilateral in 6 men. An oPLND approach was used in 7 whereas miPLND was used in 14, consisting of lapPLND in 5 and robPLND in 9. Median length of stay was non-significantly shorter for miPLND (lapPLND and robPLND both 2 days) compared to oPLND (3.5 days, $p=0.147$). Postoperative lymphoceles occurred in 3 men of which 1 developed cellulitis. During a median follow-up of 11 (IQR 6-52) months, 9 men recurred and 8 died of penile cancer. All men treated with lapPLND were alive whereas 4 men died because of penile cancer in both the oPLND and robPLND group. By comparing 27 PLND templates of 21 patients, the median lymph node count of robPLND was 10 was significantly higher compared to the median of 3 nodes of lapPLND ($p=0.01$) and non-significantly higher compared to the median of 7 nodes of oPLND ($p=0.08$).

Conclusions

In penile cancer patients, PLND is a rarely performed procedure. At least in our hands, robPLND provided higher lymph node counts with so far unclear impact on complications or cancer-specific survival. Although this represents the first analysis comparing PLND in penile cancer, this analysis is limited by its retrospective observational nature and small sample size.

P82

Treatment options and outcomes of men with penile intraepithelial neoplasia (PeIN): a systematic review

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Penile intraepithelial neoplasia (PeIN) is a rare skin condition with potential to progress to invasive penile cancer.

We performed a systematic review summarizing treatment options and outcomes.

Topical therapies included imiquimod and 5-FU with complete response rates in 40-100% and 48-74% respectively. Progression after imiquimod and 5-FU was observed in 20% and 11% respectively. Adverse events were observed in 10% during imiquimod and in 5-12% during 5-FU, inflammation causing pain and severe irritation were the most common. Phimosis was observed in 5% treated with imiquimod. Discontinuation of treatment in men treated with imiquimod and 5-FU was described in 10% and 11% with one study reporting that 11% of men treated with 5-FU required admission due to severe inflammation. Energy-based therapies discussed in the literature included Yag laser, CO2 laser and phototherapy. Laser treatment demonstrated total response rates of 52%-100%. Recurrence was reported in 7%-48%. Following laser treatment altered penile sensitivity was described, including increased sensitivity in 50% and decreased sensitivity in 15%. Phototherapy led to complete response in 40%-70%, recurrence was observed in 30% and progression in 36%.

Surgical treatment of PeIN was associated with recurrence in 4%-30%. Circumcision cleared all preputial PeIN whereas recurrence after surgical treatment of PeIN of the glans was observed in 25% after wide local excision, 4% after Mohs surgery, 5% after total glans resurfacing and 10% after glansectomy.

This review shows that the literature for treatment options and outcomes of men with PeIN is limited and based on small retrospective cohort studies, but several conclusions can be derived. The preferred treatment for preputial PeIN is circumcision, which may decrease the toxicity of topical treatment of PeIN of the glans. In our experience, some men with PeIN of the foreskin and glans may show complete response of the glans PeIN after circumcision alone. In cases of PeIN of the glans, organ sparing approaches including topical or laser treatments should be recommended as first-line treatment options given their efficacy and relatively low levels of recurrence and progression.

P83

Prostate cancer detection rate in men undergoing transperineal template-guided saturation and targeted prostate biopsy

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Objectives

To compare prostate cancer (PCa) detection rate of transperineal template-guided saturation prostate biopsy (SBx) and multiparametric (mp) MRI/TRUS fusion guided targeted biopsy (TBx).

Material & Methods

We prospectively enrolled all men who underwent SBx and TBx from 11 / 2016 to 10 / 2019 for an elevated prostate specific antigen (PSA) or positive digital rectal examination (DRE) without previous diagnosis of PCa. Pre-biopsy MpMRI was available in all men. SBx were taken from 20 different locations according to the modified barzell zones. Additional TBx were taken for any Prostate Imaging Reporting and Data System (PI-RADS) lesion ≥ 3 seen on the mpMRI. Clinically significant PCa (csPCa) was defined as any Gleason Score ≥ 7 and clinical insignificant PCa (ciPCa) as Gleason Score 6.

Results

A total of 392 men with a median age of 64 years (interquartile range (IQR) 58 – 69), a median PSA of 7.0 ng/ml (IQR 4.8 – 10.1) were enrolled. Overall, PCa was found in 200 (51 %) of all biopsied men, with 158 (79 %) being csPCa and 42 (21 %) ciPCa. A total of 268 (68 %) men with a suspicious mpMRI and underwent a combined TBx and SBx, of whom csPCa was found in 139 (52 %). In this subgroup 116 / 39 (83 %) csPCa would have been detected by TBx alone, and additional 23 (17 %) were found by SBx. Men with a negative mpMRI (PI-RADS < 3 , n = 124, 32 %) were found to have csPCa in 19 (15 %) cases. In patients with a negative mpMRI in combination with a PSA density < 0.1 ng/mL/mL, only 8 % (3 / 36) had csPCa. If only TBx would have been performed and all men with a negative mpMRI would not have been biopsied, 42 / 158 (27 %) of csPCa would have been missed, and 38 / 42 (90 %) ciPCa would have not been detected.

On multivariable analysis, significant predictors of csPCa were PSA (odds ratio (OR) 1.07 [95 % confidence interval (CI) 1.03 – 1.11]), age (OR 1.07 [95 % CI 1.03 – 1.11]), PI-RADS score ≥ 3 (OR 6.49 [95 % CI 3.55 – 11.89]) and prostate volume (OR 0.96 [95 % CI 0.95 – 0.97] (p < 0.05 for all parameters).

Conclusion

In comparison to SBx, TBx alone detects csPCa in only $\frac{3}{4}$ of all men with a positive mpMRI lesion. Thus, systematic biopsies in addition to TBx have to be considered at least in some who undergo a biopsy. In men with a negative mpMRI, SBx still detects around 15% csPCa, but by similarly overdetecting ciPCa. According to our results, men with low PSA density and negative mpMRI can safely avoid biopsy.

P84

A rare, incidental finding – A case study on ureterosciatic herniation

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An 84-year-old male patient with surgically treated adenocarcinoma of the hepatic colon flexure underwent an abdominal CT-scan due to suspicion of a recurrent colorectal cancer. A previous ultrasound examination of the abdomen identified a slight hydronephrosis of the right kidney. The CT-scan therefore included a urographic phase, which revealed displacement of the right ureter in the sciatic notch.

Ureteral herniation is most often reported to occur in the inguinal region. Hernias are rarely observed in other locations, such as thoracic and scrotal herniation.

Ureterosciatic herniation is exceptional. Of the reported sciatic hernias, the prevalence is higher in elderly women due to their wide pelvis and larger sciatic foramen. A division of the sciatic notch by the sacrotuberous and sacrospinous ligaments form the greater and lesser sciatic foramina. The greater sciatic foramen, is further subdivided by the piriformis muscle into the suprapiriform and infrapiriform foramina. Sciatic herniation most commonly occurs through the suprapiriform foramen. Certain predispositions seem to be factors for the development of ureterosciatic herniation, including atrophy of the piriformis muscle, hip-joint diseases and defects in the parietal fascia. Our patient did not have any known hip ailments, but underwent a radical prostatectomy with bilateral pelvic lymphadenectomy in 2004.

In our case, the patient was asymptomatic, but clinical presentation typically includes acute flank pains and further symptoms and pathologies secondary to ureteral obstruction. Radiological imaging such as pyelography or CT is required for diagnosis. The herniation causes a curling of the ureter forming a pathognomonic sign, known as a curlicue ureter sign.

The patient did not report flank and pelvic pain, hematuria, dysuria and voiding troubles. Due to the asymptomatic nature of the ureterosciatic herniation and a baseline serum creatinine of around 80 µmol/l no further urological interventions were undertaken.

P85

Urothelkarzinom in der intramural gelegenen Konfluenz eines Ureter fissus – ein Fallbericht

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Hintergrund & Ziele

Das Vorliegen eines Ureter fissus ist eine häufige Anomalie des Urogenitaltrakts. Wir berichten von einem Fall eines Urothelkarzinoms in einer intramural gelegenen Konfluenz eines Ureter fissus.

Material und Methoden

Zuweisung einer 71-jährigen Patientin bei der im Rahmen einer computertomographischen Sturzabklärung eine Harntransportstörung links mit bis zur Blase hin dilatiertem Harnleiter auffiel.

Resultate

Die Abklärung mittels CT-Urographie ergab eine Doppelnierenanlage mit distal konfluierendem Ureter fissus und Stauung der kaudalen Anlage. Ureterskopisch fand sich ein papillärer Tumor im kaudal abführenden Ureter im Bereich der intramural gelegenen Konfluenz. Histopathologisch entsprach der Befund einem gut differenziertem low grade Urothelkarzinom. Bei gemäss EAU vorliegender Hochrisiko-Situation (Hydronephrose) stellten wir die Indikation zur roboterassistierten Nephroureterektomie mit offener Blasenmanschette. Die Histologie ergab ein nicht stromainvasives papilläres Urothelkarzinom mit allseits tumorfreien Resektionsrändern. Nach komplikationslosem Verlauf erfolgte der Austritt am 7. postoperativen Tag.

Schlussfolgerungen

Ein Urothelkarzinom im Bereich der Konfluenz eines Ureter fissus ist eine äusserst seltene Entität was sich auch in einer recht spärlichen Literaturlage widerspiegelt. Eine Hydronephrose bei Vorliegen eines Ureter fissus ist stets verdächtig und sollte eine weiterführende Abklärung nach sich ziehen.

P86

Performing totally extraperitoneal hernia repair (TEP) in patients with previous prostatectomy is safe

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Hintergrund & Ziele

The indication for totally extraperitoneal hernia repair (TEP) in patients who previously underwent prostatectomy has been discussed for many years, since operative difficulties can be expected due to adhesions and scarring. With our extensive database, over 1500 patients included between 2012 and 2018, we assess the safety and feasibility of TEP in patients with previous prostatectomy (PP) compared to a matched control group including patients without previous prostatectomy (noPP).

Material & Methoden

Patients undergoing inguinal hernia repair in the Department of Surgery at the Cantonal Hospital Baden between July 2012 and May 2018 were enrolled into this study. Two groups were defined: patients with previous prostatectomy (PP) and patients without previous (noPP) undergoing uni- or bilateral inguinal hernia repair using TEP as chosen surgical technique. Their data was analyzed and compared using the statistical software package R (R Core Team, 2020), using "two-sided" statistical tests and confidence intervals with standard significance and confidence levels $\alpha = 5\%$ and $(100\% - \alpha) = 95\%$, respectively. There are four primary endpoints: length of stay (numerical), op duration (numerical), conversion (binary), and complications (binary).

Resultate

In our cohort 53 patients underwent previous prostatectomy, 28 of which had an open, 25 a laparoscopic/robot-assisted approach. In the prostatectomy including both approaches we could show a significantly longer operation duration ($p = 0.003$) compared with the noPP group whereas length of stay, conversion rate or complications were not significantly different.

Comparing each subgroup (open/lap.) to the control group we see a significantly higher operation duration in the open group ($p = 0.010$) whilst the laparoscopic/robot-assisted group shows no significant difference either in operation duration, conversion, length of stay or complications.

Schlussfolgerungen

With the exception of significantly longer operation time in patients with previous open prostatectomy we could not show any other significance concerning operation time, length of stay, conversion rate or complications.

Therefore we state that TEP after previous prostatectomy is feasible and safe.

P87

Radiotherapy or surgery? Comparative, qualitative assessment of online patient education materials about prostate cancer

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Hintergrund & Ziele

To perform a systematic and comparative assessment of available videos on YouTube guiding patients on their choice for the optimal treatment of their prostate cancer (PCa).

Material & Methoden

An independent search for surgical therapy or radiotherapy of PCa on YouTube was performed in April 2021 using associated keywords. Only videos with an English audio track were included and videos solely targeting healthcare professionals were excluded. Videos containing information about both therapy options were assigned to one group based on the main subject. For each group, the 40 most viewed videos were included. Quality of content was analyzed using the validated DISCERN questionnaire. Descriptive analysis and Mann-Whitney tests were performed (IBM SPSS Statistics version 27).

Resultate

The 80 videos included were uploaded between February 2008 and September 2019. Duration ranged from 35 seconds to 31 minutes, the most popular video had 4 986 282 views. For both treatment modalities assessed there were 19 videos (13 about radiotherapy (33%) and 6 about surgery (15%)) showing no misinformation. The median overall quality of the videos, according to DISCERN item 16, was found to be low for surgery videos (2 out of 5 points), while radiotherapy results reached a moderate quality (3 out of 5 points). Likewise, 75% of all DISCERN items reached a moderate quality for radiotherapy videos while only 31% of all DISCERN items for surgery videos were classified as moderate quality. Adding up the results of all DISCERN items, radiotherapy videos also resulted in a higher score (median 43 points, range 20.5 – 65) than the surgery videos (median 36.5 points, range 18 -71). The Mann-Whitney test indicated that the median DISCERN scores were higher for the radiotherapy videos than for the surgery videos ($U = 65$, $p = 0.018$).

Schlussfolgerungen

We found that the radiotherapy videos were rated better than the surgery videos regarding the DISCERN questions and the videos were described to better inform the watchers about the benefits and risks of each treatment. Meanwhile, the surgery videos did a better job pointing to areas of uncertainty. Noticeably, both groups failed to inform the spectators about the possibility and consequences of the alternative “active surveillance” compared to the presented treatment method.

P88

BCG-assoziiertes mykotisches Aneurysma der A. iliaca communis – Ein Fallbericht

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USZ

Die initiale Vorstellung des Patienten erfolgte auf Grund einer Makrohämaturie. In der weiteren Diagnostik wurde ein papillärer Befund in der Harnblase festgestellt. Es folgte die Resektion des Befundes, histologisch ergab sich ein Urothelkarzinom pTa hg. Auf Grund der initial tiefen Resektion wurde auf eine Nachresektion verzichtet und 6 Wochen postoperativ eine BCG Instillationstherapie eingeleitet. Im Feb. 2020 kam es nach der zweiten Gabe im 4. Erhaltungszyklus zu einem febrilen Infekt. Eine BCG-itis konnte bis dato nicht nachgewiesen werden. Bei anhaltender B-Symptomatik erfolgte im Jun. 2020 erneut eine mikrobiologische Diagnostik. Hierbei wurde Mycobacterium bovis im Urin und im Sep. 2020 im Sputum nachgewiesen. Danach wurde eine Therapie mit Isoniazid, Rifampicin und Ethambutol für 6 Monate eingeleitet. Im Dez. 2020 zeigte sich ein papilläres Rezidiv. Ein anschliessend durchgeführte Staging zeigte erstmals den Nachweis eines Aneurysmas der linken A. iliaca communis von 3.7x3.1cm. Durch die Gefässchirurgie wurde der Befund exzidiert und ein Gefässinterponat mit Xenopericard implantiert. Histologisch zeigte das exzidierte Gewebe den Nachweis von Mykobakterien. Interdisziplinär wurde sich zur Verlängerung der Therapie mit Isoniazid, Rifampicin und Ethambutol für in total 12 Monate entschieden. Der papilläre Befund rechts ostial konnte im Feb. 2021 reseziert werden, hierbei ergab sich ein Urothelkarzinom pTa Ig. Die Tumornachsorgen erfolgt nun mit regelmässigen zystoskopischen/spülzytologischen Kontrollen. Eine erneute BCG Therapie kommt für den Patienten nicht mehr in Frage.

Eine BCG-itis tritt in circa 1-5% der Patienten unter intravesikaler BCG Therapie auf. (1) Der Anteil einer extra-urogenitalen BCG-itis beträgt circa 3-7%. Die Inzidenz von mykotischen Aneurysmen nach intravesikaler BCG Instillationstherapie ist nur in wenigen Fällen umschrieben. (2,3)

Auf Grund der wenigen Fälle ist eine enge interdisziplinäre Zusammenarbeit mit Gefässchirurgen, Radiologen und Infektiologen von grosser Bedeutung.

Das Auftreten eines mykotischen Aneurysma nach intravesikaler BCG Therapie ist eine seltene Komplikation. Nach der Diagnosestellung sollte eine zeitnahe operative Versorgung erfolgen um eine Ruptur zu vermeiden. Eine infektiologische Anbindung zur Einleitung und Überwachung der medikamentösen Therapie ist empfehlenswert. Nach dem Auftreten einer schwerwiegenden Komplikation sollte von weiteren BCG-Instillationen abgesehen werden (4).

P89

Late onset metastatic disease of initially low grade non-muscle invasive bladder cancer in the adrenal gland and in the liver

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Introduction

We present a case of late onset metastasis of urothelial carcinoma in the right adrenal gland and in the liver 7 yrs after resection of a low grade urothelial carcinoma in the bladder and 30 years after right sided nephrectomy due to a gunshot wound.

Case Report

The 65-year-old patient lost his right kidney and part of the ascending colon after a gunshot injury 30 years earlier. In 2014, a non-muscle-invasive urothelial carcinoma pTa G2 low grade was resected. Follow-up with cystoscopy and cytology remained without any evidence of recurrence. In March 2021, the patient was admitted to our emergency department with right sided abdominal pain. The CT-scan showed a lesion in the right adrenal gland and 2 hepatic lesions in segments 4 and 7. The FDG-PET scan confirmed a FDG-avid adrenal mass and 2 suspected liver metastases. A biopsy of both adrenal and liver lesions showed diagnosis of high grade urothelial carcinoma. Additionally, immunohistologic staining confirmed urothelial origin and was identical in both biopsies (positive for AE1/3, p63, CD10 and GATA-3 and negative for CK7, CK20, PAK-8 and Uroplakin). The PD-L1 expression was not significantly elevated. According to the histological confirmation a systemic therapy was initiated.

Discussion and Conclusion

In literature few cases of metastatic disease after confirmed non-muscle invasive urothelial carcinoma without local recurrence are documented. In this case a local dissemination of urothelial tissue of the upper urothelial tract due to a gunshot wound 30 years earlier can be postulated making this case unique.

P90

Postoperative peripheral neuropathies associated with patient positioning during robot-assisted laparoscopic radical prostatectomy (RARP): A systematic review of the literature

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Objective

To perform a systematic review of the literature concerning postoperative peripheral neuropathies associated with patient positioning during robot-assisted laparoscopic radical prostatectomy (RARP).

Patients and methods

A systematic review on articles published from January 1, 1990 to March 15, 2020 was performed in accordance with the PRISMA declaration (Preferred Reporting Items for Systematic Reviews and Meta-Analysis). The electronic search was done searching through the Cochrane Registry, PubMed/EMBASE, Medline, and Scopus. Relevant papers addressing postoperative peripheral neuropathies related to patient positioning during RARP were integrated into the analyses.

Results

After screening 4975 articles, one randomized controlled trial and five retrospective studies with a total of 63,667 patients were included. Peripheral neuropathies of the upper extremities were documented in three articles with a total of 15 patients, peripheric neuropathies of the lower extremities were reported in five articles with a total of 76 patients. Analysis of the data was exploratory, since screening techniques, systematically reporting, and description of positioning techniques was not standardized or not reported.

Conclusions

The incidence of peripheral neuropathies at RARP varies between 1.3% and 10.8%. Lower extremities are more affected than upper extremities and the most important risk factors are intraoperative time duration, patients comorbidities, and ASA score. High-quality prospective randomized studies to better assess the impact of patient positioning during RARP on the development postoperative peripheral neuropathies are needed.

P91

Symmetrical peripheral gangrene and acute renal infarction of the contralateral kidney in a case of severe sepsis caused by acute obstructive pyelonephritis in a 39-year-old immunosuppressed female.

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Case Report

Symmetrical peripheral gangrene and acute renal infarction of the contralateral kidney in a case of severe sepsis caused by acute obstructive pyelonephritis in a 39-year-old immunosuppressed female.

Background

Symmetrical peripheral gangrene (SPG) is a rare clinical syndrome caused by ischemic damage in the absence of vascular occlusive disease. Mortality rate reaches 40% with reported amputation rates of almost 70%.

Case Presentation

A 39-year-old female patient was transferred to our department with the diagnosis of obstructive pyelonephritis of the right kidney. She was known to have Multiple Sclerosis treated with Natalizumab. Upon presentation, she was conscious with a SOFA-Score of 12 points. We started an antibiotic therapy with Imipenem/Cilastatin, managed the obstruction with immediate placement of a double-J ureteral stent, and referred her to the intensive care unit (ICU). At ICU she showed signs of clinical deterioration requiring high doses of catecholamines. After administration of vasopressors bilateral livid acral lesions of the toes were observed. A CT-Scan was performed showing a "reverse rim sign" of the contralateral kidney as a sign of acute cortical infarction due to catecholamine-induced vasospasm. To increase the microcirculation Phosphodiesterase- III inhibitors were administered. The livid acral lesions developed to bilateral dry gangrene of the toes. When the patient was stable, ureteroscopic stone removal was performed. Renal scintigraphy a month after hospital discharge demonstrated a renal function impairment with a remaining function of 10.5% for the left kidney. In further follow-up disarticulation of the several toes had to be performed.

Discussion/Conclusion

SPG is uncommon and changes in the microcirculation as well as vasospastic conditions are the most frequent causes. As the pathogenesis of the SPG is not well understood, it calls for caution when administering vasopressors.

P92

Urological status at discharge from spinal cord injury rehabilitation centers implementing the EAU Neuro-Urology guidelines: a descriptive analysis from a population-based prospective cohort study

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Background and objectives

Neurogenic lower urinary tract dysfunction (NLUTD) is common after spinal cord injury (SCI) and can lead to severe secondary complications and lower quality of life. However, the current epidemiological evidence supporting recommendations for the management of NLUTD is limited. The objective of this study is to provide a description of NLUTD and its management at discharge from specialized SCI rehabilitation.

Materials and methods

Data was collected by the Swiss Spinal Cord Injury (SwiSCI) Cohort Study, which prospectively includes adults undergoing specialized acute SCI rehabilitation in Switzerland. All centers offer patient-tailored management according to the EAU Neuro-Urology guidelines. Routine data were extracted from the clinical record at discharge from 90% of the eligible population, and data on lower urinary tract function assessed by the International Spinal Cord Society (ISCoS) Lower Urinary Tract Function Basic Data Set (not urodynamics) were collected from 52%.

Multivariable logistic regression adjusting for age, sex, SCI characteristics and center, with inverse probability weighting to account for non-response bias, was used to produce prevalence estimates and identify risk factors for lower urinary tract symptoms (LUTS) and management.

Results

In 608 persons with information on lower urinary tract function at discharge (median time after SCI: 5.0 months (Q1-Q3: 2.9-7.2)), 83% (95% CI: 79-85%) suffered from LUTS or had managed NLUTD. SCI completeness was the main risk factor for LUTS and NLUTD. Storage symptoms had a prevalence of 0.33 (95% CI: 0.27-0.37), female patients (odds ratio 1.98 (95% CI: 1.13-3.45)) and those with more severe SCI (interaction SCI level*completeness) were more likely to have urinary incontinence. Voiding dysfunction was usually managed with intermittent (prevalence 0.37 (95% CI: 0.33-0.40)) or indwelling (0.22 (0.18-0.25)) catheterisation. Patients with storage symptoms were usually treated with antimuscarinics or beta-3 adrenergic agonists (0.28 (0.24-0.32)).

Conclusions

This study is among the first to offer a comprehensive description of urological outcomes of SCI rehabilitation in a population-based sample of persons managed according to the EAU Neuro-Urology guidelines. The epidemiological indicators described here provide a foundation for comparing and evaluating current and future clinical approaches, supporting evidence-based urological management in persons with SCI.

P93

Robot-assisted adrenalectomy for adrenal mass: A case series

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Aim

Minimally invasive adrenalectomy has replaced the open approach for adrenal masses. The objective of this study was to review perioperative and safety outcomes of robot-assisted adrenalectomy.

Methods

We reviewed all patients undergoing robot-assisted adrenalectomy with laparoscopic or retroperitoneoscopic access for adrenal masses since 2016 at our institution. The outcome measurements were blood loss (ml), total operative time (skin-skin, min), duration of hospital stay (days), 30 d complication rates according to Clavien-Dindo classification and 30 d hospital readmission rate.

Results

Overall, 16 patients with a median age of 57 (interquartile range [IQR] 48.8 – 61.5) years underwent robot-assisted adrenalectomy. In 13 (81.3%) patients the indication for adrenalectomy was an adrenal mass with histological workup showing adrenal adenoma in 12 cases and myelolipoma in one. A total of 3 (18.3%) patients underwent adrenalectomy for adrenal metastasis in lung cancer. We performed the laparoscopic approach in 11 (68.8%) patients and the retroperitoneoscopic access in 5 (31.2%) patients. The median blood loss was 50 ml. Median Operation time was 136 min. No conversion to open surgery was necessary. The median duration of hospital stay was 4 (IQR 3 – 4.25) days. A total of 3 (18.8 %) patients suffered minor complications (Clavien-Dindo grade I – II). There were 2 grade I complications (prolonged wound healing and dyselectrolytemia) and 1 grade II complication (prolonged hypotension with the need for short-time vasopressor therapy). No Clavien-Dindo grade III - V complications were registered. All complications occurred after the laparoscopic approach. Only one patient was readmitted within 30 days of operation with prolonged wound healing with no further intervention necessary.

Conclusion

Robot-assisted adrenalectomy can be considered as a safe and effective minimally-invasive procedure. The laparoscopic and retroperitoneoscopic approach provide comparable results, so the choice between the two procedures underlies mainly surgeon preference and can be chosen patient-dependent.

P94

Clear cell renal cancer metastasis in the contralateral Ureter: a case report

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Background

clear cell renal carcinoma is known for its propensity of metastatic spread. Common sites of metastasis are lungs, bones, lymph nodes, liver, adrenals and brain, but all organs can be affected. Contralateral ureter's metastasis is a rare phenomenon and only few cases were reported in the literature.

Case presentation

We present a case of a 58-old patient with a single contralateral ureteral metastasis of a clear cell renal carcinoma.

Conclusion

Ureter metastasis of clear cell renal carcinoma is very rare and there is no well-established treatment. For patients with low metastatic spread/volume, the aim should be to preserve kidney function and thus metastasectomy should be considered.

P95

Oncological and functional outcomes after testis sparing surgery in men with germ cell tumors: a systematic review and individual patient meta-analysis of 285 men

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Introduction & Objectives

In several urogenital cancers, organ preserving surgery represents the preferred treatment approach. Testis sparing surgery (TSS) is a valid treatment option in men with interstitial cell or benign testicular tumors and may prevent hypogonadism, testosterone supplementation and infertility. In men with testicular germ cell tumors (tGCT) orchiectomy represents the standard of care as pathological studies describe multifocal or adjacent germ cell neoplasia in situ (GCNIS) in 20-30%.

Materials & Methods

Systematic literature review and individual patient data (IPD) meta-analysis of published cases summarizing oncological and functional outcomes in men undergoing TSS because of tGCT.

Results

Of 2333 studies, we included 32 providing data of 285 men including 306 testicles treated with TSS. Mean age at diagnosis was 31(±5) with a median tumour size of 15 mm (Interquartile range (IQR) 13-19). Of 277 men with available histopathology for IPD analysis, 177 (62%) had pure seminoma, 18 pure teratoma (7%) and 120 (43%) associated GCNIS in the TSS specimen. TSS was either performed in men with a single testicle (n=199), synchronous bilateral tumors treated with unilateral TSS and contralateral orchiectomy (n=51), bilateral tumors and bilateral TSS (n=21) or healthy contralateral testis and a unilateral tumour treated TSS (n=14). Adjuvant treatment after TSS was used in 122 men (43%) and included adjuvant testicular radiotherapy in 108, adjuvant chemotherapy in 17 and RPLND in 9.

Functional outcomes were reported in 121/285 (43%) men. Hypogonadism and infertility after TSS were diagnosed in 13/121 (11%) and 24/121 (20%) men. In the subgroup of men undergoing TSS with a single testicle (n=119) or bilateral TSS because of bilateral tumors (n=21), hypogonadism and infertility were diagnosed 10/140 (7%) and 14/140 (10%).

Median follow-up of the total dataset was 39 months (IQR: 20-57). Local recurrence was observed in 33/285 (12%) men after a median of 12 months (IQR 8-31). Men treated with adjuvant testicular radiotherapy had a longer local recurrence free survival compared to men without testicular radiotherapy (9 months vs. 27 months). Distant metastases were observed in 16 men (6%).

Conclusions

Testis sparing has the potential to prevent hypogonadism and preserve fertility in most men. Those advantages must be balanced against the risk of local recurrence and the need of further treatment.

P96

A longitudinal study evaluating interim assessment of neoadjuvant chemotherapy for bladder cancer

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Purpose

There is currently no consensus on re-staging during and after administration of neoadjuvant chemotherapy (NAC) in patients with muscle-invasive bladder cancer (MIBC) prior to radical cystectomy (RC). The aim of this study was to evaluate the usefulness of radiological re-staging after 2 and 4 cycles of NAC, the impact of re-staging on further patient management and the correlation between clinical and the final pathological tumor stage at radical cystectomy.

Material and Methods

Longitudinal, single-center, cohort study of prospectively collected consecutive patients who underwent NAC and RC for urothelial MIBC between 07/2001 and 12/2017. Patients had repeated CT scans for re-staging after 2 cycles of NAC and after completion of NAC before RC.

Results

Of 180 patients, 110 patients had ≥ 4 cycles of NAC and had complete imaging available. In the entire cohort, further patient management was only changed in 2/180 (1.1%) patients after 2 cycles of NAC based on radiological findings. Patients stable after 2 cycles but then downstaged after at least 4 cycles of NAC had a similarly lowered risk of death (HR = 0.53). Only one patient downstaged after 2 cycles was subsequently upstaged after 4 cycles. Clinical downstaging was observed in 51 (46%) patients, 55 (50%) patients had no change in clinical stage and 4 (3.6%) patients were clinically upstaged. Patients clinically downstaged after 4 cycles of NAC had a statistically significant lower risk of death (HR = 0.49, 95%CI: 0.25 – 0.94, $p=0.033$) compared to those with no change or upstaged after completion of NAC.

Conclusions

Re-staging of muscle invasive bladder cancer after 2 cycles of NAC offers little additional information, rarely changes patient management and therefore may be omitted whereas restaging after completion of NAC by CT is a strong predictor of overall survival.

P97

Pulmonary Mycobacterium bovis infection after BCG administration intravesical and of the upper urinary tract in a 71-year-old male patient: a case report

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Background

The intravesical administration of bacillus Calmette-Guérin (BCG) has been an integral part in the adjuvant therapy of non-muscle invasive bladder cancer and in situ carcinoma¹. Furthermore, BCG perfusion of the upper urinary tract has been proven beneficial in selected patients post endoscopic ablation of small papillary low-grade tumors or in situ carcinoma of the upper urinary tract under kidney-sparing management. These endoluminary treatments are generally well tolerated while local and systemic complications, from moderate to severe, can occur. Systemic spread of Mycobacterium bovis with pulmonary infections has been reported and is commonly treated with antitubercular medication and adjuvant corticosteroids.

Case presentation

We report a rare case of a disseminated pulmonary BCG infection under ongoing intravesical application and after completed upper urinary tract perfusion causing pneumonitis in a 71-year-old patient. Antitubercular therapy and corticosteroids were required and showed rapid clinical and radiological improvement in this patient.

Conclusions

Systemic infection by Mycobacterium bovis with pulmonary involvement is a rare but potentially severe complication of endocavitary treatment with BCG and is commonly treated with antitubercular therapy and corticosteroids. Attending physicians should be aware and vigilante of this condition.

P98

Qualitative Bewertung von medizinischen Informationen auf YouTube: Ein multilingualer Vergleich von häufigen urologischen Erkrankungen

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Hintergrund und Ziele

Patienten suchen heutzutage häufig auf Video-Sharing-Plattformen nach medizinischem Informationsmaterial. Bisherige Analysen von urologischen Videos beschränkten sich auf Englisch sprachige Videos.

Es erfolgte nun ein systematisches Video - Assessment zur Therapie der benignen Prostatahyperplasie (BPH), des Prostatakarzinoms (PCa) und Steinleidens (USD) in vier verschiedenen Sprachen auf YouTube mit validierten Instrumenten.

Material und Methoden

Die Suche nach Videos auf YouTube, die sich mit Behandlungsmöglichkeiten von BPH, PCa und USD befassen, wurde im Oktober 2020 in den Sprachen Englisch, Französisch, Deutsch und Italienisch durchgeführt. Bewertet wurden Basisdaten (z.B. Anzahl der Aufrufe), Grad der Fehlinformation und die Angabe von Interessenskonflikten. Die Qualität der Inhalte wurde mit Hilfe des validierten DISCERN-Fragebogens analysiert. Die Daten wurden mittels deskriptiver Statistik ausgewertet.

Resultate

Es wurden insgesamt 240 Videos (60 Videos in jeder Sprache) ausgewertet. Videos zu USD in Englisch hatten die höchste Anzahl von Aufrufen (Median 271'878 [65'313 - 2'513'007]). Die mediane Gesamtqualität der bewerteten Videos zeigte eine mäßige Qualität (2,5 bis 3,4 Punkte von 5 Punkten für DISCERN Item Nr. 16). Der mediane DISCERN-Gesamtwert aller Videos unterteilt nach der Sprache zeigte sehr ähnliche Ergebnisse: Englisch (39,75 Punkte), Französisch (38 Punkte), Deutsch (39,5 Punkte) und Italienisch (39 Punkte). Der Vergleich der verschiedenen Krankheitsbilder zeigte für Videos über BPH die höchsten Medianwerte.

Schlussfolgerungen

Videos zur Behandlung von BPH, PCa und USD haben eine niedrige bis mäßige Qualität des Inhaltes, wobei es keine relevanten Unterschiede zwischen den bewerteten Sprachen zu geben scheint. Die Ergebnisse zeigen die Notwendigkeit von qualitativ verbessertem Patienteninformationsmaterial auf Videoplattformen wie YouTube, unabhängig von der Sprache und dem Krankheitsbild.

P99

Diagnosis of a very rare subtype of renal cell carcinoma: TFEB- Translocation renal cell carcinoma in a 28-years- old patient – a case report

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Case Presentation

We report the case of a 28-year-old patient in whom a TFEB- Translocation renal cell carcinoma was diagnosed after left open partial nephrectomy. A 5.1cm large tumor of the kidney was incidentally seen in a computed tomography following a car accident in 2018. Further work-up was initially declined by the patient. Two years after initial diagnosis imaging was repeated with a computed tomography, showing a slowly growing solid mass of the left kidney, suspicious of a renal cell carcinoma. Surgical removal was recommended and performed via open partial nephrectomy. The histopathological and immunohistochemical analysis revealed a rare TFEB- Translocation renal cell carcinoma. The case was discussed at our multidisciplinary tumorboard, and lifelong follow-up was recommended as late metastasis of TFEB- Translocation renal cell carcinomas have been described up to 20-30 years after initial diagnosis.

Discussion

Here, we report the case of a TFEB- Translocation renal cell carcinoma (RCC) discovered in a young patient. The patient had initially declined a further work-up as he was asymptomatic. Similarly, in the literature one-third of cases are detected incidentally in asymptomatic patients. On follow-up computed tomography of the abdomen, the tumor was described as being suspicious for a renal cell carcinoma, thereby resulting in the indication for surgery.

It is important to state that the diagnosis of these tumors poses a challenge for the pathologists involved as additional immunohistochemical stains and detection of the according translocation with fluorescent in situ hybridization (FISH). The overall outcome of translocation renal cell carcinoma appears to be highly variable, with cases of very slow growth as well as cases with progressive disease and a poor outcome. The course of disease in this case is gratifying, as the tumor was incidentally diagnosed, and grew very slowly between the initial diagnosis in 2018 (5.1 cm) and the repeated imaging in 2020 (5.5 cm) without any signs of suspicious locoregional lymph nodes or distant metastasis.

Conclusion

TFEB- Translocation renal cell carcinoma are extremely rare histological variants with very little experience regarding overall outcome. As of yet, it is unknown whether additional therapies to surgery are of use, or regarding the optimal follow-up. Accordingly, an individual patient-centered management of therapy and follow-up must be established.

P100

Post-operative pelvic pain after laparoscopic robot-assisted radical prostatectomy – correlation with anastomosis suture material? A prospective randomized trial

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Introduction and objectives

The risk of developing a chronic pelvic pain syndrome after radical prostatectomy is clinically significant. Multivariant predisposing and perioperative factors are discussed. At our institution we use two different surgical suture material to sew the anastomosis. The aim of this study is to compare these suture materials regarding postoperative pelvic pain. To our knowledge the correlation between postoperative pelvic pain after radical prostatectomy and the suture material has not been evaluated so far.

Materials and methods

We prospectively randomized patients in a 1:1 ratio to a monofilament bidirectional polyglycolic-polycaprolactone suture with an anchoring system and RB-1 needle shape (MS) versus a braided, double armored polydioxanon suture with UR-6 needle shape (BS). All included patient underwent laparoscopic robot-assisted radical prostatectomy at our institution. The anastomosis were sutured continuously with the van Velthoven technique and an intraoperative water tightness test was performed. The existence and range of postoperative pain was evaluated with the EPIC-26 questionnaire. The questionnaire was answered preoperatively and at 3, 6, 12 months postoperatively. Missing data was collected by phone call. Perioperative data was collected out of the medical history and internal clinic information system.

Results

135 patients (n=135) were randomized and eligible for analysis. 67 were included in the group treated with MS and 68 were included in the group treated with BS. Thereof 44 were locally advanced (pT4, pT3a/b, pN1) in the MS group, and 56 locally advanced in the BS group. 13 of the MS group underwent extended lymphadenectomy and 10 of the BS group. 19 of the MS group were treated without nerve-sparing and 17 of the BS group. Median operation-time was 223 minutes (195 – 272) and the median age 67 years (63 – 72). There was no significant correlation between one of the suture materials to postoperative pelvic pain (p=0,199) and no significant correlation between one of the suture materials to anastomotic leakage (p=0,747).

Conclusion

To date we can't record a significant difference between the two different suture materials according postoperative pain and anastomotic leakage. However more patients have to be included in the study for a significant result.

P101

Case report: Anemic urethral rupture after sleigh accident

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Introduction

This case-report is about a 28-year-old male who suffered from an anemic urethral rupture due to a sleigh accident.

Epicrisis

A 28-year-old male presented to the emergency department (Hospital Walenstadt) with substantial urethral bleeding after a sleigh accident. A physical examination revealed a superficial hematoma on the left hip but without pathological findings of the kidney, pelvis and genital. A CT scan of the pelvis showed a posterior urethral rupture at the level of pars membranacea. A transurethral catheter was inserted and antibiotic therapy with Ciprofloxacin was established. While hospitalization, blood-hemoglobin-levels dropped from 128 g/l to 100 g/l. At the time of discharge, 6 day after injury, there were no signs of urethral bleeding and blood test revealed an increased hemoglobin level of 107 g/l.

After recurrent presentation at the outpatient clinic within the department of urology of the University Hospital of Zurich due to episodes of urethral blood loss and stable hemoglobin levels around 85 g/l, 5 weeks after injury, the transurethral foley catheter was removed. The rupture of the posterior urethra was confirmed by urethrocystoscopy. Active bleeding was not present, neither urethrographic signs of fistulas nor strictures at the level of the previously mentioned lesion.

2 weeks later, a sudden substantial urethral bleeding occurred again and resulted in anemia with a blood-hemoglobin level of 57 g/l. Again, the patient was hospitalized with a transurethral foley catheter and supportive perineal pressure. Red blood cells were transfused. The following day, a transurethral bipolar coagulation of the urethral lesion was performed. 5 days after discharge without foley catheter, the patient presented again with substantial transurethral bleeding. A perineal revision with resection and end-to-end anastomosis of the ruptured urethra was performed. Due to recently performed surgery, long term follow up is not yet available.

Conclusion

Posterior urethral ruptures are mostly caused by pelvis fracture due to blunt trauma (1). This case represents a rare condition of an anemic posterior urethral rupture caused by direct blunt trauma to the perineum, without pelvis fracture.

P102

Video Case Report – Renal Hemangioma resulting in Chronic Macroscopic Hematuria in a 42-year-old Male: Diagnostic Work-up and Ureterorenoscopic Laser Treatment

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Case presentation

A 42-year-old male patient was referred by his GP due to chronic painless macroscopic hematuria, which was constantly present for approximately 2 years. The patient's medical history included a controlled HIV infection and active smoking, and was negative for coagulopathies, trauma or kidney stones. He already presented himself in an external urologic practice and underwent several investigations including, bilateral ureterorenoscopy, MRI, CT, angiography, and biopsy of the kidney.

Cystoscopy revealed bloody urine ejaculation from the right orifice but none of the investigations were able to determine the source of his hematuria.

Following another cystoscopy in our department with clear ejaculation of bloody urine from the right ureteral orifice, the patient underwent video ureterorenoscopy. This revealed a small, constantly bleeding hemangioma in the lower calyx. The hemangioma was completely ablated using the Thulium fibre laser. Bleeding was not detectable anymore following laser ablation. Two weeks after the procedure the patient presented in our outpatient clinic without visible hematuria for the first time after two years of constant hematuria. Urine microscopy revealed that hematuria was not present anymore.

Conclusion

Renal hemangiomas are rare and benign but can cause persistent microscopic or macroscopic hematuria. Ureterorenoscopy is an efficient minimally invasive method to diagnose and treat these hemangiomas. Given that the size of these hemangiomas can be rather small, an accurate and complete examination of the renal collecting system is necessary. Once diagnosed these malformations can be effectively ablated using laser vaporization during the same procedure.

P103

Radical hemiscrotectomy and en-bloc orchidectomy: surgical technique, perioperative and oncologic outcomes of a supra-regional UK referral centre

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Background and purpose

Hemiscrotectomy with en-bloc orchidectomy represents a radical primary, completion, or salvage option in men with inguinoscrotal cancers. We describe our surgical technique, perioperative and oncological outcomes.

Methods

Retrospective cohort study of 16 men treated at a supra-regional referral centre with open radical hemiscrotectomy with or without en-bloc orchidectomy between 2010 and 2020. Perioperative and survival outcomes were analysed.

Results

Radical hemiscrotectomy with or without en-bloc orchidectomy was performed on 16 patients comprising; 7 well-differentiated liposarcomas, 4 dedifferentiated liposarcomas, 2 leiomyosarcomas, 1 mesothelioma, 1 rhabdomyosarcoma and 1 mammary type myofibroblastoma. Primary hemiscrotectomy was performed in 4, completion hemiscrotectomy in 9 and salvage hemiscrotectomy in 3. The median hospital stay was 2 days (interquartile range (IQR) 2–4). Four patients (25%) had postoperative complications including wound infection or hematoma. During a median follow-up of 18 months (IQR 2–66), one patient (6%) died following a recurrence in the pelvis and retroperitoneum.

Discussion and conclusions

If careful dissection is performed, radical hemiscrotectomy and en-bloc orchidectomy is a radical but safe procedure with a short hospital stay. Haematoma and infection represent the main complications and within limited follow-up most men showed no recurrence.

P104

Ensuring complete resection of extramammary Paget's disease using a two staged approach: systematic mapping biopsies followed by personalised resection

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Introduction

Extramammary Paget's is a rare adenocarcinoma which primarily affects apocrine rich skin. It is characterised by erythematous itchy lesions which are caused by a subepidermal inflammatory process associated with an intra-epithelial pagetoid spread of the adenocarcinoma cells. The disease is often more extensive than can be seen on visual inspection and can be subtle enough to even escape in standard microscopy using haematoxylin & eosin (H&E). Therefore, many men undergoing primary resections end up with a positive surgical margin, local recurrences and repetitive excisions.

Immunohistochemistry stains (e.g. CK-7) easily pinpoint the neoplastic cells and are used not only to confirm the diagnosis but define the extent of involvement in surgical specimen. Therefore, often used treatment including surgical resection with an arbitrary resection margin (e.g. 1 or 2 cm) or MOHs surgery cannot ensure complete resection. We present our surgical technique incorporating a two staged approach to detect the extent of this often diffusely spreading cancer to allow a surgical resection with negative margins.

Methods

In the first step, the erythematous lesion is marked and concentric rings of 1 and 2cm distance are drawn. Punch biopsies are performed to encircle the erythematous lesion and the biopsies are carefully labelled to plan the subsequent personalized resection. All biopsies are analysed using H&E staining but more importantly immunohistochemistry (CK-7). Based on the location of positive biopsies, the final resection is planned and performed.

Results

In this video we present the case of a 66-year-old male with an erythematous area affecting the scrotum and penile shaft for 12 months. During the mapping biopsy procedure, a total of 21 biopsies, 11 at the 1cm margin and 10 at the 2cm were performed and carefully labelled with their corresponding location. As only 1 biopsy at the 1cm margin close to the penile shaft showed disease the patient underwent the surgical resection with a 1cm margin and extension to 2cm at the penile base. Post-operative review after 4 weeks showed a well healed area and with good urinary and sexual function. Surgical margins were clear and no recurrence was observed after 7 months follow-up.

Conclusion

As the prognosis of patients with Extramammary Paget's disease is mainly dictated by the achievement of a complete excision with surgical negative margins, we feel that our technique represents a safe approach