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11-13 maggio 2023

ROMA

abstracts

libro
degli Abstracts
e degli Autori

Associazione Urologi Italiani - AURO.it

Istruzioni
per la consultazione degli abstracts

Alla pagina 3 l'**Indice:**

- **- L'indice delle sessioni cui afferiscono gli abstract, con *la sala, il giorno e l'ora* delle presentazioni**
- **- L' elenco degli Autori e delle loro corrispondenti sessioni**

Per agevolare l'identificazione, il ***giorno*** e la ***sala*** di presentazioni degli abstracts sono caratterizzate da **colori colori colori** specificamente differenti.

Le **sessioni** di Abstracts sono identificate con colori in base al **tipo di presentazione**:

Blu i video

Arancione le comunicazioni

Gli **abstracts** sono esposti consecutivamente nelle rispettive sessioni di presentazione, come da programma. Pertanto a seconda ***delle sessioni*** (comunicazioni o video), ***del giorno, dell'ora e della sala,*** **potete identificare l'abstract desiderato.** La responsabilità dei **testi** (linguaggio e contenuti) è esclusivamente degli Autori.

Nell' **indice degli Autori** potete trovare l'elenco degli Abstract che ciascuno ha presentato con le indicazioni delle pagine dove sono pubblicati.

Indice

giovedì 11 maggio

sabato 13 maggio

11 maggio 2023

12:00 - 13:15

sala A

Video 1-
Rigenerare e Ricostruire

Moderatori: Ferdinando Fusco, Roberto Migliari

FOCUS ON: Fistole vescico-vaginali Roberto Migliari

1. NUOVA TECNICA PER LA STENOSI COMPLESSA DA LICHEN SCLEROSUS MEDIANTE L'INNESTO DI TESSUTO ADIPOSO ULTRA-PURIFICATO

Elisa Berdondini[1], Mauro Silvani[1], Andrea Margara[2], Franco Bardari[3], Mauro Gacci[4], Serena Maruccia[5], Maria Ceruto[6], Antonio Pastore[7], Salvatore Voce[8], Giulio Reale[8], Alessandro Zucchi[9]

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Descriviamo l'uretroplastica con tessuto adiposo ultra-purificato per il trattamento della malattia stenosante complessa dell'uretra anteriore da lichen sclerosus.
Il lichen sclerosus è una patologia infiammatoria cronica recidivante che parte dal prepuzio e via via interessa il glande, il meato e la spongiosa dell'uretra anteriore, fino alla completa stenosi dell'uretra anteriore. Il trattamento della malattia stenosante dell'uretra è una sfida per il chirurgo ricostruttivo, perchè la patologia è cronica e recidivante. Inoltre l'ampliamento di una stenosi lunga 20-25 cm richiede l'utilizzo di vari innesti di mucosa orale o l'utilizzo di flap. Il tessuto adiposo viene prelevato tramite minima liposuzione, poi emulsionato e filtrato per ottenere un prodotto liquido (NANOFAT) ricco di cellule staminali. La spongiosa viene trattata col nanofat e da subito il piatto uretrale si distende per l'effetto meccanico del trattamento.
Nell'arco dei tre mesi successivi il nanofat determina una rigenerazione della spongiosa mediante la neoangiogenesi e l'attivazione di fattori della guarigione. La metodica è meno invasiva rispetto al prelievo di vari graft ed è risultata più veloce. Non ci sono state complicanze peri o postoperatorie. Questo cambia il concetto di guarigione, in quanto non andiamo più ad ampliare il piatto uretrale ma andiamo a rigenerare il tessuto cicatriziale.

2. STENOSI MEDIO-PROSSIMALE DELL'URETRA FEMMINILE: URETROPLASTICA CON INNESTO VENTRALE DI MUCOSA BUCCALE

Elisa Berdondini[1], Mauro Silvani[1], Andrea Margara[2], Franco Bardari[3], Mauro Gacci[4], Salvatore Voci[5], Giulio Reale[5], Alessandro Zucchi[6]

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Descriviamo step by step l'uretroplastica con innesto ventrale di mucosa buccale per la stenosi uretrale nella donna.
Effettuiamo l'uretroscopia utilizzando il cistoscopio 16 Ch per posizionare una guida uretrale. Incisione a L rovesciata della parete vaginale ed isolamento della mucosa vaginale. Incisione mediana della fascia periuretrale e creazione di due flap. Apertura ventrale dell'uretra a partire dal meato uretrale fino a raggiungere l'uretra sana. Ampliamento dell'uretra mediante innesto ventrale di graft di mucosa buccale. Stabilizzazione del graft ai flap della fascia periuretrale. Chiusura della parete vaginale e punti di quilted per fissare la mucosa vaginale ai piani sottostanti.
Dal 2017 al 2021 abbiamo sottoposto 42 pazienti ad uretroplastica con innesto ventrale di mucosa buccale.
Questa metodica permette di non danneggiare lo sfintere uretrale e mantenere la continenza.
Gli strati ricostruiti sotto il graft rappresentano un buon support meccanico e vascolare : nessuna paziente ha sviluppato fistole.
Con un follow-up medio di 25 mesi la percentuale di successo è 93% (39 pz).

3. Robotic Pyeloplasty In Bifid Pelvis Of Kidney With Hydronephrosis Of The Upper Calyxes Due To Obstructing Stone

Nicolò Fiorello[1], Andrea Di Benedetto[2], Andrea Mogorovich[2], Daniele Summonti[2], Giuseppe Silvestri[1], Marco Lencioni[3], Sandro Benvenuti[2], Carlo Alberto Sepich[1]

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The case concerns a patient with right ureteropelvic junction obstruction and bifid pelvis of left kidney with hydronephrosis of the upper calyxes due to obstructing stone.
The video shows the intraoperative surgical management.
The case is interesting given the low frequency of this type of reconstructive surgery

4. Laparoscopic Repair Of Vesicovaginal Fistula: Our Experience

Gaia Colalillo[1], Giuseppe Farullo[1], Simone Albisinni[1], Gabriele Falconi[2], Enrico Finazzi Agrò[1], Anastasios Asimakopoulos[1]

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Technical video demonstrating a combined cystoscopic, laparoscopic, and vaginal approach to repair of a vesicovaginal fistula (VVF).

Case presentation

We present the case of a 72-year-old woman affected by urinary incontinence (UI) and pelvic prolapse organ prolapse (POP) for about 2 years. Therefore, she underwent a colpohysterectomy surgery and cistopexy and colpoperineoplasty. After 10 days, the patient returned our attention for recurrent episodes of UI (4-5 pad/die).
A hysterography revealed a fistula of 8 mm diameter at the posterior wall of the bladder, supratrigonal in position. We chose the laparoscopic approach to treat the VVF.
During cystoscopy, ureters and the fistula tract were catheterized previously. In this way, the time of laparoscopy was beneficial to localize the fistula tract and allowed meticulous dissection in the retrovesical space between the bladder and the vagina. The sutures of the bladder and vagina were performed in a perpendicular direction, without overlap and tension of the vaginal mucosa. [1]
Bladder closure was confirmed by the hydrostatic leak test at 250 cc. The attempt to place the epiploic appendagitis was unsuccessful, it caused tension and angle of the rectum. Alternatively, we used an omental flap to repair the VVF. [2]

Results

Operating time was approximately 150 min. Estimated blood loss was 50 mL. No intraoperative or postoperative complications

occurred. The bladder catheter was removed after 15 days, after which the control cystography showed no leakage. The woman had no signs of recurrence after 12 months of follow-up.

Conclusion

Laparoscopic repair of VVF is a feasible, effective, and mini-invasive management option of treatment with sucessful outcome. [3]

1. Prognostic factors of recurrence after vesicovaginal fistula repair. Mohsen Ayed, Rabii El Atat, Lotfi Ben Hassine, Mohamed Sfaxi, Mohamed Chebil, Saadoun Zmerli. Comparative Study Int J Urol 2006 Apr;13(4):345-9. doi: 10.1111/j.1442-2042.2006.01308.x.
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5. PRO-ACT SUBSTITUTION FOR MECHANICAL RUPTURE OF THE PERIURETHRAL BALLOON: STEP-BY-STEP SURGICAL EDUCATION VIDEO

Gaia Colalillo[1], Enrico Finazzi Agrò[1], Anastasios Asimakopoulos[1]

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Stress urinary incontinence is a feared complication after radical prostatectomybecause it impacts on the quality of life and determines a high rate of emotional distress.
When the first-line pharmacological and physical conservative treatments fail compression devices may be recommended.
The ProACT prosthesis is a postoperatively adjustable device that aims to achieve optimal outlet resistance by progressively increasing the volume of the periurethral balloons.
Furthemore, in case of mechanical rupture it may be easily substituted (removed and reimplanted) in expert centres.
In this video we present the clinical case of a male patient who had undergone PRO-ACT implantation about 10 years ago. Due to the rupture of the right balloon, its substitution was indicated and performed under ultrasound guidance.
Our aim is to provide a description of the surgical technique.
A set of simple steps, that makes the surgical procedure safe and easy to perform even in inexperienced hands.

6. First Case-Series Of Robot-Assisted Decompression For Pudendal Nerve Entrapment: Technique And Outcomes

Anastasios Asimakopoulos[1], Gaia Colalillo[1], Carlo Giulioni[2], Giulia Garelli[2], Julien Riviere[2], Julie Piechaud Kressmann[2], Nam Son Vuong[2], Laurent Hugo Lopez[2], Thierry Piechaud[2], Jean Baptiste Roche[2], Jean Rouffilange[2], Jean Luc Hoepffner[2], Andrea Benedetto Galosi[2], Richard Pierre Gaston[2], Grégory Pierquet[2]

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Objective:

Pudendal Nerve Entrapment (PNE) may determine chronic pelvic pain associated with symptoms related to its innervation area. This study aimed present the technique and to report the outcomes of the first series of robot-assisted pudendal nerve release (RPNR).

Patients and Methods:

32 patients who were treated with RPNR in our centre between January 2016-July 2021 were recruited. Following the identification of the medial umbilical ligament, the space between this ligament and the ipsilateral external iliac pedicle is progressively dissected in order to identify the obturator nerve. The dissection medial to this nerve identifies the obturator vein and the arcus tendineous of the levator ani, that is cranially inserted to the ischial spine. Following the cold incision of the coccygeous muscle at the level of the spine, the sacrospinous ligament is identified and incised. The pudendal trunk (vessels and nerve) is visualized, freed from the ischial spine and medially transposed.

Results

Median duration of symptoms was 7 (5,5-9) years. The median operative time was 74 (65-83) minutes. The median length of stay was 1 (1-2) days.There was only a minor complication. At 3 and 6 months after surgery, a statistically significant reduction of the pain has been encountered. Furthermore, the Pearson correlation coefficient reported a negative relationship between the duration of pain and the improvement in NPRS score, -0.81 (p=0.01).

Conclusions

RPNR is a safe and effective approach for the resolution of pain caused by PNE. Timely nerve decompression is suggested to enhance outcomes.

11 maggio 2023
12:00 - 13:00

sala B

Comunicazioni 1-
Carcinoma del rene: niente è scontato

Moderatori: Olivier Intilla, Luigi Mearini

Focus on: biopsia renale: perché si stenta a farla?
Luigi Mearini

1. "Tell Me Your Age, Size And Gender And I'll Tell You Who You Are": A Retrospective Analysis Of Predictive Factors For Benign Tumors In 307 Consecutive Single Renal Masses Treated With Partial Or Radical Nephrectomy

Raffaele Baio[1], Umberto Pane[2], Giovanni Molisso[2], Olivier Intilla[2], Umberto Di Mauro[2], Tommaso Realfonso[2], Antonio Campitelli[2], Roberto Sanseverino[2]

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Objective

The exponential increase in the use of noninvasive abdominal imaging techniques has led to an increase in the number of small, often asymptomatic, kidney tumors incidentally detected that generally migrate to lower clinical stage [1, 2]. In addition, according to studies from Western countries, 15–20% of small kidney tumors are benign [3-5]. Furthermore, frequently, small renal masses (SRMs) have an indolent course [6]. Commonly, Computed Tomography (CT) is needed in the evaluation of kidney masses [7, 8]; at this radiological examination, contrast-enhancing renal nodules are classified as malignant and, in most cases, are surgically excised without previous biopsy. Traditionally, renal biopsy is performed only in the case of suspected lymphoma, abscess or metastatic disease. Although most masses are Renal Cell Carcinoma (RCC) after surgical treatment, a non-negligible number of these masses may be benign on final pathology; as a result, some patients undergo unnecessary surgery with an associated significant morbidity. This has an important impact on health policy [9]. In effect, for these patients, the treatment planning is uncertain due to the failure of current imaging techniques and renal biopsy to accurately distinguish RCC from benign tumors before surgery [1, 10]. Surveillance might be an appropriate alternative to immediate surgery for patients with indolent tumors, considering the low risk of progression if the treatment is delayed [6]. In effect, patients under surveillance rarely progress to metastatic disease [11]. However, choosing which patients are suitable for surveillance can be difficult because the distinction between benign masses or indolent malignant tumors and aggressive cancer may not be possible without complete surgical removal. For evaluating the potential aggressiveness of small renal masses, several tools have been used to facilitate the choice between surveillance and immediate surgery. The current retrospective report describes the incidence and predictive

factors of benign renal masses by surgery. Understanding this analysis allows us to identify which patients are more likely to have benign tumors, and who would therefore benefit from additional diagnostic testing (such as renal biopsy) or active surveillance.

Materials and Methods

This retrospective study was conducted at an independent institution; written informed consent was obtained from each patient. The study sample was composed of patients who underwent surgery for solid renal masses that were suspected RCCs. Overall, 307 patients at our Department of Urology met the inclusion criteria for enrollment in the study. The patients underwent radical or partial nephrectomy (either laparoscopic or open) due to the preoperative suspicion of RCC, according to the radiographic aspect of the renal mass by ultrasonography and CT scan. If a preoperative diagnosis could not be made with the above imaging techniques, magnetic resonance (MR) was performed to provide further detail. Three criteria were used to raise suspicion of renal cell carcinoma for surgical treatment: 1) Solid enhanced nodules (showing an increase of 10 Hounsfield units at CT scan); 2) Absence of intra-tumor fat in the kidney lesions in order to exclude angiomyolipomas; and 3) Complicated renal cysts of type III or IV (Bosniak classification [12]). Exclusion criteria were genetic predisposition for von Hippel-Lindau disease or Birt–Hogg–Dube syndrome, tumor biopsy, primary urothelial cell carcinoma, metastatic tumors, tuberous sclerosis, or patients with multiple masses, bilateral masses, cystic masses, or if the solid renal mass was classified as angiomyolipoma due to the presence of fat on the preoperative CT. For the analysis, we assessed demographic data for each patient (such as age and gender) and the following tumor features: size of mass (widest diameter), body site affected (right or left kidney), histology and year of surgery.

Results

Males represented the majority of patients at 60.6%. The overall mean age (SD) was 60 (13) years. The number of malignant cases was 212, which represented 69% of the cases overall. The majority of malign cases were attributed to RCC at 72.6%, with papillary tumors at 12.3%, chromophobe tumors at 7.5% and other types at 7.5%. For the benign conditions, 35.8% were oncocytomas, 22.1% pyelonephritis, 11.6% angiomyolipomas, 10.5% hydronephrosis and 20% were other types of benign conditions. Univariate logistic regression showed that increasing tumor size, male sex and increasing age were all positively associated with an increase in malignancy risk. In particular, when categorized, lesions > 5 cm were the only category with a statistically significant coefficient difference when compared to the reference group of ≤ 3 cm, while age < 50 years was the only age category with a statistically significant coefficient difference when compared to the reference group of ≥ 70 years. In univariate analysis, the year of intervention was also positively associated with an increase in malignancy risk. The results are reported uncorrected for multiple testing. Correlation analysis showed that year of analysis was positively correlated with patient age, tumor dimension and male sex, all of which inferred an increased malignancy risk. The univariate result for year of intervention may thus be explained in terms of the demographic changes occurring in the sample over time. In multivariate analysis, both patient age and tumor dimension were positively associated with increased malignancy risk when treated as continuous variables, while only tumor size >5 cm remained statistically significant when the variables were categorized.

Discussions

Due to the widespread use of common and non-invasive imaging techniques, the incidental diagnosis of kidney mass has become increasingly common. Considering that a non-negligible share of these masses are found to be non-malignant after surgery at pathological examination, it is crucial to identify features that can correctly diagnose a mass as benign or not. According to the results of our report, female gender and tumor size < 3 cm are independent predictors of benign nature. Contrary to that demonstrated by P. Violette et al. [13], increasing patients age was also positively associated with a greater risk of malign pathology. Overall, our results were in agreement with previous series. In effect, Zisman et al. [14] found that female gender was associated with an increased probability of benign tumors, as in another study in which women had a 27.3% probability of being affected by a benign tumor, while in men the probability was 14.5% [15]. A Japanese study evaluated patients who undergone partial nephrectomy for small renal masses: unlike 5.4% of men, 26.1% of women were affected by benign tumors [16]. According to the literature, female gender is considered uniformly protective against renal malignant tumors; however, the impact of mass size on the probability of malignant nature is less codified. In our study, tumor size < 3 cm was linked to a decreased risk of malignant nature, with smaller kidney masses being more likely to be benign. This result was in agreement with other series [17, 18]. In another study, a significant correlation between benign pathology and tumor size was reported [17]. Furthermore, according to another study, for every 1 cm increase in tumor diameter, the probability of RCC as opposed to a benign tumor increased by 17% [18]. However, other series have failed to demonstrate this correlation [14, 15, 19, 20]. According to the findings of our report, women with renal masses ≤ 3 cm will likely have a benign tumor on pathological examination. Consequently, the risk of such women being exposed to surgery and its potential morbidity unnecessarily is significant. In order to avoid this risk, these patients may benefit from further investigation, such as a core needle biopsy, considering its improved accuracy and safety and low false-negative rates [21, 22]. However, although the performance of renal biopsy to predict RCC subtypes is excellent, with a success rate of 90% in some studies [23], the same results have not been obtained for tumor grade evaluation and, therefore, biological risk [24-28]. Indeed, unfortunately, the diagnosis of low-grade malignant tumors on renal biopsy does not yet exclude high-grade lesions [23]. An alternative approach to upfront surgery is active surveillance of small tumors; indeed, according to some authors, selected patients with small renal masses can be safely followed [29-30], as also demonstrated by Chawla et al. [11], who evaluated the outcome of 234 observed small renal masses, from which there were only three documented reports of metastases. In addition, in a prospective study, Jewett et al. [31], using biopsies and serial imaging examinations, evaluated the rate of progression and metastases in patients with small renal masses (≤ 4 cm maximum diameter) in an overall study sample of 127 patients. The results showed that only 25 patients progressed locally and two developed metastases. The above studies further support the hypothesis that small renal masses grow slowly, with rare metastases. Consequently, adding the results of the present study to data from the existing literature, active surveillance may be even more highly recommended for older women with small renal masses (especially those ≤ 3 cm) due to their high probability of harboring benign or clinically indolent tumors. Lastly,

like other authors, we found a correlation between young age and incidence of benign or less aggressive tumors. All of these findings indicate that these patients should be considered suitable candidates for a preoperative biopsy of the renal mass or active surveillance. This medical strategy would also help in making decisions about future treatment options [32-34]. Future prospective studies should therefore evaluate whether a preoperative renal biopsy or active surveillance in cases at high risk of benign pathological findings reduces the incidence of indications for surgery. The strengths of the present study include its large sample size and the analysis of clinically relevant, readily available baseline patient and tumor characteristics. The present study was limited by its retrospective nature, with intrinsic associated biases. However, we used radiological specimen dimensions (at TC scan) to quantify tumor size. This probably allowed us not to underestimate the effective size of the masses in vivo, because formalin fixation causes tumors to shrink. This is noteworthy because, in previous studies examining non-small cell lung cancer, formalin was shown to cause sufficient shrinkage such that there was stage migration in a minority of tumors [35].

Conclusion

In conclusion, the incidental diagnosis of small renal tumors represents a challenge to urologists due to the likelihood that many of these tumors are benign or show less aggressive biology. We identified a subgroup of patients, namely young women with tumors < 3 cm, who have significantly reduced odds of harboring malignant tumors. Thus, according to our findings, significant predictive factors for benign renal pathology include younger age (<50 years), female gender and small tumor size (< 3 cm), and the choice of renal biopsy and active surveillance may therefore be more strongly recommended for the patient population with these characteristics.

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2. "To Be Or Not To Be Benign" At Partial Nephrectomy For Presumed RCC Renal Masses: Single Center Experience With 195 Consecutive Patients

Raffaele Baio[1], Olivier Intilla[2], Umberto Pane[2], Giovanni Molisso[2], Umberto Di Mauro[2], Tommaso Realfonso[2], Antonio Campitelli[2], Roberto Sanseverino

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Objective

The use of common and non invasive imaging techniques [including the use of computed tomography (CT), ultrasonography and magnetic resonance imaging (MRI)], which has been increasing exponentially over the last few decades, has led to a similarly increased detection rate of small, localized, and often asymptomatic kidney tumors [1], involving a risk of cancer overdiagnosis [2]. Furthermore, a number of these tumors are shown to be benign following definitive pathological examination and, to date, there are no specific imaging findings that may be used to uniquely diagnose a tumor as malignant or benign [3,4]. According to Remzi et al [5], only 17% of renal masses are correctly classified as benign on performing preoperative CT. A total of 43% of these masses were subsequently overtreated with radical nephrectomy. Benign tumors are not uncommon, even in the case of renal masses with a diameter >4 cm and, if large, surgical treatment of these benign tumors is also associated with considerable morbidity [6]. This scenario has enabled a choice of partial nephrectomy (PN) to be made for the surgical treatment of these masses. As a result, starting from 2009, both American and European guidelines have recommended PN as the gold standard for patients with T1 masses that can be excised in a feasible manner [7]. In effect, compared with radical treatment, elective PN offers similar oncological outcomes, especially for those patients who are diagnosed with stage T1 renal cell carcinoma (RCC) [8 11]. Patard et al [11], in their study that included and assessed patients treated with PN (379) or radical nephrectomy (1,075) for T1N0M0 kidney tumors, demonstrated that no significant differences existed in the local or distant recurrence rates in halfway medical checks of >5 years. In their study, approx. 85% of the PNs were performed for renal masses ≥4 cm. According to several studies, 20-30% of small kidney tumors are benign at pathological examination after surgery, in spite of expert preoperative radiological estimations [9,10,12 15]. For this reason, considering the morbidity associated with nephron sparing techniques (regardless of whether they are open, laparoscopic or robot assisted), the appropriateness of this type of surgery for all masses suspected to be renal tumors must be challenged. In effect, according to the results of a review of nine studies which included >1,000 patients, performing PN led to low, but fundamentally operative morbidity and mortality rates [4]. Another study, assessing 180 patients who underwent PN [16] reported, following surgery, hemorrhage in 4 (2.2%) patients and urinary fistula in an additional 3 (1.7%) patients. Consequently, even though PN can be considered as a valid method for both diagnosis and treatment of small kidney lesions, its suitability for all suspicious masses remains questionable, and its widespread use has been debated, given the great impact of benign tumors and the morbidity rate that is associated with this surgical procedure. Therefore, given current guidelines that recommend treatment unless the patient is elderly or infirm, overtreatment of patients with benign renal tumors remains an inappropriate risk. For all the above reasons, the purpose of the present study was to investigate the incidence of benign tumors at the stage of receiving PN on preoperative imaging evaluations in a single center series of patients with a solitary renal lesion considered to be RCC.

Materials and Methods

The medical records of patients receiving PN at our center (Department of Urology, Umberto I Hospital) over the course of the last 10 years were retrospectively reviewed. Elective PN was offered to patients whose renal tumors were either solitary, solid masses or complicated renal cysts preoperatively classified as Bosniak type III or IV cysts, which were not located in the renal hilum or were with central sinus invasion if patients had a normal contralateral kidney. After the operation, the pathological features were reviewed by an experienced pathologist according to the World Health Organization classification system. Angiomyolipomas (AMLs), oncocytomas, benign cystic nephromas, adenomas, hydatid cysts and various other non malignant lesions were classified as benign, whereas malignant lesions comprised clear cell, chromophobe, papillary, collecting duct, sarcomatoid variant and multilocular cystic RCC. A total of 195 patients were identified who had undergone elective PN for a solitary renal mass

with the intention of curing presumed RCC, and these patients were included in this retrospective study. During the study period, no patients had undergone surgery with the preoperative diagnosis of a benign lesion or urothelial carcinoma. No patients with a renal mass and no metastases underwent biopsy or in vivo ablation. Consequently, we have not recommended active surveillance for small renal tumors presumed to be RCC. Furthermore, no patients had a known genetic predisposition to RCC or AMLs (such as von Hippel Lindau disease, Birt Hogg Dube syndrome or tuberous sclerosis). All operations were performed using the laparoscopic surgical technique with a transperitoneal or retroperitoneal approach based on the patient's history of abdominal surgery, the patient's habitus, tumor location and surgeon preference. Furthermore, for better preservation of the renal function, the off clamp technique was chosen in all cases. Signed informed consent was obtained from all the patients for publication of this study and for processing their medical data.

Results

Among the 195 kidney lesions removed, 30 (15.4%) of them were classified as benign by the pathologist. Considering the 30 patients with a benign renal mass, in one case conversion to open surgery was required owing to uncontrollable bleeding. In two other cases, it was necessary to place a double J pyeloureteral stent for the urinary fistula during the post operative period. Consequently, the complication rate was 10% (3/30 cases) among patients diagnosed with a benign renal mass. The blood loss ranged from 150 1,800 ml (mean: 523 ml), whereas the operation time ranged from 75 330 min (mean: 186 min). The pathological results (in order of decreasing incidence) were: 1) oncocytoma (n=26 cases; 86.8%); and =2) angiomyolipoma (n=2 cases; 6.6%) and renal cysts (n=2 cases; 6.6%).

Discussions

Previously, urologists used to claim that >90% of solid kidney lesions were RCC at surgery. However, according to daily results, after surgical treatment up to 27% of suspected kidney lesions are identified as benign tumors on final histological examination, and this incidence rate increases discernibly as the tumor size decreases [17-20]. The likelihood of the tumor being benign was found to be greater when the kidney mass was small and solitary; therefore, in the present study, we have retrospectively reviewed all PNs for a solitary renal mass performed at our department. Our analysis revealed that 15.4% of the PNs performed for a suspected solitary RCC revealed the presence of a benign tumor (30/195 patients). In this scenario, we have to consider two important aspects. First is the fact that the clinical manifestations of these incidental masses were either absent or non specific. Secondly, and more important than the first aspect, is the role of renal biopsy. Patel et al [21] reported that core biopsies were highly sensitive and specific when a diagnostic result was obtained. However, approx. 80% of patients did not undergo surgery following the benign biopsy result. After PN, 36.7% of patients with a negative biopsy result showed malignant disease on surgical specimens. For these reasons, imaging studies fulfill a fundamental role in evaluating small renal masses (SRMs). A CT scan is currently the most commonly used imaging technique for initial diagnosis and staging of suspected kidney lesions [22]. In adults, both malignant (such as RCC) and benign (such as AML and oncocytoma) kidney tumors may present as a solid mass. On performing a CT, a renal mass is generally considered to be non enhancing if the change in attenuation is ≤10 Hounsfield units (HU) or enhancing if the change is >20 HU. However, a renal mass with a borderline enhancement (with a change of 10-20 HU), is suspected to be RCC [23,24]. In addition, some small RCCs, in particular papillary RCCs, show a low level enhancement and, for this reason, these masses could be misidentified as hyperdense cysts [25]. On performing CT, macroscopic fat has an attenuation of <10 HU [26,27], and its presence is specific for a diagnosis of AML. In the majority of cases, this benign mass does not need to be treated, except when the volume is high (usually >4 cm, due to the increased risk of bleeding) or the patient complains of symptoms. Almost always on CT scans, the fat of AMLs is readily discernible but, if present in only small amounts, this may be obscured on a contrast enhanced scan. Therefore, in these cases, performing an unenhanced scan with thin slice sections is useful [27]. AMLs without macroscopic or visible fat on imaging ("lipid poor AMLs") mimic RCCs; in addition, in very rare cases, macroscopic fat can be present in RCCs for: engulfment of adjacent fat; osseous metaplasia [28]; or cholesterol necrosis [29]. In our series, two AMLs were surgically removed from the patients (6.6%). On CT, in approximately one third of cases, oncocytomas manifest themselves as well capsulated solid lesions with a central scar; however, this feature is also observed in RCCs [22]. According to several studies, oncocytomas reveal a "segmental enhancement inversion" pattern during the corticomedullary and early excretory phases [30,31]. However, the same also applies for RCCs [32-34]. In the present study, 26 oncocytomas were resected. With common imaging techniques, the kidney masses that are most commonly identified are simple cysts that do not require any kind of treatment. According to the data in the previously published literature, at PN the impact of complex renal cysts varies from 2 to 14% [35]. In the current study, two renal masses (6.6%) were identified as benign cysts at surgery. The relatively high occurrence of non malign tumors after radical treatment indicates that proceeding directly to surgery should be avoided whenever possible, including the use of mildly intrusive methods, such as laparoscopic nephron sparing surgery. Renal lesions, if small, usually increase and evolve tardily, especially over a short time period. Therefore, active surveillance has been chosen for patients who are at greater risk, and for whom it would be better to avoid surgery. Especially for renal masses with a diameter of 2 cm or less, due to the higher incidence of benign pathology, active surveillance may obviate the need for more unnecessary surgical treatments, with its consequent morbidity Patients who choose active surveillance must be informed of low but non negligible risk of progression. Percutaneous surgeries, including cryoablation and radiofrequency ablation, are also used as an alternative option to PN. Even though metastasis and not noticing RCC have occurred in a relatively small number of subjects going through cryoablation and radiofrequency ablation, the occurrence of regional relapse following cancer ablation has been shown to be higher compared with that following nephrectomy (both PN and radical nephrectomy), highlighting the relevance of careful employment of these latest methods. Consequently, PN remains a fundamental surgical method in the treatment of small renal cancer. In our series, 6.6% of benign renal tumors were AML, 86.6% were oncocytoma and 6.6% were cystic masses. The exact proportion of histological types varies between several studies. Clearly, selection bias has an impact on the proportion of histological types. It should be noted that the present study had a number

of limitations. First, sorting misconceptions may have existed since the study was a retrospective one, and secondly, the patients included were all subjects of a single center. In spite of this, the procedures for elective PN at our department were the same as those of other centers.

Conclusion

In conclusion, the present study has shown the incidence rate of benign tumors in patients who have been subjected to laparoscopic partial nephrectomy due to a suspected solitary renal mass. Based on these results, the patient should be counseled not only about the intra- and post-operative risks of nephron sparing surgery, but also about its dual therapeutic and diagnostic role. Therefore, patients ought to be informed about the considerably high probability of a benign histological result. Furthermore, considering the crucial problem of the socioeconomic burden of PN and its associated complications in patients with benign kidney tumors (where a complication rate of 10% was noted in our study among patients diagnosed with benign renal mass), it is clear that urologists need to focus on trying to reduce non malignant final pathological diagnoses.

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3. Diaphragmatic Lesions During Laparoscopic Nephrectomy: What Is The Best Management?

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Objective

Inadvertent pleural injury may occur during open flank surgery for renal or adrenal disease. These injuries are usually suture repaired primarily with simultaneous evacuation of pleural air. Operative breach of the diaphragm is uncommon during laparoscopic renal and adrenal surgery [1–3]. However, with the widespread use of laparoscopy (for its clear advantages over open surgery) and the increasing surgical pathologies managed with this technique, there is a potential for an increased risk of carbon dioxide pneumothorax due to diaphragmatic injury. Capnothorax associated with laparoscopic surgery is different from air pneumothorax but, if such an injury is recognized intraoperatively, it should be repaired laparoscopically in a manner duplicating the principles of open surgery. We report the incidence and the laparoscopic repair for inadvertent diaphragm injury during upper abdominal urological laparoscopy.

Materials and Methods

The records of 384 laparoscopic kidney operations were reviewed. All procedures were performed by the same surgeon (R.S.) and included: 65 simple nephrectomies, 115 radical nephrectomies and 204 partial nephrectomies. A total of four cases (1.04%) of diaphragmatic injury were found. Mean patient age was 59.7 years (range from 18.5 to 85.3). Operative and clinical records were reviewed and patients' outcomes were evaluated. Figure 1 shows the distribution of the patient's age, BMI, time of surgery and blood loss, considering all kidney surgeries and each type of kidney surgery individually. For diaphragmatic repair, no additional trocars were needed. In all cases, usual working port configuration for nephrectomy, allowed intracorporeal suturing. However, if necessary, an additional 5 mm port was placed on left or right flank, respectively. In all cases of inadvertent injury, the pleural breach was identified intraoperatively (due to noticeable billowing of the diaphragm), followed by direct laparoscopic visualization of the injury. Laparoscopic suture repair of the diaphragm replicated the technique and repaired laparoscopically with interrupted 0-Vicryl sutures, whereas pneumoperitoneum was decreased in 12 mmHg and the anesthesiologist administered a large inspiratory breath. Criteria used for chest tube placement was pneumothorax greater than 20% of lung volume or associated with hemodynamic or ventilatory changes.

Results

A total of four cases (1.04%) of diaphragmatic injury were recorded during 384 laparoscopic nephrectomies. In all cases, the cause of pleural lesion was iatrogenic injury to the diaphragm. Two of these lesions occurred during partial nephrectomy, one during radical nephrectomy and another during simple nephrectomy. All four cases of diaphragmatic lesion occurred in the presence of a transperitoneal access and all in the course of left nephrectomy. As regards the pathology, in only one case the pathology was of a benign nature (being hydropyonephrosis). As regards the localization of the lesion, the distribution of the three malignant pathologies was as follows: one case with localization of the lower hemi-kidney and two cases with lesion of the upper pole of the kidney. Diaphragmatic repair was always carried out by intracorporeal suturing. All patients evolved uneventfully.

Discussions

In laparoscopic renal and adrenal surgery, iatrogenic injury of the diaphragm is an uncommon event; it does not exceed 0.6% in the largest series [2]. Soulie et al. reported 19 urological complications in 350 laparoscopic procedures (5.4%) [4] but none of these patients showed diaphragmatic injury, highlighting its rarity. The occasional occurrence of this complication is due to the clear separation between the kidneys and the diaphragm [5]. However, more surgeons have expanded the limits for laparoscopy by attempting very demanding procedures. This may sustain or even increase the incidence of iatrogenic diaphragmatic injuries. It is noteworthy that our series reflects the experience of a single surgeon that has surpassed the learning curve of standardized techniques (OAC). Obesity, large tumors, inflammatory intestinal pathologies, previous surgeries and chemotherapy can facilitate the occurrence of diaphragmatic lesions. However, adrenal surgery by itself has an inherent risk for diaphragmatic injury because the adrenal gland is juxtaposed against the diaphragm. Diaphragmatic injury can originate from improper trocar placement or direct contact with monopolar electrocautery or harmonic scalpel [2]. When the retroperitoneal approach is preferred for renal or adrenal surgery, improper trocar placement can easily lead to diaphragm injury [2]. The lesion can appear as an evident tear of the diaphragm or be invisible to the surgeon's inspection and be alerted by changes in patient cardiopulmonary status

[1]. In addition, an undetected injury may become evident by the floppy diaphragm sign, in which the diaphragm billows inferior with any degree of abdominal desufflation, reflecting the loss of negative pressure within the diaphragm [6]. All of our patients with inadvertent injury demonstrated undue billowing of the diaphragm, which prompted the rapid diagnosis of the diaphragmatic complication. So, this complication was recognized by the operating surgeon in all cases. None of our patients had hemodynamic instability as a result of the injury. Considering only single center experiences on this topic, our report is the second largest series after the work published by Castillo et al. [7]. Techniques of laparoscopic repair of the diaphragm have been described in the literature. In a multi-institutional review of 1765 patients, Del Pizzo et al. reported on eight patients who underwent laparoscopic repair of an iatrogenically injured diaphragm [2], using an EndoStitch device or freehand laparoscopic suturing with interrupted two-zero sutures. Before tying the last stitch, pleural gas was evacuated using a large inspiratory breath or a laparoscopic suction device. Upon the completion of repair, CO2 was aspirated from the pleural space using an intercostal 6 Fr catheter that was introduced by the Seldinger technique. In one patient (12%) a chest tube was necessary to evacuate residual pneumothorax. Fugita inserted a catheter into the diaphragmatic defect through the abdominal wall under laparoscopic vision [8]. No mention was made of whether the abdomen was desufflated before tying down the suture or whether the pleural space was evacuated under water seal. Similar to what was described by Del Pizzo [2] and by Castillo [7], we also chose interrupted sutures for the laparoscopic repair regardless of lesion size and location. Several reports confirm the feasibility of diaphragmatic repair by means of intracorporeal suturing [1, 9]. We believe that diaphragm suturing must always be attempted due to the simplicity and reliability of this technique. Although continuous suture tends to be faster, particularly for long defects and especially in laparoscopy, the risk of dehiscence is greater if the suture material breaks. For this reason, we prefer to perform an interrupted suture for its advantage of having a high tensile strength (although it takes a relatively long time to be placed). Nevertheless there has been one successful report of diaphragmatic injury repair without the use of stitches [10]. This was achieved by employing a matrix gel and a thrombin solution (Floseal) with interposition of the omentum over a 1 cm diaphragmatic lesion. The authors refer to their technique as a suitable option for small lesions. To reach an effective repair of the diaphragm, air must be evacuated before the stitches are secured by means of either a suction device or the administration of a long forced inspiratory breath. In addition, repair of diaphragmatic injury has to be timed according to patient parameters. When the patient is in stable condition surgery can continue and the injury may be addressed at the end of the procedure. In cases of large tumors that may obstruct the surgeon's direct access to the lesion, surgical specimen should be removed first to ease repair. Nevertheless we think that if possible, the diaphragm injury should be repaired without delay. This was the case in all of our patients in which early recognition of diaphragmatic injury allowed for a prompt repair without the interference of the surgery. Pneumothorax greater than 20% of lung volume or associated with hemodynamic or ventilatory changes is managed with thoracostomy [9]. Pleural lesions produced by trocar placement or important residual capnothorax may also warrant thoracostomy. CO2 used for pneumoperitoneum is readily eliminated through the lungs and, compared with air, it has higher solubility and increased diffusion coefficient; this allows a greater amount of molecules to diffuse across a membrane in a given time. This explains why capnothorax usually resolves spontaneously and allows for expectant management in patients without hemodynamic instability [9]. Although the precise time frame for such resolution is not clear, Venkatesh et al. reported spontaneous resolution of a symptomatic pneumothorax within 3 h [9]. As such, whether to intervene depends on the individual clinical scenario and surgical judgment. Abreu et al. reported a higher incidence of gas collections associated with the retroperitoneal over the transperitoneal approach (6.6% vs. 0.7%) [3]. However, they concluded that asymptomatic, subclinical, spontaneously resolving gas collections in the chest are more common with retroperitoneoscopy but the incidence of symptomatic or serious thoracic complications is similar between transperitoneal and retroperitoneal laparoscopy [11]. We did not observe injuries from direct trocar entry in our series; this can be explained by the fact that we prefer the transperitoneal to the retroperitoneal approach for renal or adrenal surgery.

Conclusion

Primary laparoscopic repair/reconstruction of iatrogenic injury of the diaphragm should always be attempted with intracorporeal suture since this is a safe and effective technique. We believe that most laparoscopic surgeons with reasonable experience can reproduce this technique and iatrogenic injury to the diaphragm should not necessitate open conversion. Then, although when the retroperitoneal approach is preferred for renal or adrenal surgery, improper trocar placement can easily lead to diaphragm injury, and our experience has shown that transperitoneal access is not free from this complication.

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4. Comparison Between Human Gelatine-Thrombin Matrix Sealant Vs Sponge Sealant Matrix In Haemostasis After "Sutureless-Clampless" Technique In Nephron Sparing Surgery: Retrospective Data On 5-Year Experience In Partial Nephrectomy

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Objective

Nephron Sparing surgery allows to eradicate renal cancer preserving renal function after surgery. The "Sutureless-Clampless" technique has the purpose to avoid residual renal parenchyma damages linked to renorrhaphy and prolonged ischemia time. However, accurate and safe haemostasis is required. Aim of our study is to evaluate the efficacy of haemostasis with human gelatine-thrombin matrix sealant vs sponge sealant matrix in "sutureless-clampless" partial nephrectomy.

Materials and Methods

After excluding patients undergone partial nephrectomy "clamp-suture", we have retrospectively collected, from January 2015 to January 2020, 101 patients treated with nephron sparing surgery. We have subdivided these patients in two groups on basis of the hemostatic agent used (Group 1: human gelatine-thrombin matrix sealant; Group 2 sponge sealant matrix). Student's Test for unpaired samples was performed for age (y), operative time (min), Dmax at preoperative CT scan (mm), intraoperative blood loss (cc) pre and postoperative Hb (g/dl), 1st day drainage count (cc),2nd day drainage count (cc). We assumed $p \leq 0.05$ as level of statistical significance.

Results

Student's T test for unpaired samples have shown the following results: among pre and peri operative parameters evaluated ,we haven't found a statistical difference for age (69,78±10,29 vs 68,10±12,p=0.09), operative time (84,16±26,09 vs 87,04±25,75 ,p=0,168) Dmax at preoperative CT scan (2,727±1,1841 vs 2,776±1,2839, p=0.84),pre-operative Hb (13,36±1,82 vs 13,86±1,99, p=0.88), and intraoperative blood loss (211,27±45,52 vs 211,05±50,74,p=0,81). Among postoperative parameters evaluated, postoperative Hb was similar between the two group (11,74±1,58 vs 12,50±1,93, p=0.057) as the 1st day drainage count (118,82±25,76 vs 117,00±27,95, p=0,32). However, we found statistically difference between the two groups in terms of 2nd day drainage count (66,08±15,30 vs 64,80±25,63, $p<0.05$).

Conclusion

Except for the 2nd postoperative day drainage count, in our series we have not found any statistical different between pre-, peri and postoperative parameters in the two groups examined. We can conclude that both human gelatine-thrombin matrix sealant and sponge sealant matrix in selected patients and in tailored procedures guarantee an accurate and safe haemostasis, although further multicentre prospective studies are needed

5. Open Vs Robotic Partial Nephrectomy For Totally Endophytic Renal Masses: A Single Center Analysis

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Objective

To compare the oncological and clinical outcomes for open (OPN) vs robotic (RAPN) partial nephrectomy performed in patients with totally endophytic renal tumours(TIT).

Materials and Methods

We retrospectively considered 35 consecutive patients who underwent PN in our department from January 2018 to September 2020. 19 patients underwent OPN (Group A) and 16 underwent RAPN (Group B) for TIT. TITs were defined as completely intraparenchymal masses, without any exophytic element. All OPNs were performed with a retroperitoneal approach, while all RAPNs were performed with a transperitoneal approach by a single surgical team. In the robotic approach an ultrasound probe (Robotic Drop-In Ultrasound Trasducer 8826-BK medical) and in two cases a 3D-modeling (Medics) were used. All data were

collected in a prospectively maintained database and retrospectively analysed. The two groups were compared for preoperative data (age, gender, tumour dimensions and position), intraoperative variables, perioperative and postoperative outcomes. Post-operative complications were classified according to the Clavien-Dindo system.

Results

There was no difference between the two groups in terms of patients' demographics as well as tumour characteristics in all variables. 23 tumours were clear cell carcinomas staged at pT1a, 6 were clear cell carcinomas staged at pT1b, 5 were renal oncocytoma staged at pT1a and 1 was a Type 1 Papillary Renal Cell Cancer staged at pT1b. Median tumour size was 34 mm for group A, and 29 mm for Group B (P=0.32). Group A was found to be similar to group B in terms of operation time (p=0.781), radical nephrectomy [RN] rate (p=0.504), positive surgical margins (p=0.338), estimated blood loss (p=0.205), intra-operative (p=0.104) and post-operative (p=0.304) transfusion rate, drains time (p=0.212), while post-operative pain (VAS scale) (<0.0001) and hospitalization time (<0.001) were significantly lower in Group B. Median follow-up was 35 and 31 months in Group A and Group B, respectively. Disease recurrence was recorded in two patients after OPN, and in one patient after RAPN, respectively (p=0.4). The decline of renal function at the last available follow-up (RAPN: 10.8%; OPN: 10.7%) was similar in both groups (p=0.801).

Conclusion

In experienced hands, RAPN for a TIT is technically feasible. Compared with OPN, it shows equivalent safety and efficacy for TIT with early functional advantages in terms of post-operative pain and slightly earlier discharge.

6. HAS BLED Score In Predicting Postoperative Bleeding In Clampless Sutureless Partial Nephrectomy: A 7- Years Retrospective Analysis

Giulio Reale[1], Gaetano Antonino Largana[1], Giulia Milani[2], Enza Lamanna[1], Salvatore Voce[1]

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Objective

Nephron Sparing surgery allows to eradicate renal cancer preserving renal function after surgery. The "Sutureless-Clampless" technique has the purpose to avoid residual renal parenchyma damages linked to renorrhaphy and prolonged ischemia time. However, the procedure is often characterized by postoperative bleeding. Aim of study is to analyse if preoperative HAS BLED score, normally applied to cardiac surgical patient, can predict acute bleeding in this urological procedure

Materials and Methods

After excluding patients undergone partial nephrectomy "clamp-suture", we have retrospectively collected, from January 2015 to February 2022, 157 patients treated with nephron sparing surgery. We have subdivided these patients in two groups on basis of the preoperative HAS BLED score (Group 1: HAS BLED score ≤ 2 ; Group 2 HAS BLED score > 3). Student's Test for unpaired samples was performed for intraoperative blood loss (cc) pre and postoperative Hb (g/dl), 1st day drainage count (cc),2nd day drainage count (cc) Logistic regression analysis was used to assess the association between the preoperative HAS BLED score and postoperative bleeding. We assumed p≤ 0.05 as level of statistical significance.

Results

Student's T test for unpaired samples have shown the following results: we haven't found a statistical difference for pre-operative Hb (13,36±1,82 vs 13,86±1,99, p=0.88). We have found a statistical difference in intraoperative blood loss (150,27±20,52 vs 211,05±50,74,p=0,042), postoperative Hb (11,74±1,58 vs 9,50±1,93, p=0.047) , 1st day drainage count (118,82±25,76 vs 156,00±27,95, p=0,032,and 2nd day drainage count (66,08±15,30 vs 101,80±25,63, p=0.038). Multivariate logistic regression analysis showed that a HAS BLED score > 3 is an independent risk factor for postoperative bleeding (OR: 2.84; p <0.05).

Conclusion

In our series we have found statistical different between the two examined groups in terms of bleeding risk. In Clampless Sutureless nephron sparing surgery is very important tailorized the patient before surgery in order to avoid massive postoperative bleeding. In our series the HAS BLED score has been shown to be useful in identifying patients at risk of mayor bleeding and used in the normal preoperative routine, although further multicentre prospective studies are needed.

11 maggio 2023

13:00 - 14:00

sala B

Comunicazioni 2 -
Carcinoma prostatico: dalla diagnosi al trattamento

Moderatori: Giancamillo Carluccio, Andrea Fandella

1. PREDICTIVE VALUE OF PSMA PET/CT IMAGING FOR LYMPH-NODES STAGING IN PATIENTS WITH PROSTATE CANCER SUITABLE FOR RADICAL PROSTATECTOMY

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Objective

Gallium-68 prostate-specific membrane antigen positron-emission tomography (PSMA PET/CT) is emerging as a superior imaging modality for prostate cancer (PCa) to CT, bone scan and other PET tracers. However, its use in primary staging is still debated, especially due to the potential clinical implications of its higher sensitivity in detecting micro-metastases (1). The aim of this study was to assess the predictive value of 68Ga-PSMA PET/CT in staging lymph node (LN) status in patients with PCa who were candidates for robotic or laparoscopic radical prostatectomy and extended pelvic LN dissection.

Materials and Methods

We retrospectively reviewed all patients with PCa, preoperatively staged through PSMA PET/CT between April 2017 and November 2022, who underwent laparoscopic or robotic radical prostatectomy with extended pelvic LN dissection. Three experienced nuclear medicine specialists (LR, MS, GB) evaluated all the images. The examinations were performed 30-60 days before surgery. Patients with distant metastasis or under hormonal treatment were excluded. Patients with tracer uptake on pelvic LNs

at PSMA PET/CT were discussed in our multidisciplinary Prostate Cancer Unit comprising urologists, medical oncologists, radiation oncologists, nuclear medicine physicians and radiologists. Only expert surgeons performed the procedures considered in the analysis. Radical prostatectomy was performed using an extraperitoneal laparoscopic approach by two experienced surgeons (UVM and SF), and since December 2019 with trans-peritoneal robotic approach by two experienced surgeons (UVM and FD). Prostate and lymph-node specimens were examined by a dedicated uropathologist according to the International Society of Urological Pathology (ISUP) protocols. The following pre-operative variables were considered: Age, prostate-specific antigen (PSA), ISUP grade group on prostate biopsy, risk of LN involvement on Memorial Sloan Kettering Cancer Centre (MSKCC) nomogram and the maximum standardized uptake value of the pelvic LNs on PSMA PET/CT scan. The final histopathology results (TNM, ISUP group, number of removed LNs and number of positive LNs) were also reported. The correlation between pathology results and PSMA PET/CT results was investigated to assess the sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) of pre-operative 68Ga-PSMA PET/CT.

Results

Seventy-two patients met inclusion criteria. The mean age was 66.1 years (Interquartile Range – IQR 48-77), and the mean and median preoperative serum PSA were 15.1 ng/ml and 14.7 ng/ml (IQR 8.3-19.8 ng/ml), respectively. Patients in the high-risk group were 38 (54%), while the remaining were in the intermediate-risk group (46%). The mean risk of LN involvement using the MSKCC nomogram was 26%. The most common ISUP grade group after prostate biopsy was 4 (41%). In 12 cases (16.6%), PSMA PET/CT scan showed tracer accumulation in pelvic LNs defined as metastases, with a median value of maximum standardized uptake value of 4.85 (IQR 2.85-18.62). LN metastases were detected in fourteen patients (19.4%) at the histopathological examination. Eleven patients (92%) with PSMA PET/CT positive for LN involvement had metastases at the final histopathological examination. The single false positive was a patient with PSA of 8.3 ng/ml and ISUP GG3 and a low values of SUV max. The median number of LNs removed was 10 (IQR 6-13.25) and the percentage of metastatic LNs was 12%. Only three patients with negative PSMA PET/CT had LN involvement. These patients had intermediate-risk PCa with a histological diagnosis after prostate biopsy of an ISUP group of 3. In these cases, only one LN with metastasis out of the LNS removed were found positive for micrometastasis. The eleven patients with pathological LN involvement and positive PSMA PET/CT had a mean preoperative PSA of 17.2 ng/ml, ISUP group of 2, 3, 4 and 5 were in 18%,18%,28% and 18%, respectively with a median risk of LN involvement of 45%. In our series, following pathological confirmation, sensitivity, specificity, positive and negative predictive values of pre-operative 68Ga-PSMA PET/CT were 78%, 98%, 92% and 95%, respectively.

Discussions

In the literature, about 85% of patients with intermediate and high-risk PCa undergoing radical prostatectomy and extended pelvic LN dissection for localized disease are found to have no LN metastasis (2). Despite these data, extended pelvic LN dissection is still the most accurate procedure for nodal staging. Nevertheless, this procedure is associated with increased risk of vascular and nerve injuries, lymphocele/lymphedema and venous thromboembolic events. To overcome these issues, recent research has focused on the development of new ligands for radionuclide imaging. However, 11C-choline and 18F-fluorocholine PET/CT demonstrated limited sensitivity and specificity. More recently, PSMA PET/CT was proposed for primary staging, and the results of the proPSMA randomized control trial confirmed superior accuracy compared to conventional imaging modalities in patients with high-risk PCa (3). A recent systematic review of 11 studies comprising 904 patients up to May 2020 and evaluating PSMA in pre-operative staging revealed sensitivity, specificity, PPV and NPV of 63%, 93%, 79% and 84%, respectively (4). In our experience, these values were 78%, 98%, 92% and 95%, respectively. These different results in different series are in part explained by some limitations (unclear patient risk and type of pelvic LN dissection and whether extended or not, heterogeneous sample size, differing experiences of nuclear medicine specialists/urologists and pathologists involved). In our series, we tried to overcome these weaknesses by considering only patients with intermediate- and high-risk PCa, evaluated by expert radiologist and pathologist and treated by expert urologists. However, some limitations are present in our study, first of all, its retrospective nature and the small simple size. Despite these limitations, PSMA PET/CT revealed an optimal specificity and a good sensitivity. However, our sensitivity of 78% is still too low to use for decision-making on whether to perform LN dissection or not in patients with negative PSMA PET/CT. The use of PSMA PET/CT should be considered as a tool to better stratify patients' risk than by CT and bone scan. We believe that a future direction would be to use PSMA PET/CT together with the information derived from PSA, ISUP grade group on prostate biopsy and multiparametric magnetic resonance imaging in order to clarify which patients should undergo extended pelvic LN dissection.

Conclusion

In our experience, 68Ga-PSMA PET/CT has a high overall diagnostic value for LN staging in patients with intermediate- and high-risk PCa. Pre-operative PSMA PET-CT can cause considerable changes in the management plan of patients with PCa and is expected to outperform traditional imaging modalities.

Reference

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4- Tu X, Zhang C, Liu Z, Shen G, Wu X, Nie L, Chang T, Xu H, Bao Y, Yang L, Wei Q. The Role of (68)Ga-PSMA Positron Emission Tomography/Computerized Tomography for Preoperative Lymph Node Staging in Intermediate/High Risk Patients With Prostate Cancer: A Diagnostic Meta-Analysis. Front Oncol. 2020 Aug 18;10:1365.

2. Evaluation Of Imaging, Clinical And Pathological Factors Associated With 2-Year Biochemical Recurrence In Surgical Patients With Intermediate - To High-Risk Prostate Cancer: A Focus On 68Ga-PSMA PET And Pelvic 3Tesla MpMRI

Monica Celli[1], Roberta Gunelli[2], Fabio Ferroni[1], Umberto Salomone[3], Cristiano Salaris[3], Paola Caroli[1], Eugenia Fragalà[3], Lorenzo Fantini[1], Virginia Rossetti[1], Ugo De Giorgi[1], Domenico Barone[1], Valentina Di Iorio[1], Federica Matteucci[1]

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Objective

To identify staging 68Ga-PSMA PET and pelvic 3Tesla mpMRI imaging-based factors as well as clinical and pathological features associated with 2-year biochemical recurrence in patients with intermediate- to high-risk prostate cancer treated with radical prostatectomy ± adjuvant treatment

Materials and Methods

Twenty-six patients (age range: 48-72 years; median: 61 years) with biopsy-proven PCa (ISUP: 1 to 5; PSA range: 4,1-37ng/ml; biopsy T: T2a-T2c) were prospectively staged by means of 68Ga-PSMA PET and pelvic 3Tesla mpMRI within six weeks prior to radical prostatectomy. A 12-segment prostate map was used for tumor localization and quantitation on 68Ga-PSMA PET and pelvic 3Tesla mpMRI. Post-surgical adjuvant treatment and follow up were offered as per clinical practice (minimum follow-up: 2 years). Non-parametric statistics (Mann-Whitney test, Fisher's Exact test with Yates' correction) were used to identify imaging-based, clinical and pathological factors associated with 2-year biochemical recurrence, including: age, screening PSA, PSA density, percent of PCa involved cores (< 50% versus ≥ 50%), percent maximum core length (< 50% versus ≥ 50%), biopsy ISUP grade group (ISUP4-5 versus ISUP1-2-3), PCa SUVmax index (SUVmax ≤ 10 versus SUVmax > 10), degree of PCa-involvement according to 68Ga-PSMA PET (PCa involvement < 3 segments versus ≥ 3 segments), degree of PCa-involvement according to mpMRI (< 3 segments versus ≥ 3 segments), definitive ISUP grade group (ISUP4-5 versus ISUP1-2-3), pT stage (pT2 versus pT3) and R status (R0 versus R1).

Results

Pelvic mpMRI identified PCa foci in 24 patients and correctly identified PCa extraprostatic extension in 5 out of 6 patients and seminal vesicle involvement in 2 out of 4 patients; 68Ga-PSMA PET identified PCa foci in 24 patients and correctly identified PCa extraprostatic extension in 4 out of 6 patients and seminal vesicle involvement in 3 out of 4 patients; 2-year biochemical relapse was more frequently observed in patients with more than 50% of biopsy cores involved (p: 0.0137) and in patients harboring PCa foci with 68Ga-PSMA SUVmax higher than 10 (p: 0.008). No statistically-significant difference was found between relapsed and non-relapsed patients in terms of age (p: 0.966), screening PSA (p: 0.936) and PSA density (p: 0.440), ISUP on biopsy (p: 0.863) and ISUP on pathology (p: 0.612), intraprostatic PCa extent on 68Ga-PSMA SMA PET (p: 0.340) and on mpMRI (p: 0.302), percent maximum core length (p: 0.198), pT status (p: 0.863), and R status (p: 0.809).

Discussions

Imaging-based, clinical and pathological markers have different performance in predicting oncology outcomes. In this cohort of patients with intermediate- to high-risk prostate cancer staged by means of 68Ga-PSMA PET and pelvic mpMRI and treated with radical prostatectomy ± adjuvant treatments the percent of PCa involved cores and PCa 68Ga-PSMA SUVmax seems to hold prognostic potential in terms of 2-year biochemical recurrence -free survival

Conclusion

In patients with intermediate- to high-risk prostate cancer treated with radical prostatectomy ± adjuvant treatments PCa involvement in less than 50% of biopsy cores and PCa 68Ga-PSMA SUVmax lower than 10 may hold predictive potential for 2-year biochemical recurrence-free survival. Further investigation in larger cohorts is needed to validate these preliminary results.

Reference

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3. Imaging-Based Evaluation Of Segment-Wise Intraprostatic Tumor Extension In Patients With Intermediate- To High-Risk Prostate Cancer: 68Ga-PSMA PET And Pelvic 3Tesla MpMRI Compared Against Whole-Mount Prostate Histology

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Objective

To compare the imaging-based segment-wise intraprostatic cancer extension by means of 68Ga-PSMA PET and prostate 3Tesla mpMRI with whole-mount prostate histology

Materials and Methods

Fifty-two patients (age range: 48 – 74 years; median: 62 years) with biopsy-proven PCa (ISUP: 1 to 4; PSA range: 4,1-37,0ng/ml; biopsy T: T2a-T2c) were prospectively staged by 68Ga-PSMA PET and pelvic mpMRI within six weeks prior to radical prostatectomy. Both procedures were independently reported. Any focal 68Ga-PSMA-avid lesion was deemed positive for PCa on PET; PIRADS 4 and 5 lesions on mpMRI were considered indicative of PCa. A 12-segment prostate map was used to localize (monolateral versus bilateral PCa involvement) and to evaluate the categorical percentage of PCa-involved segments on 68Ga-PSMA PET, on MR T2-weighted imaging and on the whole-mount prostate specimens (i.e. PCa involvement <25% segments, 25-50% segments; 50-75% segments, >50% segments)

Results

Pelvic mpMRI identified PCa foci in 49 patients and correctly identified PCa bilaterality in 23 out of 49 patients and PCa monolaterality in 2 out of 3 patients; 68Ga-PSMA PET identified PCa foci in 47 patients and correctly identified PCa bilaterality in 16 out of 49 patients and PCa monolaterality in 1 out of 3 patients.

On a 12-prostate segment basis mpMRI-estimated PCa extension was concordant with definitive histology in 21 patients (n=13 with up to 25% PCa extension; n=5 with 25%-50% PCa extension, n=2 with 50%-75% PCa extension, n=1 over 75% PCa extension). In 23 patients mpMRI-estimated PCa extension was smaller than on histology (mpMRI-based PCa segment involvement was 25% smaller than on histology in 19 patients and was 50% smaller than on histology in 4 patients). In 7 patients mpMRI-estimated PCa extension was 25% larger than on histology and 50% larger than on histology in 1 patient.

68Ga-PSMA PET-estimated PCa extension was concordant with definitive histology in 21 patients (n=12 with up to 25% PCa extension; n=7 with 25%-50% PCa extension, n=1 with 50%-75% PCa extension, n=1 over 75% PCa extension). In 19 patients 68Ga-PSMA PET-estimated PCa extension was smaller than on histology (PET-based PCa segment involvement was 25% smaller than on histology in 15 patients and 50% smaller than on histology in 4 patients). In 9 patients 68Ga-PSMA PET PCa extension was 25% larger than on histology and was 50% larger than on histology in 3 patients.

On a 12-prostate segment basis mpMRI-estimated PCa extension was concordant with 68Ga-PSMA PET in 24 patients (n=17 with extension up to 25%; n=5 with 25%-50% extension, n=1 with 50%-75% extension, n=1 over 75% extension). In 20 patients mpMRI-estimated PCa extension was smaller than on 68Ga-PSMA PET (mpMRI-based PCa segment involvement was 25% smaller than on PET in 16 patients and 50% smaller than on PET in 4 patients). in 8 patients mpMRI-estimated PCa extension was 25% larger than on PSMA PET

Discussions

3T mpMRI and 68Ga-PSMA-PET detect a similar amount of PCa lesions in this intermediate- to high-risk cohort of PCa patients, 3T mpMRI being more accurate in identifying bilateral PCa. However, segment-wise, PCa extension on both procedures is concordant with pathology in less than a half of patients (40.4% of cases for both procedures). In a similar proportion of patients both procedures tend to underestimate true PCa extension, this being slightly more evident on 3T mpMRI (PCa underestimation in 44% of cases on 3T mpMRI and in 36.5% of cases on 68Ga-PSMA-PET). PCa extension overestimation was more frequently observed on 68Ga-PSMA-PET (23.1% versus 15.4% on 3T mpMRI). The percent of inter-imaging modality concordance was found to be 46%.

Conclusion

Segment-wise, both 3TmpMRI and 68Ga-PSMA-PET assessment of intraprostatic PCa tend to underestimate the true parenchymal extent of the disease, being concordant with histology in less than half of patients

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1) Sun C et Al. Comparison of T2-Weighted Imaging, DWI, and Dynamic Contrast-Enhanced MRI for Calculation of Prostate Cancer Index Lesion Volume: Correlation With Whole-Mount Pathology. AJR Am J Roentgenol 2019 Feb;212(2):351-356. doi: 10.2214/AJR.18.20147. Epub 2018 Dec 12.
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4. MRI-TRUS Fusion Guided Prostate Biopsy: Should We Continue To Do It? Our First Hundred Cases Experience.

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Objective

To present our initial experience and results of MRI-TRUS Fusion Guided Prostate Biopsy: our fist 100 cases experience and assess the role of contralateral lobe systematic biopsy in PIRADS-5 score

Materials and Methods

A number of 100 patients with clinical or biochemical suspicion for prostate cancer (PCa) were included. All patients harbored at least one PIRADS score ≥ 3 lesion and underwent MRI-TRUS fusion guided biopsy, as well as a concurrent systematic biopsy 12 samples. Each patient sistematically perform urine cultures, red cells blood count, prothrombin time (PT) and activated partial thromboplastin time (APTT) before biopsy. We used a rectal povidone-iodine preparation in addition to antimicrobial prophylaxis (fosfomycin trometamol e.g., 3 g before and 3 g 24–48 hrs. after biopsy) Intra-rectal instillation of local anaesthesia with EMLA creame (lidocaine and prilocaine 2,5%+2,5%, 15 g) is reserved for each patient. For the assessment of pain, the VAS scale (1-10) was administered to all patients. All biopsies were performed with a Philips Affinity 70 ultrasound and Fusion Percunav navigation system. At least 2 samples were taken for each target lesion and all samples were taken using TRUS longitudinal scans of the prostate. Immediately after the biopsy procedure, pain assessment was achieved using Visual Analog Scale (VAS).

Results

The mean age of the patients was 66.2 years. The mean pre-biopsy PSA was 8.47 ng/dl. The diagnosis rate of MRI-TRUS fusion guided biopsy was 42% for overall PCa and 29.4% for clinically significant (cs)PCa. A higher PIRADS score was significantly associated with the presence of overall and csPCa. MRI-TRUS fusion guided biopsy had a higher percentage of positive biopsy cores (51% vs 29%), higher likelihood of csPCa (OR 5.36, p=0.008) and upgrading (14.8%) in comparison with systematic biopsy but missed 6.7% csPCa. Clinically significant prostate cancer detection rates (CDRs) for each PIRADS category were calculated: the CDR in patients with PIRADS categories 3, 4, and 5 was 18%, 40.7%, and 60.5%, respectively. Moreover we also took 12 samples beyond the target, 6 of these on the contralateral lobe to the positive one on the magnetic resonance. In our results the contralateral (compared to the target lesion) lobe systematic biopsy could have been avoided without losing the PCa diagnosis all patients with PIRADS score 5, both in initial and repeat biopsy setting. Anterior and transitional lesions were more likely to be diagnosed only by targeted cores. According to our exsperience very low complications occurred with this technique. Sepsis occurred in one case following transrectal biopsy. UTI occurred in 2 cases (2%). Bleeding occurred in 10 cases (10%). The most common complication was AUR, which occurred in 12 cases (12%). The VAS of patients was 1.31 ± 0.66.

Discussions

Transperineal and transrectal approaches to prostate biopsy are well-documented. Both methods are fraught with complications though, most times minor. The transrectal procedure proved to be safe with low complications rate and a good cancer detection rate. According to the major systematic review and meta-analysis of randomised controlled trials TR approach1 was associated with more infectious complications, compared to TP prostate biopsy (21 TR and 11 TP; RR 2.18) while the percentage rates of urinary tract infections found by our study (2%) are very close to those found with the TP approach.

Conclusion

MRI-TRUS guided prostate biopsy improves the detection of PCa, but systematic biopsy is still essential. In selected cases (PI-RADS 5), contralateral lobe systematic biopsy can safely be avoided without altering the patient's oncological outcome in terms of percentage result to the Briganti score 2019. Pre-biopsy mpMRI might reduce the number of biopsy sessions in patients with anterior and transitional lesions. According to our initial experience, the MRI-TRUS fusion guided biopsy is effective in the diagnosis of prostate cancer, has a low percentage of complications and, last but not least, is well tolerated by the patient.

Reference

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5. Can Intraoperative Radiologist Assistance During Prostatic Fusion Biopsy Improve The Accuracy Of The Technique? A Multicentre Retrospective Study

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[3] *Policlinico G. Rodolico (Catania)*

Objective

Fusion biopsy is currently a cornerstone in the diagnosis of prostate cancer. The technique works with a real-time 3-dimensional (3D) transrectal ultrasound (TRUS) imaging acquired and elastically fused with the mpMRI. However, both in the definition

of the anatomical landmarks of the prostate both in targeting suspicious lesions, mistakes could be made. Aim of our study is compare the results, in terms of accuracy, between a center with a intraoperatrive dedicated radiologist and a center without a dedicated radiologist.

Materials and Methods

From December 2020 to December 2021, we have retrospectively collected all patient undergone fusion biopsy to our center(Group 1) where all procedure have been performed with an expert radiologist (>100 mpMRI). We have also collected the fusion biopsies performed in an other center(Group 2) where only the urologist is dedicated to prostate landmarking and in suspicious lesions targeting. A transrectal prostate biopsy was performed in both centers The following preoperative parameters were evaluated for each patient: age (y), PSA tot (ng/dl), Prostate Volume(cc), PIRADS index lesion ,Gleason score index Lesion, ISUP grade index lesion, Dmax Index lesion(mm), tot n° cores biopsied,n° cores target lesion, n° cores positive, n° cores positive/target lesion. Student T Test for unpaired samples was performed to assess inter-group mean statistical difference. We have also calculated the accuracy (%) of systematic prostate biopsy and fusion biopsy on the target lesion accuracy (%).We assumed $p \leq 0.05$ as level of statistical significance.

Results

We enrolled in Group 1, 80 patients and in Group 2, 87 patients. Main groups characteristics are described in Tab 1. Among the parameters evaluated, we haven't found any statistical difference in terms of age (66,9 ± 7,8 vs 66,0 ± 8,2, p=0.9), prostate volume (60,58 ± 28,48 vs 67,51±35,81 , p=0.65), Dmax index lesion 10,70 ± 5,59 vs 10,70 ± 5,41 p=0.95). The only statistical different parameter was the pre biopsy PSA tot 7,15 ± 2,43 vs 10,11 ± 3,36 ,p=0.045). Between the two groups (Group 1 vs Group 2) we assessed the following data's: Tot n° cores biopsied 477 vs 1406, n° cores on target lesion 324 vs 398 n° tot positive cores 66 vs 128 n° tot positive cores on target lesion 36 vs 45. All positive results have been confirmed by the prostatectomy specimen histopathology. The systematic prostate biopsy accuracy was 13,8% vs 9,1% and fusion biopsy on the target lesion accuracy 11,1 % vs 11,3%.

Conclusion

In this comparison study, we found that, in two homogeneous cohorts, the accuracy of the fusion biopsy for suspicious lesions was similar for the two groups examined. However, the accuracy for contextual standard biopsy is higher in the group with intraoperative assistance by the dedicated radiologist. This event would therefore seem related to a more accurate definition of prostate anatomy, although further multicentre prospective studies are needed.

6. Near-Infrared Fluorescence Imaging With Intraoperative Administration Of Indocyanine Green For Laparoscopic Radical Prostatectomy: Is It A Useful Weapon For Pelvic Lymph Node Dissection?

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Objective

Metastases account for most deaths due to malignancy [1], and the first site of metastases is usually the regional lymph nodes. Detection of lymph node invasion (LNI) is of major prognostic significance for many cancers [2, 3], especially for prostate and bladder cancers for which, at present, bilateral pelvic lymph node dissection (PLND) represents the most accurate and reliable staging procedure for the detection of LNI [4–7]. However, PLND is associated with increased operative time and is not devoid from severe complications. These limitations underscore the necessity of improving the identification of the primary lymph node pathway. In the last decade, optical imaging using near-infrared (NIR) fluorescence had emerged as a safe technique to visualize structures in real-time during surgery. Indocyanine green (ICG), an innocuous imaging dye, can be used for this scope [8]. In fact, it f luoresces bright green when viewed under NIR light (700–1000 nm). Currently, ICG NIR fluorescence-guided sentinel lymph node dissection (SLND) had emerged as a valid technique for the detection of regional LN for numerous tumors [8]. For urologic cancer, ICG NIR fluorescence-guided SLND is at its infancy but, recently, some authors reported that this technique is a promising complementary tool for lymphatic vessel visualization [9]. The goal of this series is to demonstrate that ICG real-time fluorescent lymphography is a safe and feasible technique that can be used to avoid or enable early recognition of damage to the deep lymphatic vessels. This technique could significantly reduce post-operative complications related to the lymphatic system during laparoscopic radical prostatectomy.

Materials and Methods

In five patients, for a diagnosis of cancer at prostatic biopsy, we intraoperatively performed ICG f uorescence-guided lymphography during laparoscopic radical prostatectomy with pelvic lymphadenectomy. ICG was injected in the prostatic tissue of the patient transrectally through ultrasound identification of the gland. A fine needle was used connected to a 10 cc syringe, taking care to aspirate before injecting the tracer in order to avoid blood vessels. A dedicated laparoscopic high-definition camera system, provided by Karl Storz, was used in our cases. This system allowed the surgeon to easily switch from White Light (WL) mode to ICG mode. For this reason, it was very simple to compare WL and ICG mode images. Furthermore, this technique is

inexpensive, requiring only a small dose of ICG. Therefore, soon after ICG injection, the lymphatic vessels were identified in the pelvic cavity as fluorescent linear structures running side by side to the iliac vessels. Figure 1 shows the fluorescent lymph nodes in the obturator fossa. Then, using the "intensity map" function (also called "overlay function"), lymph nodes can be seen as white structures as this function uses WL (instead of blue light) and eliminates the colors, as shown in Fig. 2. Surgical dissection was therefore performed, avoiding iatrogenic damage to major lymphatic structures.

Results

On histological examination, the prostate gland was found to be affected by an acinar adenocarcinoma, with Gleason Score 7 (4+3) in three cases and Gleason Score 7 (3+4) in the remanent cases. On average twenty lymph nodes sent as obturators (divided per side) and 10 lymph nodes sent as external iliacs (divided per side) were free from metastases. The patients were discharged 5 days after surgery, and 6 months after surgery, they did not show any complications related to lymph node dissection.

Discussions

ICG has been used for decades in several medical applications such as retinal angiography, liver clearance tests (to measure hepatic function) and cardiac output monitoring [10]. Most recently, this technology has been used in different surgical fields, especially when a robotic approach is chosen. Our study is one of the very rare reports of applying ICG real-time fluorescent lymphography during laparoscopic radical prostatectomy. To our knowledge, there are no other reports in which this innovative technique is documented during laparoscopy in urology. However, our experience is preliminary and limited to a five cases but it can be the first step to develop a simple, easy and low-risk technique for lymphatic sparing surgery. Obviously, further large series are required to define surgery outcomes and lymphatic complication rate. Many different surgical procedures can damage the lymph nodes and lymph vessels, leading to serious complications such as lasting lymphorrhea, lymphocele and lymphedema. Lymphorrhea is a persistent lymph loss that can occur from surgical drain in cases of intraperitoneal or retroperitoneal procedures or from surgical wounds in cases of superficial site surgery [11]. Lymphocele is a lymph-filled collection without an epithelial lining, most commonly located in the retroperitoneal space. The incidence and frequency of this type of complication constitute a serious clinical problem, leading to impaired postoperative wound healing, wound infection and abscess formation; this scenario results in a prolonged hospital stay and increased cost of treatment. When lymph nodes have been removed or damaged during surgical procedures, lymph is not well drained from the affected area. So, when the lymph is overcollected, especially in the arms and legs, the result is the swelling that is characteristic of lymphedema. This condition makes the affected arm or leg particularly vulnerable to infections such as cellulitis and lymphangitis and, more rarely, to lymphangiosarcoma. Effective treatment of these complications can be challenging and time-consuming [12, 13]. All this is to be taken into serious consideration especially for patients with prostate cancer for whom iliac–obturator lymphadenectomy during radical prostatectomy represents the most accurate method of staging the disease from a lymph node point of view. We think that lymphatic vessel sparing and prompt recognition of lymphatic structure damage, during laparoscopic radical prostatectomy, could lead to a reduction in the post-surgical complications rate and, consequently, a reduced hospital stay.

Conclusion

In conclusion, although it is not necessary to perform fluorescence-enhanced surgery in all cases, we find the utilization of ICG-NIRF in lymph node dissection for prostate cancer useful. In effect, this technology in prostate cancer has a high detection rate, although its specificity to predict LN invasion remains poor. In our cases, the pathological examination did not demonstrate an involvement of the pelvic lymph nodes; however, the use of such an imaging system has allowed us to remove the main lymphatic networks involved in the drainage of the gland (thus ensuring an accurate staging of the disease), with the possibility at the same time to recognize any serious damage to the lymphatic vessels during dissection.

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7. Impact Of Positive Surgical Margins After Robotic Prostatectomy On Biochemical Recurrence. Multicenter Analysis

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Objective

The objective of our study is to analyze the effective correlation between PSMs and BCR, so as to offer patients adjuvant VS early treatment or follow-up.

Materials and Methods

We enrolled 105 patients who underwent robotic assisted radical prostatectomy (RARP) from 2016 to 2020 with PSMs on final pathology, all performed or supervised by a senior surgeon in two tertiary referral center. The inclusion criteria were localized prostate cancer (cT1 to cT3). A 4-arm Da Vinci Surgical System was used and the RARP is performed through technical Montsouris (transperitoneal), so with initial preparation of the posterior plane, dissociating the seminal vesicles from the rectum, and subsequent access through the Retzius. For each patient, the following clinical and pathological features were considered: age, performance status (Charslon score), prostate-specific antigen (PSA). Pathology has been described indicating, in addition to the GS and TNM staging, the area (apical, base, mediolateral, anterior or multiple) and the size of the PSMs. The extent of PSMs was noted as either focal (≤3 mm) or extensive (> 3 mm). We have analyzed the post-RARP treatment: follow-up, androgen deprivation therapy (ADT), and adjuvant or salvage RT. For patients with undetectable PSA (< 0.1 ng/ml) at 6 weeks, PSA levels were measured every 6 months in the first 2 years, and once every year thereafter. BCR was defined by PSA > 0.2 ng/ml confirmed by two successive assays at any point during follow-up. Patients received adjuvant treatment for BCR or for PSMs with high-risk pathology (estesto GS 4+3 or 4+4 and high-risk according to MSKCC nomogram). All adjuvant treatments were however agreed upon by a multidisciplinary oncology group, consisting of the urologist, the radiotherapist and the oncologist. Cox univariable and multi-variable regression models were used to find the correlation between clinico-pathologic factors : age, clinical stage, PSA, Gleason Score, area and size of PSMs).

Results

In our study the median value for age is 68 years old and for Charlson score is 4. Patholgy showed the presence of acinar adenocarcinoma in all cases. The subsequent analysis was conducted through a multivariable logistic analysis, looking for correlations between PSA, GS, PSM area, PSM length and presence of BCR. In the overall results we can say that the most popular grading and TNM staging are ISUP 2 and pT2c respectively. We found a good correlation between PSA and grading and between PSA and local staging (T) ($p < 0.001$). There was no clear correlation between the PSM area with grading nor with T staging. There is a statistically significant correlation between extensive PSM and the worsening of grading and local staging (T) ($p < 0.001$). The BCR rate also has a strong correlation with the worsening of grading and local staging (T) ($p < 0.001$). A relevant fact is the difference between the BCR rate in the apical and base PSM (34.88 % VS 62.5% ; $p < 0.001$) which are the most frequent locations of PSMs. Almost all patients with BCR underwent RT, with the exception of 2 patients who received adjuvant treatment. Analyzing the data, obviously considering that the probability of BCR increases with the worsening of grading and local staging, and using cox univariable and multi-variable regression models, we can deduce that apical PSM is a relatively less powerful predictor of postoperative BCR .

Discussions

PSM is recognized as an important prognostic factor in prostate cancer patients undergoing RARP 13 14. Several previous studies reported that PSMs are associated with an increased risk of BCR and clinical disease progression 15 16. Defining apical PSM as a relatively less powerful predictor of postoperative BCR may be important because the prostate apex is the most frequent PSM site for all radical prostatectomy approaches 17 18. There are several explanations as to why focal apical PSMs may be frequent but do not influence oncologic outcomes. The proximity of the urethral sphincter, neurovascular bundles and dorsal venous complex renders cancer excision at the apex most challenging for surgeons. The variable configuration of the apex frequently causes iatrogenic intra-prostatic incisions, hypothetically leading to the creation of artefacts or 'false' PSMs 19. Furthermore, the sparse capsule and periprostatic tissue at the apex makes it difficult for histopathologists to distinguish intra-prostatic from extra-prostatic cancers 20. Obviously there are limitations in our study. First of all for the number of patients. In our analysis we have concentrated the comparison between the PSM of the apex and the base, which are the most frequent and also those with the minimum number to make a comparison, so it has a limited statistical power. However, the finding that focal apical PSMs are not associated with BCR is important, as it could help surgeons improve functional outcomes by sparing the sphincter, and could improve prognosis and decisions regarding additional RT 21.

Conclusion

PSMs remain a predictor of BCR but which may have controversial significance. The likelihood of BCR increases as grading or local staging gets worse. However, apical PSM is a relatively less powerful predictor of postoperative. This can help to better select patients for subsequent RT, which still causes important side effects.

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8. "Urethral-Sparing" Robotic Radical Prostatectomy: Critical Appraisal Of The Safety Of The Technique Based On The Histologic Characteristics Of The Prostatic Urethra

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Objective

The prostatic urethra (PU) is conventionally resected during robot-assisted radical prostatectomy (RALP). Recent studies demonstrated the feasibility of the extended PU preservation (EPUP). Our aim is to describe the histologic features of the PU.

Materials and Methods

The PU was evaluated in cystoprostatectomy and RALP specimens. Cases of PU infiltration by prostate cancer or distortion by benign hyperplastic nodules were excluded. The thickness of the chorion and the distance between basal membrane of the PU epithelium and prostate glands was measured. Prostate-specific antigen expression in the PU epithelium was evaluated with immunohistochemistry.

Results

Six specimens of PU were examined. Histologically, 3 layers of the PU were observed: 1) urothelium with basal membrane, 2) chorion 3) peri-urethral muscle tissue. The chorion measures between 0,2 to 0,4 millimeters. There is not a distinct urethral muscle layer but rather muscular fibers that originating by the prostatic stroma are distributed around the PU. This muscular tissue appears to be mainly represented in the basal and apical urethra but not in the middle urethra. The mean distance between the

chorion and the prostatic glands is 1.69 mm with a significant difference between base of the prostate, middle urethral portion and apex (2.2 vs 1.29 vs 1.34 mm respectively). PSA-expressing cells are abundant in the PU epithelium coexisting with urothelial cells.

Discussions

Urinary incontinence after radical prostatectomy is an adverse event that leads to significant di-stress. Reported continence rates at 12 months following RALP according to recent series range between 82.1 and 97% [8,9], depending on the definition of incontinence, severity, bother and the methodology to assess its magnitude [10]. More than long-term UC, early postoperative urinary incontinence still remains a challenge to be overcome with the highest rates of the urinary incontinence-associated bother noted in the first 2–6 mo after surgery [11-13]. Time to continence continues to be an issue of significant bother among men undergoing RALP [14]. Several techniques have been consequently developed in order to enhance continence recovery after RALP that can be summarized in three major categories: preservation and reinforcement [15]. The common denominator of these techniques is to maintain the intactness or to reply the functio-nality of the periprostatic anatomic structures [16]. Beside to the bladder neck preservation [4, 17], several studies support an association between the length of membranous urethra preserved and continence recovery [18–21]. A similar benefit for PUP has been suggested by retrospective series in which a portion of the apical prostatic urethra is spared during open RP [22-23] or RALP [24]. Concerning EPUP, the technique and outcomes have been presented in [6]. As described by the authors, EPUP was performed after releasing all prostatic tissue attachments other than the urethra. Following the incision and ligation of the dorsal venous complex the prostate base was retracted cranially and the outer fascial attachment between the membranous urethra and prostatic apex was divided coldly and circumferentially. Cranially oriented blunt dissection with periodic cold scissor division was performed to delineate the plane between the outer urethra skeletal muscle and prostatic apex. This plane was continued circumferentially. The inner urethral longitudinal smooth muscle layer was recognized by its longitudinally oriented muscle fibers after the outer skeletal muscle terminated within the prostate apex. After additional intraprostatic dissection, the surgical plane was transitioned deeper within the urethral muscle to decrease the likelihood of leaving prostatic tissue on the urethra. This approach thinned ("telescoped") the urethra muscle as a longer segment was preserved. The dissection continued until: 1) the plane failed to develop easily; 2) the urethra muscle became too thin (e.g., reaching mucosa and/or tearing); or 3) the dissection reached the transected bladder neck (i.e., complete urethral spare). All EPUP patients had undergone a preoperative multiparameter prostate MRI which showed no evidence of tumor involvement of the apical prostatic urethra. With this technique, urethral sparing was carried to the prostate mid-gland or base in most cases, and two patients had preservation of the entire PU (transected bladder neck was reached). The median PUL preserved among EPUP patients was 4.0 cm (mean 3.9 cm; range 2.5–6.0 cm). In multivariable analyses that adjusted for potential confounders, an EPUP approach remained independently associated with earlier continence recovery. Within the EPUP patient subset, a longer PUL preserved was independently predictive of earlier continence recovery, suggesting that EPUP provides a functional benefit in terms of postoperative continence recovery. In our study we evaluated the morphology of the PU. It can be easily summarized with the presence of a pseudo-stratified urothelial type epithelium sometimes mixed with epithelium with prostatic differentiation. The urethral epithelium of the prostate does not have a regular course: it may pre-sent pseudopapillary protrusions, areas of thickening and glandular ramifications that are combined to create a non-linear "tube". In fact, at the midpoint between its distal end (the prostate apex) and the bladder neck, the posterior wall of the PU undergoes a sharp anterior kink, beyond which the entire proximal urethral segment pursues an altered course, with an angulation of about 35 degrees anterior to the course of the distal urethral segment [25-McNeal]. Below the basal lamina of the PU epithelium there is a thin lamina of loose connective tissue that is interposed between the epithelium itself and the fibromuscular stroma of the prostate (that itself hosts the prostate glands): this space can be defined as chorion or sub-epithelial tissue. The fibro- muscular stroma does not arrange itself continuously around the chorion in a precise manner, main-taining a clear interface, but sometimes tends to "fray" within the sub-epithelial tissue, creating an ill-defined passage point. The thickness of the aforementioned planes measure fractions of millimetres. In the evaluated specimens an homogeneous distribution of the thickness of the chorion has been observed between base and apex of the prostate, ranging between 0,2-0,4 mm. The distance between basal membrane of the PU epithelium and prostatic glandular tissue showed a more variable distribution on average values, with greatest variability on the basal portions and with a progressively decreasing gradient of variability towards the apical ones. At the level of the pre-basal sections, the distance between the PU epithelium and the prostate glands ranged between <1mm-4mm while toward the prostate apex the distance between PU epithelium and glandular tissue is homogeneous between the specimens and in all cases ≤0.5mm. As a conclusion, the wide variability and narrowness of the distance between the PU and the glan-dular stroma together to the irregular distribution of the PUM does not probably allow for an effec-tive exclusion of the prostate glandular tissue from the peri-urethral resection margin. Furthermore, the results of the immunohistochemistry confirm the mixed phenotype of the urethral epithelial cells, most evident in the mid-apical sections. Similar to our results, Son DY et al. [26] observed three types of prostatic urethral glands: urethral mucosal, prostatic acinar, and mixed. The proximal segment of the prostatic urethra and the bladder neck consisted mostly of the urethral mucosal type, whereas the distal segment and apical margins consisted mostly of the prostatic acinar type. PSA was expressed in secretory cells in prostatic acinar and mixed types. These results indicate that PSA-expressing cells are abundant in all the segments of the PU till the apical margin and may be responsible for postoperative PSA persistence [27].

Conclusion

The exiguity of thickness of the PU chorion, the short distance from the glandular tissue and the coexistence of PSA-expressing cells of the PU epithelium raises important concerns about the oncologic safety of EPUP.

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9. Incidental Prostate Cancer After Radical Cystoprostatectomy: How To Manage This Condition?

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Objective

Prostate cancer (PCa) is a common cancer and the second cause of cancer-related mortality in men (1, 2). Nonetheless, PCa prevalence at the histological level is higher than the clinically detected disease rates. During autopsy studies, prostatic adenocarci-noma has been histologically detected in > 30% of men older than 50 years. These tumors are usually small and clinically indolent, with the ability to exist for several years before presenting any change, such as accelerated cell proliferation, tumor metastasis and clinical detection. More importantly, accumulating evidence has shown that, in patients affected by primary bladder cancer (BC) undergoing radical cystoprostatectomy (RCP), there is a higher incidence of PCa (3, 4). RCP specimens from patients affected by diseases other than PCa can be a random sample from the prostates of asymptomatic men, offering a unique opportunity to study the incidence and morphological features of these incidental prostatic tumors. In terms of randomness, this cohort shows similarities to that of the autopsy studies, but differs in the reported higher PCa incidence in men with BC (3, 4). According to the European Association of Urology guidelines, for patients affected by muscle-invasive bladder cancer (MIBC) or any high-risk, recurrent and non-invasive BC, the RCP procedure with bilateral pelvic lymphadenectomy and various types of urinary diversion is the gold standard of therapy (5). The standard RCP in men is based on the removal of the bladder along with prostate, seminal vesicles, a part of the vasa deferentia and distal ureter, including regional lymphadenectomy (in order to provide an effective local treatment of the disease), which can have a high incidence of sexual complications and urinary incontinence. Whereas alternative techniques can be considered in highly selected cases in which it is desired to preserve potency, fertility and urinary function. In the modern era of orthotopic bladder substitution after RCP for BC, sparing the entire prostate or a portion of it has become controversial in recent years. However, these techniques, in an effort to maintain sexual and urinary functions, have raised concerns regarding the oncological outcomes due to two potential risks: urothelial cancer local invasion of the prostate and a probable association with incidental PCa (6). PCa is complex: on one hand, numerous patients with PCa receive unnecessary treatment as their disease will never become clinically significant or result in death. On the other hand, some prostatic tumors require immediate treatment, which are known as clinically detected PCa. For this reason, incidentally identified PCas are divided in two groups: clinical significant and clinical insignificant. The aim of the present single-center retrospective study was to: i) assess incidence, histopathological features and clinical significance of incidentally identified prostatic tumors in RCP specimens obtained from patients affected by bladder cancer, but with clinically normal prostates; ii) examine patients' age, preoperative rectal examination findings and prostate specific antigen (PSA) values, in order to evaluate whether such features can help with the prediction and treatment of significant PCas; iii) establish whether prostate sparing-cystectomy could represent a feasible option for these patients.

Materials and Methods

The data of 303 male patients who underwent RCP with bilateral pelvic lym-phadenectomy and different urinary diversion for BC at our Department of Urology were retrospectively reviewed. Data from the pre-operative digital rectal exam (DRE) and PSA assays were analyzed in patients diagnosed with incidental PCa, for a total of 69/303 (22.7%) patients. Treatment and prognosis of muscle invasive bladder cancer (MIBC) are determined by tumor stage and grade. So, before any curative treatment, it is essential to evaluate the presence of distant metastases. For this reason, all patients enrolled in the current study underwent CT of the chest, abdomen and pelvis, as well as MRI of the abdomen and pelvis. This staging showed that none of the patients had distant metastases or neoplastic disease of the prostate. The selection criteria were as follows: i) no previous history of PCa; ii) no previous history of chemotherapy or radiotherapy; iii) no evidence of PCa in the imaging evaluation; and iv) age ≥ 40 years old. Routine pathological examination was performed as by routine on bio-specimens. Beyond evaluation of the bladder, it was considered i) the presence of PCa; the stage of any detected prostatic adenocarcinoma following the 2002 TNM classification (7) and its Gleason score according to the World Health Organization system (8) and ii) the surgical margin status (a positive surgical margin was recorded upon detection of tumor cells at the stained margin of the specimens). Prostate involvement in bladder cancer was also assessed. The intact RCP specimens were immersed in 10% buffered formalin solution. Then, the prostate in-cluding seminal vesicles and vas deferens, was cut out from bladder, weighed and stained with Indian Ink. Sectioning was performed by cutting at 5-mm interval sections transverse to the long axis, which were then embedded in paraffin for H&E staining and exami-nation. PCa was defined as clinically significant when any of the following criteria was met: Gleason Score ≥ 4, stage > pT3, extracapsular extension (ECE), lymph node metastasis (LNM) or positive surgical margins (SM).

Results

In order to undergo surgery, all patients enrolled in our study underwent DRE and MRI of the abdomen and pelvis to specifically evaluate the prostate both clinically and instrumentally. Both examinations did not reveal any prostate abnormalities such as to require a prostate biopsy. Of the 303 RCP specimens, incidental PCa was detected in 69 patients (22.7%), with a median age of 71.6 years (age range, 54-89 years). We performed orthotopic bladder substitution in 29 (42%) patients, ileal conduit procedure in 14 patients (20.2%) and ureterocutaneostomy in 26 patients (37.7%). Regarding bladder cancer features, all tumors were of high grade. In 69 patients with incidental PCa, 23 of these cancers (33.33%) were regarded clinically significant. In this group of patients, only seven (for a percentage equal to 10.1%) were affected by locally advanced prostate cancer on histopathological

examination. From the retrospective analysis, moreover, these patients presented a bladder tumor which invaded the trigone and the bladder neck. For this reason, the differential diagnosis between primary prostate tumor and bladder infiltration of the prostate was very difficult. Patients were subdivided into three age groups based on the 33% and 66% age quantiles (< 70, between 70-75 and > 75 years of age) and then evaluated. For both TNM stage and Gleason score no significant difference in the mean value of the respective parameter between the three age categories was identified. In total, 46 (66.66%) of 69 patients presented a "non-aggressive" PCa. None of the pre-operative factors, namely PSA level and age, were predictive factors for non-aggressive PCa. Comparisons of the mean values and rank order for age and PSA level between the patients with aggressive PCa and the patients who had non-aggressive tumor by means of unpaired t-tests and Mann-Whitney U tests did not result in any significant difference.

Discussions

Incidental PCas identified in RCP samples, from patients who underwent BC surgery but had no preoperative evidence of prostatic disease, show histological and morphological features similar to those of latent tumors identified in several autopsies (9-11). According to the literature, the frequency variability of incidentally discovered PCa in cystoprostatectomy specimens is extremely high, ranging from 17%-70% (12, 13), owing to various factors. The first of these is the different definition of clinically significant cancer in published studies (14). Over the past two decades, the emerging concept of "insignificant" PCa has progressed to indicate low-grade, small-volume and organ-confined prostatic tumors that are likely slowly progressing, and these, although might not need urgent therapeutic treatment, are eligible for active surveillance (15). Currently, the pathological assessment of the lesion indicates further patient management (16). Generally, PCa is diagnosed as "insignificant" when: the disease has a Gleason score < 7 (without a Gleason pattern of 4 or 5); it is confined to the organ (stage pT2); and the tumor mass has a < 0.5 cm3 volume. Here, only tumor stage and grade could be taken into account to cancer aggressiveness as tumor volume was not available on the pathological report. Our results showed that 46 (66.66%) of the incidentally diagnosed PCas were considered as "non-aggressive" as they were organ-confined or with a Gleason score of < 7 (4+3). Then, an association between BC and PCa was suggested by several previous studies (17-21). However, the association between BC and PCa can be explained as a possible detection bias, associated with more detailed clinical assessment and thorough pathological examination. For example, once a diagnosis of BC has been made, a complete investigation of the entire genitourinary system is likely to occur (22, 23). In this regard, however, it is important to note that the prognosis of patients bearing both PCa and BC is not considered to be worse than the prognosis of patients bearing only one of these two cancer types; rather, it is the stage of BC that impacts the prognosis. The different detection rate of PCa in RCP specimens may be influenced by the thickness of the prostate histological slices, because pathologists might focus more to the bladder. Indeed, Kouriefs and colleagues (24) reasoned that the lower PCa incidence observed in their study (18%) was possibly caused by thick gland sections, indicating that thinner sectioning is recommended (< 10 mm). Consistently, Abbas et al. (25) found a 45% incidence rate using 2-3-mm-thick slices and Moutzouris et al. (26) a 27% of PCa using 5-mm slices. The current study used 5-mm slices and the observed 22.7% incidence rate of PCa supported the aforementioned hypothesis, indicating that thin tissue sectioning should be used to optimize cancer detection. Finally, genetic and environmental factors may influence the variability of the findings from different countries. In the present study, the majority of prostatic tumors were well differentiated. Our data are consistent with what reported in other studies in which most of detected tumors were not clinically significant, with only few patients requiring therapeutic treatment (25, 10, 11). The preservation of continence and erectile function, as well as guaranteeing excellent oncological results, remain the primary goals of the treatment of BC with RCP. Various techniques can help to preserve postoperative continence and erectile function, such as leaving the apex or the entire tissue of the prostate; however, the potential risk of not removing the synchronous PCa can be problematic. By contrast, the probability that patients undergoing RCP and have PCa will not die from prostatic disease is high. Determining whether patients are suitable for prostate-sparing surgery can be difficult. In this regard, the RCP findings obtained in a study by Moutzouris et al. (26) raise further concerns, showing apical involvement by PCa in the 31% of cases and the presence of multifocal PCa in the 31% of patients (26). Moutzouris et al. (26) claimed that apical involvement by PCa indicates the need of a complete prostate resection. Indeed, a patient within their cohort bearing PCa in the apex had recurrent prostatic disease in the urethro-ileal anastomosis of an orthotopic bladder substitute. Similarly, Revelo et al. (27) reported a 25% of patients with apical PCa, of which about 2/3 were clinically significant. They found apical involvement of the prostate with BC in 16% of patients. Overall, they suggested that prostatic apex preservation was a feasible method to improve continence, but it was associated with the risk of incomplete cancer resection. In the attempt to overcome this risk, Revelo et al. (27) suggested to perform a preoperative prostate biopsy and freeze intraoperative sections. However, due to possible sampling error, a negative biopsy may not completely exclude apical involvement of PCa in subjects elected for apical sparing surgery. Hautmann et al. (28) performed sextant biopsies of the prostate upon removal of RCP specimens and detected through this method PCa in only 5% of cases, showing that that biopsy detection rate was 1 out of 9 tumors. Therefore, while sextant biopsies seem not adequate to exclude clinically significant PCa, the optimal prostatic biopsy procedure still needs to be defined. So, routine biopsy has a certain degree of uncertainty regarding the ability to identify clinically significant PCa with high sensitivity when attempting to select patients for prostate-sparing cystectomy. For a successful radical cancer removal it remains crucial not to leave PCa in the apical prostatic margin or residual tissue of PCa, which might be clinically significant. According to Pettus (29), only age was a predictive factor for PCa. However, the present data suggest that patients' age was not a preoperative factor associated with a significant status of PCa. Likewise, the preoperative PSA level seems not significantly associated with the ability to incidentally discover PCa (15).

In the present study, PSA values and DRE findings were available for all patients, but their results were not indicators for cancer. This finding suggests that preoperative PSA screening and DRE in RCP candidates provide no advantages in this setting, which was consistent with results of previous studies (25).

Conclusion

The present study demonstrated that incidentally diagnosed PCa in specimens from RCP for BC was frequently found, resulting in a rate of ~23% of the current RCP spec-imens. As in other studies, also in the current report the majority of these prostatic tumors were not clinically significant, not requiring therapeutic treatment. This has increased the desire to preserve the continence and erectile function in patient undergoing RCP for bladder cancer; however, the risk of not removing the synchronous PCa shoudl be con-sidered. In effect, in our cohort, 33,3% of patients was affected by clinically significant prostate cancer. It was suggested that the differences in the incidence and behavior of prostatic disease were associated with the patient's age. However, in this study, no preoperative predictive factors (patient's age, PSA or DRE) were identified that were able to determine "non-aggressive" PCa status, resulting in the inabilty to adequately de-termine which patients can be safely selected for prostate-sparing surgery. So, the present results demonstrate the need for a careful and complete prostate removal during RCP. Nevertheless, since organ-sparing surgeries are widely performed in young population, due to the impossibility of predicting aggressive prostate cancer and considering the 33,3% of clinically significant prostate cancer in our cohort, these patients require close monitoring through lifelong PSA surveillance, particularly focusing on the possible re-lapse of PCa after RCP. Finally, in our study the technique for cutting the prostate at 5-mm interval sections trasverse to the long axis, allowing the detection of nearly 23% of PCA, supports the hypothesis that thin tissue sectioning should be used to optimize cancer detection (regardless of prostate volume which traditionally affects the number of biopsies to be taken).

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11 maggio 2023

13:00 - 14:00

sala C

Comunicazioni 3 - Uroandrologia funzionale

Moderatori: Eugenia Fragala', Michele Potenzoni

Focus on: Tossina Botulinica in Urologia – *Eugenia Fragalà*

1. Treatment With Mirabegron In Urinary Incontinence Due To Parkinson's Disease: Results At Medium-Term Follow-Up

Antonella Giannantoni[1], Alessandra Valloni[1], Francesco Croce[1], Mario Ciletti[1], Gianni Martis[1], Vittorio Marzio[1], Maurizio Ombres[1], Luigi Storti[1], Mauro Caponera[1]

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Objective

Few data are available on the efficacy and safety of Mirabegron in the treatment of neurogenic detrusor overactivity incontinence due to Parkinsons' disease (PD). We investigated persistence rates and adherence to this kind of treatment in a medium-term follow up in PD patients refractory to antimuscarinics.

Materials and Methods

A prospective study was conducted in urological department. 49 PD patients with refractory overactive bladder (OAB) were prospectively included in the study. At baseline assessment of motor symptoms, disease severity and cognitive status with the Hoehn–Yahr Scale (H&Y), the Unified Parkinson's disease Rating Scale (UPDRS), the Mini Mental State examination (MMSE) and the Montreal Cognitive Assessment (MCA) was performed. Urinary symptoms, treatment satisfaction and the impact of urinary incontinence on quality of life were assessed with the 3-day voiding diary, the Visual Analogue Scale (VAS) and the Incontinence–QoL questionnaire (I-QoL). Patients were treated with mirabegron 50 mg tablets once daily. Evaluation of urinary symptoms and related questionnaires, motor symptoms, severity of PD and uroflowmetry with postvoid residual volume measurement were then repeated at different time points follow up. Adverse effect were recorded and presence of comorbidities was also noted. Here, the results observed at 18 months follow up are described.

Results

At baseline urge urinary incontinence was present in 40/49 cases (81.6%). All patients presented with comorbidities, with osteoarticular disease and affective disorders being the most frequently reported. At 18 months follow up, data were available in 27 cases (55.1%): 9/27 (33.3%) achieved a complete urinary continence; in the remaining patients an improvement in symptoms was noted. Overall, nocturia was the only symptom not achieving a significant reduction. In these patients a significant amelioration was detected in VAS and I-QoL scores. 13 patients discontinued treatment due to a poor clinical improvement and 9 due to the cost of the drug. No serious adverse effects were reported and no patient stopped taking the drug due to these. Duration of the disease and H&Y scores were significantly higher in nonresponder patients

Conclusion

Mirabegron is an effective drug to control urinary symptoms in about 55% of patients affected by PD and refractory OAB in the medium-term follow up. The lack of intolerable side effects appears to be the most relevant issue in refractory PD patients to anticholinergics.

2. Food-Related Approach And Blood Immunoglobulins G4 Measurement In The Treatment Of Chronic Pain

Antonella Giannantoni[1], Ilenia Casini[2], Anna Maria Aloisi[2], Alessandra Valloni[1], Francesco Croce[1], Mario Clietti[1], Gianni Martis[1], Vittorio Marzio[1], Maurizio Ombres[1], Luigi Storti[1], Mauro Caponera[1]

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Objective

In chronic pain, gastrointestinal functions can be impaired via neural (sympathetic pathway) and endocrine (adrenaline) activation, thus contributing to pain emergency/worsening. Foods have various components that may induce immune reactions, including the production of variable amounts of food-specific immunoglobulins, particularly type G4 (IGg4). We determined IGg4 blood levels in patients with urologic chronic pelvic pain (UCPP) and other pain syndromes, to detect whether the exclusion from the diet of nutrients producing high IGg4 levels can reduce pain.

Materials and Methods

54 subjects (28 with UCPP, 11 with headache, 17 with low back pain) underwent Visual Analog Scale (VAS), Italian Pain Questionnaire (QUID), and Margolis Questionnaire to determine pain intensity, features, and extent; short form health survey and (SF-36) and Profile of Moods States (POMS) were used to test quality of life (QoL) and mood status. At the beginning (pilot study), blood IGg4 measurement was performed in 23/54 patients with NutriSMART rapid test (scores varying from 1 to 3). Then, the ELISA test was used to detect IGg4 in 31/54 cases. Based on NutriSMART score ≥ 2, and IGg4 levels higher than 3.5 U/ml, each patient received a personalized list of foods to be excluded for 4 weeks. VAS, questionnaires and IGg4 measurements with ELISA were repeated 1 month after the personalized exclusion diet period

Results

Foods with IGg4 levels higher than normal were detected with both tests in all patients, with 47 (87%) showing medium/high IGg4 levels to at least one nutrient. 63% of cases showed high levels to > 5 nutrients. IGg4 levels (ELISA) ranged from 0.08 to 1259.7 U/ml. Foods showing the highest IgG4 values were eggs, dairy products, cereals, and dried fruit. UCPP patients showed higher IGg4 levels as compared to the other sub-groups. One month after the personalized, exclusion diet, IgG4 levels were mostly decreased, and somewhat increased or unchanged. In all subjects, the 4-week exclusion diet resulted in a significant reduction in all pain measures and an improvement in QoL parameters. VAS scores decreased by more than 50%.

Conclusion

Immune reactions due to specific nutrients can induce or contribute to the development of chronic pain. A food elimination diet based on IGg4 antibody levels may be effective in reducing pain and improving quality of life in UCPP patients.

3. Evaluation Of The M371 Test Under Real Life Conditions For The Diagnosis And Follow Up Of Testicular Germ Cell Tumours

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Objective

Testicular germ cell cancer (GCT) is one of the best curable malignancies with cure rates above 90% for clinical stage (CS) I and II and above 80% in the CS III [1]. Cornerstones of the clinical management are surgery, imaging technologies (sonography, computed tomography, magnetic resonance) and the measurement of the serum tumor markers alpha fetoprotein (AFP), beta-human chorionic gonadotropin (eta-HCG) and lactate dehydrogenase (LDH) (2). Utility of these classical tumor markers is limited due to the low sensitivity. miRNAs are small noncoding RNAs which are part of the epigenetic regulation of gene expression (3). Dysregulation of miRNA expression is closely associated with cancer initiation, progression, and metastasis. During the last two decades, the involvement of miRNAs in various cancers and their role as potential biomarkers have been widely researched. Recently, serum levels of miRNA-371a-3p have been shown to be a promising biomarker in the diagnosis of GCT by performing better than the conventional markers (4-7). The laboratory diagnostic M371-Test (mir|detect GmbH, Bremerhaven, Germany) is a high-quality test for real-time polymerase chain reaction (PCR) based detection of miRNA-371a-3p in human serum samples.

The aim of the study was to establish the M371-Test on the Thermocycler Rotor-Gene Q (Qiagen) platform and to evaluated the test under real life conditions in comparison to the classical markers AFP,beta-HCG and LDH.

Materials and Methods

After ethical committee approval, 96 M371 tests (23 first diagnosis, 73 follow up) were performed in 44 patients (median age 29 years) and compared with AFP, beta-HCG, LDH using histological diagnosis and/or CT scan and / or markers as gold standard.

Results

In patients with first diagnosis of TC, the M371-Test resulted positive in 73.7% analyses, AFP in 21%, LDH 31.6% and beta-HCG in 42.1%. In patients who had a relapse under follow up for TC, the M371-Test resulted positive in 86.4% of analyses, AFP in 50%, LDH 31.8% and beta-HCG in 63.6%. GCT/non seminoma lesions had a positive M371-Test in 83.3% of analyses, AFP in 77.8%, LDH in 38.9% and beta-HCG in 66.7% of the analyses, respectively. In GCT/ seminomas, the M371-Test was positive in 85% of analyses, AFP in 5%, LDH in 30% and beta-HCG in 50%, respectively.

Discussions

We evaluated the test under real life conditions. Real life conditions give insights in the quality of care of patients under everyday conditions, which most of the time cannot reproduce the same results as approval studies. In this study, in the group of patients with suspicion of TC, the M371-Test showed a sensitivity of 73.7% and a specificity of 75%, which is much lower than in Dieckmann et al.'s study [4]. Furthermore, more data are necessary to optimize the cut-off level for positivity in patients with suspicion and under follow-up of TC.

Conclusion

Under real life conditions and performed on the real-time Thermocycler Rotor-Gene Q (Qiagen) platform the M371 test shows a good performance a in comparison with the classical markers for detecting GCTs and in the follow up of patients after GCT, especially in seminomas.

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4. Bipolar Plasma TURP For Large Volume Prostate: 4 Years Experience

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Objective

Trans Urethral Resection of Prostate (TURP) remains still the gold standard and it is strongly recommended for the treatment of patient with moderate-to-severe LUTS (Lower Urinary Tract Symptoms) with prostate size of 30-80 mL (1). Patients with oversized prostates > 80-100 mL undergo to traditional open prostatectomy or to a laser enucleation. Aim of our study is to analyze the surgical outcomes and the safety of bipolar plasma TURP extended to oversized prostate.

Materials and Methods

Since November 2018 to December 2022 we treated with bipolar plasma TURP 29 patients with a prostate volume larger than 100 mL and up to 260 mL. The average age was 69.3 years (range 51-84); the average prostate size, measured before the procedure by ultrasound, was 133.90 mL (range 100-260); at the moment of the procedure 13 patients had a bladder catheter, 23 had history of acute urinary retention, 5 had also bladder stones, and 6 had severe LUTS and Qmax between 5 and 10 ml/s at the uroflowmetry; all of them previously received pharmacological treatment for LUTS (2 only 5α-reductase inhib-

itor, 7 only α-blocker, and 20 combined therapy with α-blocker and 5α-reductase inhibitor). The TURP was performed using the bipolar plasma edge technology by Lamidey Noury Medical, saline solution as medium, instrument for resection with continuous irrigation system, and High Definition video camera and 16:9 High Definition monitor. The approach for those oversized prostate was modified, mainly it was a posterior approach to remove first the large medium lobe and then the lateral lobes. The medium lobe was first isolated between 2 tunnels at 5 and 7 o'clock deep to the capsule and extended to apex preserving the veru montanum; the resection was than performed between the 2 tunnels going parallel to the posterior wall, from one side to the other, and upward to downward. For both the large lateral lobes a deep tunnel between the lobe and the prostate capsule (starting at 1 o'clock for the left lobe down to almost 4 o'clock; and at 11 o'clock for the right lobe down to almost 8 o'clock) was first made in order to allow the resection of each lobe from the lateral side to the median part. The 5 patients with large bladder stone had the stones fragmented and removed during the same procedure, but before starting the TURP (for statistical purpose only the TURP time was calculated).

Results

Average operative time was 78 minutes (range 50-120); mean hospitalization time was 5 days (range 2-13); no patient had TUR syndrome, neither serum sodium level drop; no one required blood transfusion; only 4 had persistent mild haematuria that just prolonged their hospitalization time, one with a 260 ml prostate had on purpose a 2 time operation to not exceed the 1 hour time due to his co-morbidities; no other adverse events were registered. Catheter was removed after 8 days (range 3-36) and all of them could void again. After 2 months, one patient, who suffered also Parkinson's disease preferred to have the catheter indwelled again to better manage, according to his opinion, the relapse of severe LUTS.

Discussions

The bipolar plasma TURP was performed using normal saline solution (NaCl 0.9%) as fluid for continuous irrigation, instead of a non conductive solution, offering the advantage of minimal absorption by the open vessels and eliminating the risk of electrolytic disorders, both TUR syndrome and the serum sodium level drop (2). The resection with the bipolar plasma edge technology is faster with less bleeding because of the attitude of the instrument to cut, vaporize and coagulate smaller vessels at the same time. After the cutting the prostate tissue looks white, not carbonized and it is still soft for further cuttings. We believe that the modified approach for the large lateral lobes gives 2 other important advantages. One is to set immediately the capsular limit of the resection. The second is to create a flap from the lateral lobe which is already ischemized and ready to be fast removed by lateral to median resection going from upward to downward. We believe that both the ultimate plasma technology and the modified approach contributed to a faster and less bleeding resection, allowing a safe operative time for those oversized prostate with volume up to 200 mL.

Conclusion

According to other Authors (3) the treatment of oversized prostate with bipolar plasma TURP is an effective endoscopic technique and seems to offer surgical results equivalent to those encountered for smaller prostate volumes. The use of saline solution and short operative time confirm the safety of the procedure also for large size prostate. In our single center study bipolar plasma TURP represents a valid alternative to open prostatectomy in large benign prostatic hyperplasia < 200 mL, up today. Because of the low cost, comparable to standard TURP, it may be used in centers that do not have yet laser equipment. Larger studies and longer follow up are mandatory to confirm our results.

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5. Vacuum Erection Device For Erectile Function Rehabilitation After Radical Prostatectomy: Which Is The Correct Schedule? Results From A Systematic Review

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Objective

Vacuum erection device (VED), for its capacity to improve the peak flow and elasticity of cavernous arteries, is a well-known tool to improve recovery of erectile function (EF) after radical prostatectomy (RP). Aim of this study is to compare the different therapeutic schemes proposed in literature to find the most effective timing for VED treatment and to evaluate its efficacy alone or associated with phosphodiesterase 5 inhibitors (PDE5i).

Materials and Methods

A systematic review of Literature was performed on October 2022 using MEDLINE, EMBASE, and Cochrane Central Controlled Register of Trials to retrieve all articles dealing with EF rehabilitation after RP (excluding non-English papers or meeting abstracts). Patients were divided among those receiving VED alone or combined with other treatments. Study outcomes were compared dividing them between those with follow-up shorter or longer than 12 months

Results

The literature search retrieved 496 papers. 144 duplicate studies were automatically excluded. After title and abstract screening of the remaining 352 unique references, 207 records were excluded because they were irrelevant to this study's aim. There were left 145 full texts which were assessed for eligibility. Finally, 16 papers were accepted and included [1-16]. Among them, 7 were randomized-controlled trials (RCT), 5 were prospective observational studies and 4 were retrospective. VED alone was evaluated in 8 articles, while 6 papers evaluated the combination of VED with 5PDEi. Regarding VED therapeutic protocol, most of studies used it daily (8/16). Rehabilitation protocol lasted less than one year in 6 studies, up to 12 months in 5 studies and more than 1 year in 4 studies. 11/16 studies had a comparison treatment arm.

Discussions

Even if combination therapy appeared to increase EF outcomes, no significative improvements were noted for patients who underwent the treatment over 12 months. VED results appear to increase when patients were addressed to VED-dedicated programs to enhance their compliance to the device. Continuative use of VED after RP was also useful to prevent penile shrinkage and deformities such as Peyronie disease who can often occur after RP.

Conclusion

VED application for the first 12 months after RP appear to significantly improve EF recovery and conservation of penile length especially when associated to oral 5PDEi treatment. Dedicated VED education programs should be promoted to increase patients' understanding and compliance to the treatment.

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6. Botulinum Neurotoxin Serotype-A (BoNT-A) As A New Therapy To Treat Erectile Disfunction (ED). Our Experience

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Objective

This study evaluated the efficacy of Botulinum neurotoxin serotype-A (BoNT-A) to treat vasculogenic erectile dysfunction (ED) not responding to phosphodiesterase inhibitors type 5 (PDE5i) at high dosages.

Materials and Methods

The BoNT-A used in our study was Botox® (onabotulinumtoxin A; Allergan) due to robust randomized controlled trial data supporting its efficacy and safety in the treatment of a variety of medical pathologies [1]. In urology, intradetrusor BoNT-A injection has revolutionized the treatment landscape for patients with neurogenic bladder because has proven its efficacy in reducing intravesical pressure and in reducing incontinence episodes [2]. At our Andrology department, after obtaining a specific informed consent, 11 men aged between 52 to 61 affected by vasculogenic ED unresponsive to any PDE5i at maximum possible dosage were treated with an only one-time intracavernosal injection (ICI) of Botox® 50 U. All patients answered "no" to questions 2 and 3 of the Sexual Encounter Profile (SEP). Patients with an history of radical pelvic surgery, spinal cord injury, preexisting neuromuscular disorders (such as myasthenia gravis or amyotrophic lateral sclerosis), presence of hormonal or anatomical abnormalities were exclude from study. During the study the patients could not use any oral or injectable medications for ED.

Results

Only one patient had priapism occurred about an hour after the injection which resolved by ICI of ephedrine. Two patients had reported pain after injection that was managed with oral analgesics. No systemic side effects were noted. At follow-up visit, three months after ICI of BoNT-A, 10 patients answered "yes" to questions 2 and 3 of SEP. Only one patient reported penile erections sufficient to permit a satisfactory sexual performance using in addition on-demand Tadalafil 5 mg.

Discussions

BoNT-A inhibits sympathetic adrenergic or cholinergic vasoconstriction, sensory nerves, endothelial exocytosis of endothelin 1, which are involved in the pathophysiology of ED [3]. The muscle relaxing capacity of BoNT-A could be used within the corpora cavernosa to enhance valid erections, thus introducing a possible new line of safe and effective treatment for erectile dysfunction (ED) not responding to phosphodiesterase inhibitors type 5 (PDE5i) at high dosages.

Conclusion

BoNT-A could be a viable and safe therapy for vasculogenic ED unresponsive to any PDE5i, compared to self-administered intracavernosal injection of Prostaglandin E1 (PGE1). Further studies are needed to confirm the validity of this therapeutic choice and to determine how long the action of BoNT-A lasts.

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7. Use of PRP in Urology

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Objective

Over the past fifty years, autologous platelet-rich plasma (A-PRP), an autologous blood-derived product containing high concentrations' platelets, has gained growing interest in different areas of medical application.1,2 PRP technology is based on its ability in stimulating the release of a cascade of cytokines and growth factors from platelets which improves angiogenesis and promotes and accelerates tissue healing.3 In urological field the use of PRP is wide and polyhedric.1,2,4 The aim of this study is to investigate what is the current evidence in the literature about the application of PRP in urology

Materials and Methods

In this study we performed a nonsystematic literature search on this treatment modality in the urological field using Pubmed. We searched articles in the English language published over the last three decades until December 31th, 2022. We excluded non pertinent and published in non-english language abstracts or articles

Results

63 articles have been identified and selected as eligible for the final analysis. One of the most frequent application of A-PRP was observed in andrological sexual dysfunction, such as erectile dysfunction (vasculogenic or secondary to injured cavernous nerves) and Peyronie's disease (PD).5,6 In the first case, A-PRP seemed to increase angiogenesis and myogenesis phenomena and upregulate neuronal nitric oxide synthase.7 Despite an improvement in the instrumental evaluations and in the IIEF-5 questionnaire (with an average increase between 9,1% and 56,3%), the studies analyzed, both on animal model and human, were limited by a lack of placebo and long-term results.4,5,6,7 In PD, A-PRP induces local pain reduction and stabilizes disease progression, while the size of plaques and the penile curvature sometimes reported subjective improvement (until to 80%) and sometimes seemed to remain unchanged. Follow-up ranging since 1 to 15,5 months. In both the sexual dysfunctions, adverse events were minimal.5,6,7 PRP has been applied also in interstitial cystitis/bladder pain syndrome (IC/BPS) refractory to conventional therapy.8 Through its ability to promote urothelial regeneration and cell differentiation, to induce neoangiogenesis

and nerve regeneration, PRP can increase barrier proteins expression. This induces a decrease of neuropathic pain and lower urinary tract symptoms, resulting in a success rate close to 70% at 3 months follow-up after the fourth suburothelium injection of PRP with a significant decrease of VAS score and relief of symptoms.8,9,10,11,12,13 A potential therapeutic efficacy of intravescical injection of PRP was evaluated also on recurrent bacterial cystitis treatment, especially in old, frail and immunocompromised women with systemic or bladder diseases that interfere normal urothelial regeneration under previous bacterial invasion.8 The effectiveness of local injection of A-PRP was investigated also in patients with urinary stress incontinence, both in females and in males, after radical prostatectomy or cystectomy with neobladder.14,15 PRP exerts its potential regenerative effect by increasing the sphincter muscle cells as well as the urethral resistance, alleviating urinary incontinence.14,15,16 The efficacy of local PRP injection was detected through self-reported questionnaire, visual analog scale and clinic and urodynamic evaluations.17 The overall success rate was around 50-80% at three months after the fourth PRP injection.14,15 It was appeared that younger and naïve patients had better treatment outcomes. In longer follow-up (until around 2 years), the success rate maintained good in several patients too.14,15,16,17 In literature resulted that PRP has also the potential to treat and to prevent fistulas. In particular PRP seemed to avoid post-operative complications occurring after hypospadias surgical repair. In PRP-treated patients group, the urethrocutaneous fistulas rate was sometimes unchanged, but a reduction was observed in the incidence of wound infection, meatal stenosis and total complications.18,19 Another reported application of PRP technology was in urethral trauma. PRP significantly seemed to prevent the development of mucosal inflammation and spongiofibrosis as a result of urethral injury and to increase the speed of normal urethral healing, when applied to the urethra after urethral trauma.20,21,22 Furthermore, PRP was employed also in repairing loss of substance: an Italian study reported PRP technology application after endoscopic resection of mesh vaginal exposure with complete local re-epithelization and tissue healing.23 In addition, PRP injection resulted to have a protective effect in testicular and renal tissue ischemia/reperfusion injury and to be effective in preventing ureteral obstruction-induced renal injury.24,25,26,27 There are several limitations in the studies analyzed: there was no randomized trial, the sample sizes were small, these studies often had short follow-up periods, and the choice of intravesical injections of PRP was not standardized.

Conclusion

According to the studies published in literature, the application of autologous platelet material in urological field results to be a promising treatment approach in several urological disease, considering its high profile of safety and feasibility. However, further clinical trials are expected to validate the use of PRP in urology more and spread it promising technology in the clinical and surgical practice

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11 maggio 2023

13:15 - 14:00

sala A

Video 2 -

Chirurgia renale: no limits?

Moderatori: Massimo Cecchi, Alessandro Giacobbe

FOCUS ON: quando usiamo ancora il bisturi? - *Massimo Cecchi*

1. Intraoperative Management Of Renal Vein Rupture During Robotic Partial Nephrectomy (RAPN)

Nicolò Fiorello[1], Andrea Di Benedetto[2], Daniele Summonti[2], Andrea Mogorovich[2], Marco Lencioni[3], Giuseppe Silvestri[1], Sandro Benvenuti[2], Carlo Alberto Sepich[1]

[1] *Ospedale San Luca, UOC Urologia (Lucca)*
[2] *Ospedale Versilia, UOC Urologia (Camaiore)*
[3] *Università degli studi di Pisa (Pisa)*

The video shows the case of a young patient with a totally endophytic mesorenal 5 cm lesion of the right kidney. The patient underwent diagnostic ureterorenoscopy for suspected urothelial origin. During the procedure the minus of contrast medium, seen on the CT, was revealed by compression ab estrinseco. She underwent a renal biopsy with evidence of oncocytoma.
In addition, CT revealed the presence of a double right renal artery. During RAPN, an accidental rupture of the renal vein occurred while performing double clamping through buldog. Intraoperative management and suturing was completely intracorporeal. The patient completed the procedure with excision of the tumor and sparing of the kidney . She was discharged after 3 days.
This video is extremely interesting for learning how to manage severe complications.

2. To Present The Main Anatomic Landmarks And Tips For A Safe Open Left Radical Nephrectomy Performed For A Huge Renal Mass

Anastasios Asimakopoulos[1], Gaia Colalillo[1], Leandro Siragusa[2], Alessandro Anselmo[2]

[1] *Fondazione PTV Policlinico Tor Vergata, Unità di Urologia (Roma)*
[2] *Policlinico Tor Vergata, Dipartimento di Chirurgia, Unità HPB e chirurgia dei trapianti (Rome, Italy.)*

Clinical Case:
A 45 yrs old male reached our attention for recurrent episodes of left renal colic and gross haematuria. No relevant comorbidities were reported. At the physical exam a palpable renal mass was identified extending from the left hypochondrium to the omolateral iliac fossa and medially to the xifopubic line. Left varicocele was also encountered. The CT scan revealed a large left renal

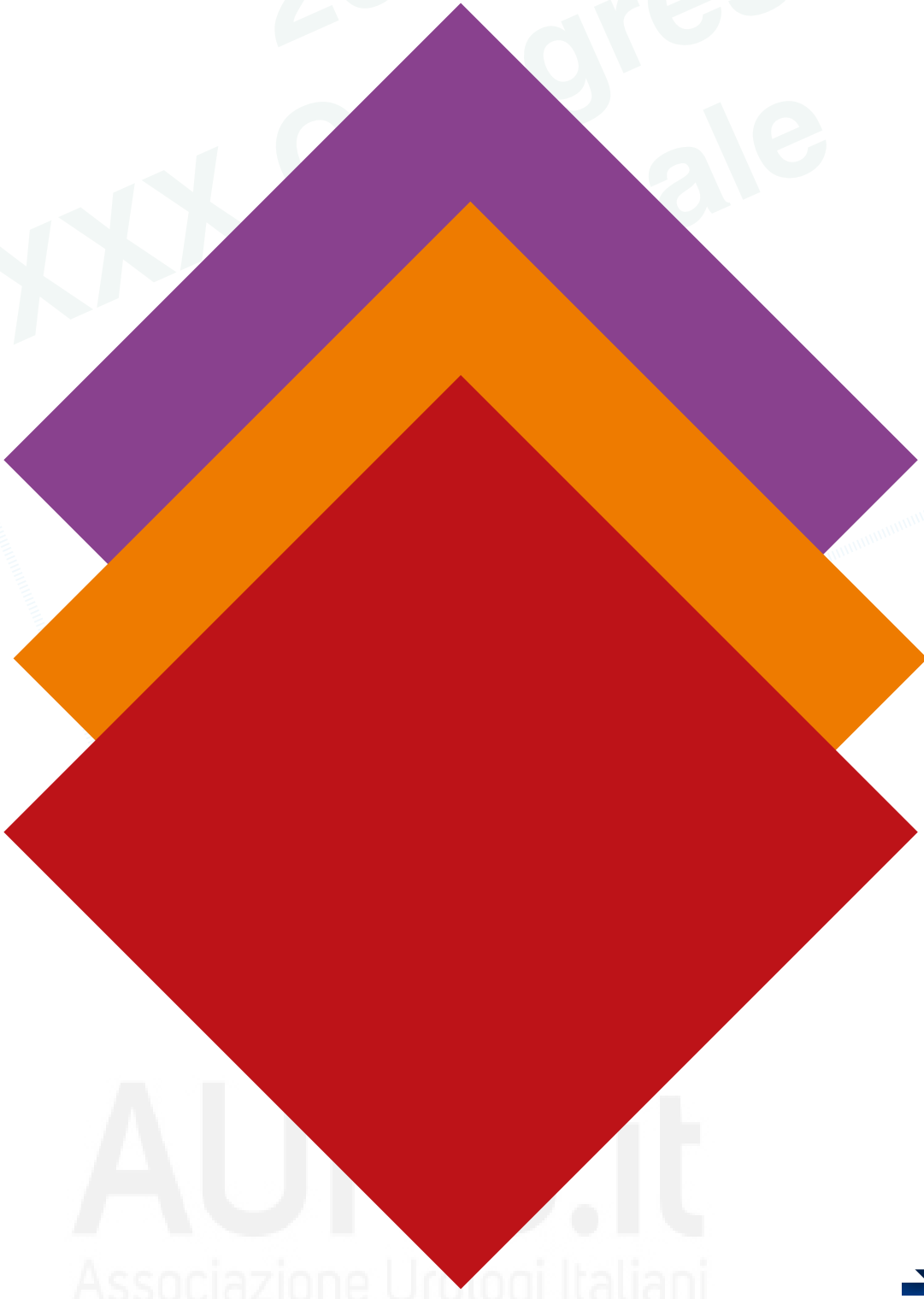
mass with multiple suspicious paraortic lymph nodes till the origin of the celiac trunk. The patient was submitted to open left radical nephrectomy and lymph node dissection. With the patient in the supine position a midline incision was made and the peritoneal cavity was entered. The descending colon was medialized. Multiple collateral peritumoral veins and a severely dilated genital vein were encountered. Reflection of the spleen and the pancreas was performed to expose the sub-diaphragmatic space [1]. Following the dissection of the ureter, the elements of the left renal hilum were isolated and controlled. Attention was paid to the splenic vessels, the tail of the pancreas and the superior mesenteric artery. The sidewall of the aorta and common iliac were kept in mind to maintain a frame of reference. The paraortic and truncal lymph nodes were also removed [2].

Results

Operating time was 6 hours. The pathology revealed a clear cell carcinoma infiltrating the perirenal fat and the left renal vein. Fourteen benign lymph nodes were identified. At one year of follow-up, the patient is free from local or distant recurrences.

Conclusions

Open surgery still represents an important therapeutic option for cases of renal cancer not amenable to mininvasive approach and should remain part of the armamentarium of the modern urologist



13 maggio 2023

10:10 - 11:10

sala A

Video 3 -

Per tutti i gusti.

Moderatori: Filippo Annino, Maurizio Fedelini

FOCUS ON: Tips and Tricks della ricostruzione vescicale intracorporea. *Filippo Annino*

1. Ureteral Injury During Robot-Assisted Radical Prostatectomy: Management Of A Rare And Challenging Postoperative Complication

Erika Palagonia[1], Benedetta Bianchi[1], Annalisa Mantella[1], Saba Khorrami[1], Michele De Angelis[1], Filippo Annino[1]

[1] *Ospedale San Donato, UO Urologia (Arezzo)*

This video shows the robot-assisted distal ureteral reimplantation performed for an ureteral injury occurred during a robot assisted radical prostatectomy of a 64 years old man in good general condition, with diagnosis of high risk PCa. No intraoperative complication was noticed, catheter has been removed after 7 days with negative cystography. 10 days after surgery the patient harboured nausea and abdominal pain, serum creatinine was 3,7 mg/dl and eGFR 16,6 ml/min. A first CT scan without and with contrast showed a big abdominal mass of 20 cm maximum, suspected of right lymphocele. Thus, abdominal drain was positioned and creatinine from it was 43,7 mg/dl. The recorded RARP video was analysed showing a left ureteral injury. A third CT scan with cystography established a urine leakage from the left distal ureter at 5 cm from the bladder. Firstly, conservative management using retrograde ureteral stenting was tried with decrease of serum creatinine at 0.9 mg/dl but without improvement of symptoms. Therefore, the decision was to surgically drain the abdominal urinoma and performed a robot-assisted distal ureteral reimplantation. The urinoma created important inflammation and after difficult identification of the left ureter and its isolation, ureteroneocystostomy was performed. Drain and catheter were removed in post-operative day 3 and day 8, respectively. No major complications were recorded during hospital stay (10 days). Ureteral stent was removed after 6 weeks. At 3-month follow-up, blood creatinine was 0.88 mg/dl and eGFR was >90 ml/min, with no referred pain and other complains. US showed limited residual minimum pyelectasis but no hydronephrosis.

2. Video Endoscopic Inguinal Lymphadenectomy (VEIL) Nel Carcinoma Del Pene: Descrizione Della Tecnica E Risultati Di Un'esperienza Iniziale

Pietro Augusto Mastrangelo[1], Bruno Mazzoccoli[1], Umberto Locunto[1], Francesco Boezio[1], Raffaele Martino[1], Antonio Arcuri[2], Italo Veneziano[1], Giuseppe Di Sabato[1]

[1] *P.O. Madonna delle Grazie, UOC Urologia (Matera)*
[2] *A.O. Pugliese Ciaccio, UOC Urologia (Catanzaro)*

Nel video si mostra la tecnica di linfadenectomia inguinale laparoscopica per il carcinoma del pene a scopo profilattico. In anestesia generale la coscia si posiziona in abduzione ed in leggera extrarotazione così da esporre il triangolo femorale. Il monitor è posizionato controlateralmente. Si pratica un'incisione di 1,5cm della cute fino alla fascia di Scarpa al vertice del triangolo femorale e si sviluppa un piano prima con le forbici e poi con manovra digitale per un'estensione più larga possibile. Si posiziona il trocar di Hasson e altri 2 trocar da 10 e 5 mm medialmente e lateralmente alla prima incisione ad una distanza di 5cm e circa 2cm cranialmente. Si insuffla con CO2 ad una pressione di 10 mmHg. Si esegue una dissezione retrograda al di sotto della fascia di Scarpa lateralmente al muscolo adduttore lungo e medialmente al sartorio. Si identifica la vena safena medialmente e la si isola fino alla giunzione safenofemorale. Si identificano le vene circonflessa superficiale, epigastrica superficiale, pudenda esterna superficiale, cutanea mediale e laterale e si procede all'asportazione completa del tessuto linfoadiposo con Ligasure, risparmiando le branche della vena safena, fino al legamento inguinale e comprendendo la fossa ovale. Rimozione del tessuto in endobag e drenaggio in aspirazione. Da Aprile 2021 a dicembre 2022 sono state eseguite 7 procedure di linfadenectomia inguinale profilattica (linfonodi non palpabili) in pazienti con carcinoma squamoso pT1HG (57,14%), pT2HG (28,6%), pT3HG (14,3%). Il numero di linfonodi rimossi in media è stato di 6 (4-9). Il tempo medio chirurgico è stato di 120 minuti (90-180). Il tempo medio di rimozione del drenaggio è stato di 6 giorni (4-10). Linforrea prolungata in 2/7 (28%), complicanze legate alla ferita 0. Nella nostra esperienza preliminare la tecnica è risultata di semplice esecuzione e facilmente riproducibile, riducendo le complicanze legate alla procedura di linfadenectomia inguinale open. Risulta una valida alternativa alla ricerca del linfonodo sentinella nei pazienti con neoplasia squamosa del pene e linfonodi inguinali non palpabili.

3. Bordeaux Technique For Intracorporeal Orthotopic Ileal Neobladder. Illustration Of Surgical Tricks And Evaluation Of Perioperative Outcomes In A Referred Center

Benedetta Bianchi[1], Palagonia Erika[1], Anastasios asimakopoulos[2], Elena Morini[1], Annalisa Mantella[1], Nicola Mormile[1], Saba Khorrami[1], Filippo Annino[1]

[1] *Ospedale San Donato, UO Urologia (Arezzo)*
[2] *Università di Roma Tor Vergata, Dipartimento di Urologia (Roma)*

Orthotopic neobladder (ONB) reconstruction is a continent urinary diversion procedure increasingly used in selected patients with muscle-invasive bladder cancer following radical cystectomy (RC). Various techniques are currently used and have shown satisfactory outcomes. The present video is intended to illustrate key surgical steps, tricks and preoperative outcomes of our standardized technique of ONB.
In our center 97 RARC were from 2016 to 2021. Of these, 33 pts who selected for NB reconstruction. All the procedures were performed by the same surgeon. All the pts were subjected for an enhanced recovery after surgery (ERAS) protocol. The tecquinique used was intracorporeal Y-modified neobladder ("Bordeaux Neobladder"). It consists in a reconstruction with an ideal segment of 40 centimeters, isolated approximately 25 centimeters from the ileocecal valve. At medium this segment is open and a double semicircular uretral-ileal anastomosis is obtained. Both ends of the selected ileal segment are then divided with the aid of a laparoscopic 60 millimeters intestinal stapler. Ileal continuity is restablished through an aniso-peristaltic anastomosis. The middle anti mesenteric part of the selected ileal segment is opened with scissors in order to obtain its detubularization. The medial margins are sutured and the posterior plate is created. The anterior bladder neck is then remodelled and the wire used for the posterior reconstruction is used to connect the end of the posterior reconstruction to the anterior bladder neck. Two lateral sutures are performed to close the neobladder until almost 5 centimeters before to complete the closure of the lateral wall. The ureters are spatulated and then reimplanted following a Wallace technique at the open ends of neobladder limbs. Once the posterior reconstruction of the anastomosis is completed, a single j stent is percutaneously inserted on a guidewire and then the anastomosis is completed.

4. Supine MiniPCNL In Horseshoe Kidney

Eugenio Di Grazia[1], Giorgio Giacinto Di Grazia[2]

[1] *Case di Cura Mater Dei e Villa Azzurra (Catania- Siracusa)*
[2] *Unict (Catania)*

Nel video viene illustrata la tecnica di esecuzione della Mini Nefrolitotomia percutanea nel rene a ferro di cavallo in posizione supina. La PCNL nel rene a ferro di cavallo è abitualmente eseguita in posiziona prona anche per gli endourologi che hanno grande

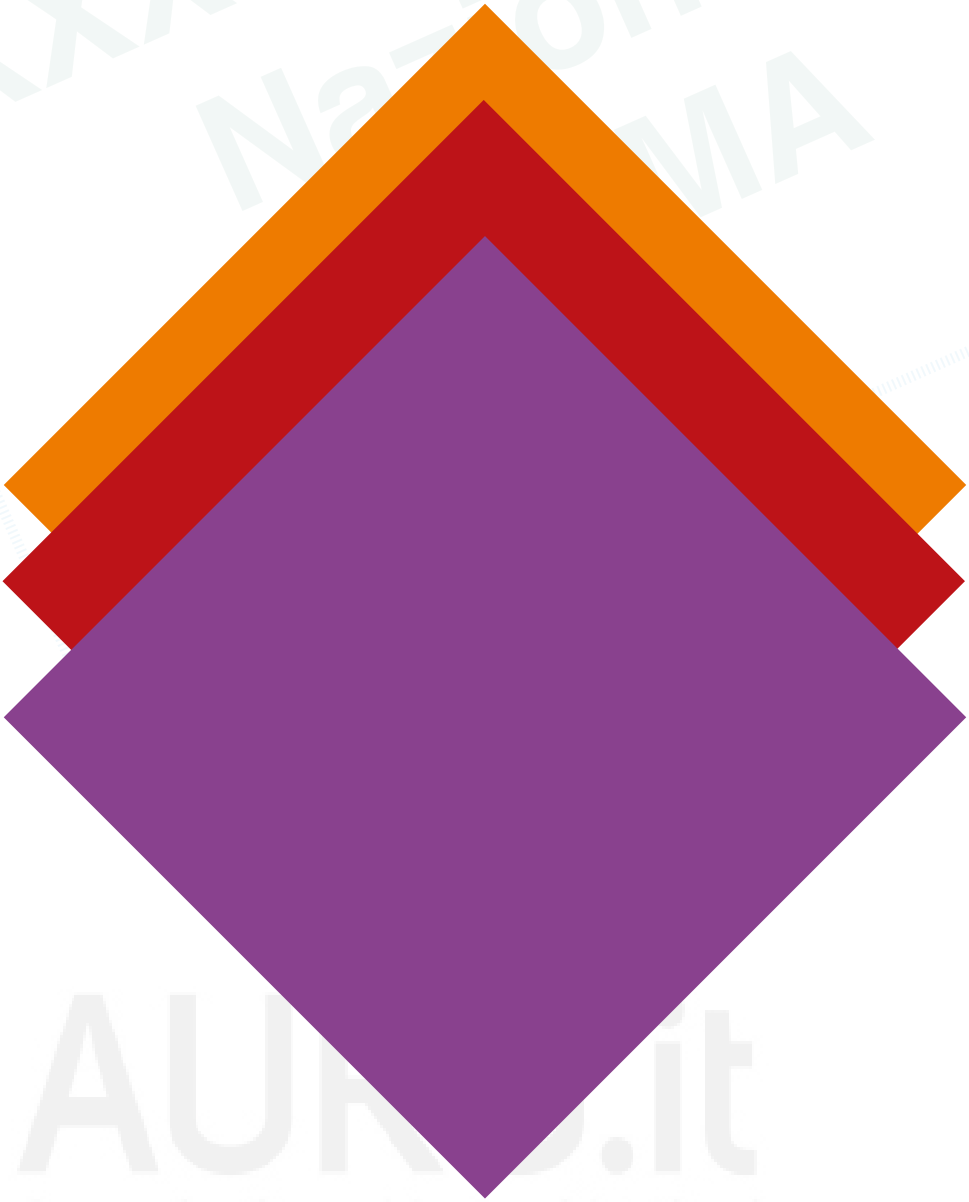
esperienza nell'approccio percutaneo in posizione supina. Tale scelta della posizione prona è legato alla differente anatomia del rene a ferro di cavallo, il cui sistema caliciale, medio e superiore, è localizzato più medialmente vicina alla colonna vertebrale. Come è noto l'accesso percutaneo nel calice medio e superiore è imperativo per ridurre i rischi emorragici legati all'accesso dal calice inferiore, che, nel rene a ferro di cavallo, esporrebbe a potenziali rischi vascolari. In questo video si dimostra come la chirurgia percutanea nel rene a ferro di cavallo può essere eseguita anche in posizione supina efficacemente e in sicurezza, con i noti vantaggi che la posizione supina determina in termini anestesiologici e di agevole approccio combinato retrogrado e anterogrado.

5. Bipolar Plasma TURP Of A Large Volume Prostate: The White Resection

Alessandro Marano[1], Gianmartin Cito[1], Valeria Santoro[1], Cosimo Gentile[1], Stefano Vittorio Impedovo[1], Domenico Antonio Limitone[1], Michele Erinnio[1], Gabriele Alberto Saracino[1], Vito Domenico Ricapito[2]

[1] *Ospedale San Giacomo - ASL BA, UOSVD Urologia (Monopoli)*
[2] *Ospedale Di Venere - ASL BA, UOC Urologia (Bari)*

The video shows the synthesis of a TURP of a prostate with a volume of 180 ml performed using the the latest bipolar plasma edge technology by Lamidey with MCB bipolar generator. TURP remains the gold standard and it is strongly recommended for the treatment of moderate-to-severe LUTS men with prostate size of 30-80 mL. Oversized prostates > 80-100 mL undergo to traditional open prostatectomy or to laser enucleation. The TURP shown in the video is one of a group of 29 patients with prostate larger than 100 ml and up to 260 ml treated by bipolar plasma TURP since November 2018. The approach for those oversized prostate was posterior to remove first the large medium lobe. For the lateral lobes a tunnel between the lobe and the prostate capsule was made to allow a faster and less bleeding resection of each lobe from the lateral to the median part. Average operative time was 78 minutes (range 50-120); mean hospitalization time was 5 days (range 2-13); no patient had TUR syndrome; none required blood trasfusion; no other adverse event were registered. The use of saline solution and the short operative time allow the procedure to be safe also for large size prostate. Larger studies are mandatory to confirm our results.



13 maggio 2023

10:10 - 11:10

sala B

Comunicazioni 4 -
Novità in tema di carcinoma uroteliale

Moderatori: Dario del Biondo, Umberto Di Mauro

Focus on: Risultati Funzionali delle Neovesciche a lungo termine – *Dario Del Biondo*

1. DIAGNOSTIC VALUE OF XPERT® BC DETECTION, BLADDER EPICHECK®, UROVYSION® FISH AND CYTOLOGY IN THE DETECTION OF UPPER URINARY TRACT UROTHELIAL CARCINOMA

Carolina D'Elia[1], Stefan Pycha[2], Emanuela Trenti[1], Christine Schwienbacher[3], Esther Hanspeter[1], Margherita Palermo[4], Armin Pycha[1], Hansjoerg Danuser[2], Christine Mian[3]

[1] *Ospedale Centrale di Bolzano, Dipartimento di Urologia (Bolzano)*
[2] *University of Bern, Faculty of Medicine (Bern)*
[3] *Ospedale Centrale di Bolzano, Dipartimento di Patologia (Bolzano)*
[4] *Latvia University, Faculty of Medicine (Riga)*

Objective

Upper urinary urinary tract tumours (UTUC) account for 5-6% of all UC with an estimated incidence of 2 cases per 100.000 citizen per year (1). Following the current European Association of Urology (EAU) guidelines, diagnosis and staging can be performed with Computed Tomography (CT), urography and flexible ureterorenoscopy (URS) (2). At the moment, no marker is recommended by the EAU guidelines for diagnosis or follow up of UTUC, albeit it would be necessary to avoid a delayed diagnosis. The aim of our study was to evaluate the performance and the clinical utility of the Xpert® bladder cancer (BC) Detection and the Bladder Epicheck® test in the detection of UTUC and compare it with cytology and the Urovysion® FISH test using URS and/or histology as gold standard.

Materials and Methods

After approval of the local institutional ethic committee, 121 analyses were performed in 79 patients (median age 71 years). A total of 97 analyses (80.2%) were evaluable for cytology and all 3 markers and included in the study. Samples were analyzed with UT urinary cytology, Xpert® BC Detection, Bladder Epicheck® and Urovysion® FISH. Patients underwent URS under general anesthesia and, if positive, a UT biopsy.

Results

31 URS resulted positive, with 26 low grade (83.9%) and 5 high grade (16.1%) tumours. Overall sensitivity was 100% for Xpert® BC Detection, 41.9% for cytology, 64.5% for the Bladder Epicheck® test and 87.1% for Urovysion® FISH test. The sensitivity of Xpert® BC Detection was 100% in both, LG and HG tumours, sensitivity of cytology increased from 30.8% in LG to 100% in HG tumours, for Bladder Epicheck® from 57.7% in LG to 100% in HG and of Urovysion® FISH from 84.6% in LG to 100% in HG tumours. Specificity was 4.5% for Xpert® BC Detection, 93.9% for cytology, 78.8% for Bladder Epicheck® and 81.8% for Urovysion® FISH. PPV was 33% for Xpert® BC Detection, 76.5% for cytology, 58.8% for Bladder Epicheck® and 69.2% for Urovysion®. NPV was 100% for Xpert® BC Detection, 77.5% for cytology, 82.5% for Bladder Epicheck® and 93.1% for Urovysion®.

Discussions

The limitation of this study is the low number of patients who had all 4 tests performed at the same time and the monocentric study design. Further multicentric studies with standardized sampling techniques and standardized FISH evaluation would be necessary.

Conclusion

Sensitivity of cytology is low in LG tumours thus having a high specificity. Manipulation during URS seems to decrease the specificity of the Xpert® BC Detection, limiting the usefulness in the diagnosis of UTUC. Bladder Epicheck® shows an acceptable sensitivity and specificity and along with cytology it could be a helpful ancillary method for the detection of UTUC and useful in the follow up of patients after UTUC. However, Urovysion® seems to remain a good choice of a marker for the detection of UTUC and in the follow up of these patients

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2. STANDARD INTRAVESICAL BACILLUS CALMETTE-GUERIN (BCG) PROTOCOL VERSUS SEQUENTIAL INTRAVESICAL BCG AND DEVICE-ASSISTED CHEMO-HYPERTHERMIA (MITOMYCIN C DELIVERED BY THE COMBAT BRS SYSTEM) FOR HIGH GRADE NON-MUSCLE INVASIVE BLADDER CANCER PATIENTSD

Francesco Chiancone[1], Francesco Persico[1], Anna Rita Amato[2], Clemente Meccariello[1], Maurizio Fedelini[1], Luigi Pucci[1], Maurizio Carrino[1], Paolo Fedelini[1]

[1] *A.O.R.N. A. Cardarelli, UOC Urologia (Napoli)*
[2] *Università Federico II di Napoli, Dipartimento di Medicina e Chirurgia (Napoli)*

Objective

Until January 2021, in response to the Bacillus Calmette-Guerin (BCG) shortage, we modified our adjuvant intravesical regimen for high grade (HG) non-muscle invasive bladder cancer (NMIBC) patients who experienced low grade adverse events (like shiver and facial swelling) during the first two doses of BCG (1). The aim of this study was to analyze the oncological outcomes and complications of six BCG instillations versus a protocol of sequential intravesical BCG and device-assisted chemo-hyperthermia (C-HT) treatment (2). Mitomycin C was delivered by the COMBAT BRS system.

Materials and Methods

We compared 36 patients (Group A) whose underwent six BCG instillations and 24 patients (Group B) whose underwent the sequential therapy (BCG, BCG, C-HT, C-HT, C-HT, BCG) from January 2021 to June 2022. Six weeks later, a control cystoscopy was performed. All patients with no evidence of disease at the follow up cystoscopy received a maintenance treatment with C-HT for three months and a subsequent cystoscopy after six weeks. All data were recorded in a prospectively maintained database and retrospectively examined. Yates's chisquared ($\chi 2$) and Student's t-tests were used to compare the statistical significance of differences in proportions and means, respectively. Statistical analyses were performed using SPSS V23.0 (Armonk, NY: IBM Corp.), defining statistical significance at $p < 0.05$.

Results

There were no significant differences in the demographics and baseline characteristics among the groups (age, BMI, ECOG performance status, gender, smoking status, diabetes, number of tumors, tumor size, recurrence rate, pathologic state, concomitant CIS, tumor on second TURB, prior history of UTUC, previously treated with MMC, BCG failure group; $p>0.05$). No significant differences were found in recurrence (9/36 group A vs 4/24 group B; $p=0.6543$) and progression (2/36 group A vs 1/24 group B; $p=0.7168$) rates after induction course between Group A and B (Table 2). No significant differences were found in recurrence (2/27 group A vs 1/20 group B; $p=0.7875$) and progression (1/27 group A vs 1/20 group B; $p=0.6079$) rates after first maintenance course with C-HT. Low-grade adverse events (grade I-II bladder spams and frequency/urgency) occurred in 3 out 36 patients in group A and in 2 out 24 in group B ($p=0.6336$).

Discussions

As a result of internalization and presentation of BCG, secretion of cytokines and chemokines, adverse effects may occur (3). Local and systemic complications include fever, malaise, bladder irritation (urination frequency, dysuria, or mild hematuria), granulomatous prostatitis, testicular abscess, pyelonephritis, spondylodiscitis, pneumonitis etc. (1). Fever is suggestive of immune system activation and is associated with a more favorable antitumor response. C-HT can be considered a viable alternative for treatment in BCG failure or intolerant HG-NMIBC patients, avoiding or postponing radical cystectomy in some particular subclasses of patients (4), showing a low number of adverse events (5). C-HT induce immunogenic cell death (ICD), resulting in increased immunity. It is possible that CHT induces ICD or activates the immune system through heat shock proteins or other factors. Hyperthermia has an important impact on the immune system resulting in augmented activation of NK cells that destroy heat-stressed cancer cells. Moreover, thermotherapy induces heat shock proteins expression on the cancer cell surface. In fact, post-treatment NLR (neutrophil-to-lymphocyte ratio) can be considered a biomarker for response to the induction course of CHT (6). Sequence treatment could, therefore, benefit from immune system activation by a dual mechanism. The sequential treatment (BCG+C-HT) showed similar recurrence and progression outcomes compared to BCG conventional course.

Conclusion

Our preliminary data in the BCG+ C-HT sequence group show promising results in terms of efficacy and safety potentially representing a viable alternative HG-NMIBC treatment.

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3. A Study Of The Immunohistochemical Profile Of Muscle-Invasive Bladder Cancer (Mibc): A Single Center Experience

Francesco Ziglioli[1], Davide Campobasso[2], Antonio Barbieri[1], Annalisa Patera[1], Nicoletta Campanini[3], Elena Thai[3], Giulio Guarino[1], Livia Ruffini[4], Michele Slawitz[1], Michelangelo Larosa[5], Enrico Maria Silini[3], Umberto Vittorio Maestroni[1]

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[4] *Azienda Ospedaliero-Universitaria di Parma, Dipartimento di Medicina Nucleare (Parma)*
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Objective

Bladder cancer is the 7th most common cancer in males and the 10th when both genders are considered, with an incidence of 9.5 for men and 2.4 for women, and an overall mortality rate of 100,000 persons/year, worldwide (1). All muscle-invasive bladder cancer (MIBC) cases are high-grade urothelial cancers; therefore, no prognostic information can be derived from grading. Conversely, other morphologic features of MIBC may provide useful information for treatment decisions. In the last decade, interest has arisen around genetic profiling of MIBC. It has been suggested that MIBC can be divided into two basic molecular subtypes, referred to as luminal and basal, with distinct clinical behaviors and probalbly distict sensitivities to therapy. Additional MIBC subtypes can be distinguished based on genes and/or antigen profiles. While luminal tumors are typically papillary, low-grade and low stage, and with favorable prognosis, basal tumors are high-grade at presentation, encompass aggressive variants, and their prognosis is generally unfavorable (2). In this study, we performed MIBC profiling using a simple immunohistochemical algorithm on a large, consecutive series of MIBC. We aimed to describe the distribution of subtypes in our series and to validate the use of trans-urethral resection (TUR-B) specimens for typing.

Materials and Methods

We considered 353 cases of highgrade muscle-invasive bladder carcinoma. The markers of differentiation GATA3, CK5/6, FOXA1, CK14, as well as other markers, such as p16, CCD1, EPCAM, VIM, p53, HER2/neu, were tested in order to identify

different tumor variants. In a subgroup of 85 patients, the concordance between TUR-B specimens and cystectomy was evaluated on paired samples. Immunostaining was performed on either Tissue Microarray (TMA) or whole histological sections and the different phenotypes of MIBC were defined according to the Lund classification. Variables were compared by chi-square and T-student tests and accuracy measures for tumor type assessment in TUR-B samples were calculated.

Results

The distribution of tumor phenotypes over the entire series was: 122 cases (34.56%) urothelial-like (URO), 63 (17.8%) genomically unstable (GU), 52 (14.7%) not otherwise specifiable (NAS), 69 (19.55%) basal, 17 (4.81%) mesenchymal-like (Mes-like), 14 (3.97%) neuroendocrine-like (NE-like), 2 Mes-like and NE-like cases, and 14 (3.97%) null phenotype (NULL). Firstlevel (GATA3 and CK5/6) and second-level (FOXA1 and CK14) luminal and basal markers significantly segregated from each other (p=0.0001). The luminal URO and GU phenotypes had mutually exclusive expression of CCD1 and p16 (p=0.0001). Luminal phenotypes were characterized by usual histotype (138/174 URO-NAS cases, 79.31%; 50/63 GU cases, 70.36%) and reduced stromal lymphocyte infiltration (stromal TILs). In contrast, basal and NULL phenotypes were associated with variant histotypes (41 basal cases, 34.6%; 36 NULL cases, 88.2%) and increased lymphocyte infiltration (p<0.001). There were no differences in the distribution of phenotypes by sex, age, and stage. The paired cases and general series were comparable except for male sex which was more represented among paired cases (p=0.0001). Paired samples (TURV and cystectomy) showed a concordant tumor phenotype in 80 cases (94.12%) and discordant in the remaining 5 cases (5.88%).

Discussions

The current study shows that bladder cancer can be reliably classified into two molecular subtypes referred to as luminal and basal using simple immunohistochemical profiles. The first-level markers, GATA3 and CK5/6, were very effective for the distinction of these two subtypes. Second-level markers, like FOXA1 and CK14, can be used for phenotype assignment in case of uncertainty in the interpretation of first-level markers. TMA and whole slide stains did not affect the distribution of tumor phenotypes, thus validating the use of TMA in this setting. In addition to standard markers of differentiation, other tissue markers (p16, CCD1, VIM, EPCAM, p53 and HER2) allowed further tumor stratification in luminal URO, NAS, GU, basal, Mes-like, NE-like and NULL tumor types. Noteworthy, some of these molecules might represent possible targets for novel targeted therapies as well as for the building of molecular driven prognostic factors, which may shed lighter in the management of patients diagnosed with invasive cancer of the bladder (3). URO-NAS and GU phenotypes were characterized by a “usual” morphology and low lymphocytic infiltrate. On the other hand, basal bladder cancers were dominated by ‘variant’ morphology and high TILs. These data confirm previous observations indicating a correlation between basal markers and aggressive variant histotypes. The possibility to reliably assign a specific phenotype based on TUR-B specimen prior to cystectomy may be of the utmost importance in the decision-making process as regard to the possible administration of tumor-specific neo-adjuvant therapies. Although molecular profiling of MIBC has failed to show clinical advantages so far, retrospective data on the different subtypes and biomarkers are promising as to the development of targeted molecular therapies.

Conclusion

MIBC classification can be reliably performed on routine pathological samples using a simple immunoihistochemical algorithm on both TUR-B and cystectomy specimens. Genomic and immunohistochemical characterization may provide valuable insight into biological behavior of MIBC. More specifically, basal and luminal subtypes show distinct clinico-pathological features and probably different responses to neoadjuvant or adjuvant chemotherapy, which may change the pre- and post- operative management of this disease.

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4. Single-Session Laparoscopic Cystectomy And Nephroureterectomy: Is It Real And Useful Choice Of Treatment Or Fiction?

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Objective

Urothelial cancer is the fourth most common malignancy in developed countries, affecting more frequently the urinary bladder and in only 5–10% of cases the upper urinary tract [1]. Furthermore, an association between these two cancers was found in the 17% of cases [2]. Open radical cystectomy is still considered the gold standard treatment for muscle-invasive or high risk and recurrent non-muscle-invasive bladder tumors, Bacillus Calmette-Guerin (BCG) refractory, relapsing and unresponsive T1G3

tumors [3, 4]. Open radical nephroureterectomy with bladder cuff excision is the standard treatment for high risk upper urinary tract cancer [5]. Simultaneous nephroureterectomy and radical cystectomy can be performed in patients affected by recurrent high grade or muscle-invasive bladder cancer and concomitant upper urinary tract cancer or non-functional kidney [6]. Several studies have shown the advantages of laparoscopic approach (compared with open techniques), especially when performed by experienced surgeons. These advantages include: fewer intraoperative and postoperative complications, decreased intraoperative blood loss, less need of analgesics, shorter hospital stay and earlier recovery [7–9], having at the same time functional and oncological results similar to those of open surgery [10, 11]. We report our experience with simultaneous laparoscopic radical cystectomy and nephroureterectomy in three patients.

Materials and Methods

Three male patient (aged between 65 and 75 years) affected by recurrent polyfocal high grade or muscle-invasive bladder cancer and an associated renal pathology (in one case right renal pelvis carcinoma of 16 mm in diameter on CT scan while in other cases while in the other two cases neoplastic involvement of the left distal ureter extending up to the middle tract, with concomitant hydronephrosis) underwent simultaneous radical cystectomy and nephroureterectomy performed by laparoscopic approach. According to the pre-operative imaging study, the two tumors were organ-confined. The Clavien–Dindo classification was used to evaluate post-operative complications. We performed laparoscopic transperitoneal approach, using the trocars arrangement shown in the figure. After positioning a catheter into the bladder, the patient was first placed in lateral (right or left) decubitus for the nephroureterectomy. After inducing pneumoperitoneum using a Verres needle, a 12-mm trocar (used as the camera port and indicated in the figure as 'X') was placed 2 cm laterally to the right or the left of the umbilicus (based on the kidney to be removed). The other two 12-mm trocars were placed in line, in the right or left pararectal area. During this surgical procedure the renal artery and the renal vein were identified, clamped with Hem-o-lock clips and sectioned between. A perifascial dissection of the kidney was performed, preserving the adrenal gland. For the next step of the surgery, radical cystectomy and bilateral pelvic lymph node dissection, the patient was positioned in dorsal decubitus, in a Trendelenburg position. The camera trocar was the same as for the right or left nephroureterectomy. Three other trocars (two 5- mm and one 12-m trocars) were placed in addition. The 12-mm trocar was placed, inferior to the umbilicus, in the left pararectal area whereas the two 5-mm trocars were placed in the left and right lower quadrant, proximal to the anterior–superior iliac spine. For bladder dissection, its vascular peduncles were secured with mechanical stapler and divided. In this way, the lateral plane was dissected, bilaterally. Finally, the urethra was divided distal from the prostatic apex using cold scissors. The pelvic lymphadenectomy was performed around the iliac vessels and obturatory fossa bilaterally. Two tubular drains were used, one in the right or left renal lodge and the other in the pelvic cavity. Urinary diversion as a unilateral ureterocutaneostomy was constructed by pulling the left or the right ureter through the hand port incision (specifically using the 12-mm trocar on the left or right side). The ureter was catheterized with a mono J stent. All specimens were placed in an endobag, removed through a midline incision and sent to the pathological examination. The operative field was inspected for bleeding or injury.

Results

Regarding perioperative data, we used six trocars and, in all three patients, the mean operative time was almost 4 hours, with blood loss (mL) less than 1000 mL. Regarding intraoperative data, in one patient the hospital stay (days) was 13 days but in two other patients it was less than 10 days. The surgical margins were free of tumor and the follow-up period was 16 months. As regards the pathological stages, one patient was affected by T1G3 bladder cancer while in two other cases the bladder tumor was infiltrated in the muscle (T2G3). In all patients the tumor of the upper urinary tract (affecting the renal pelvis in one patient while the ureter in the remaining cases) presented this pathological stage: T1G3. In all cases the pathological examination did not reveal any pelvic lymph nodes affected by neoplasia. After discharge, the patients returned to their normal activities without limitations after 3 weeks. More than a year after surgery, the patients are still alive, showing no tumor relapse of at the established instrumental controls.

Discussions

We successfully performed laparoscopic radical nephroureterectomy and cystectomy with pelvic lymph node dissection in a single-session, without the need for conversion to open surgery. According to literature data, minimally invasive surgery can minimize the complications and improve the recovery [7–9]. Performing a similar surgery with a laparoscopic approach is very demanding. To have oncological safety, intraoperatively, particular attention must be paid to avoid tumor leakage. In addition, the sample must be extracted en bloc immediately into an endobag, with the bladder neck closed to avoid contact of the urine with the abdominal cavity. Another important oncological aspect is the extent of lymphadenectomy. According to literature data, extended lymph node dissection during radical cystectomy is possible even when a minimally invasive approach is chosen [12]. We removed more than 20 lymph nodes in all three cases. Several studies showed that the oncological safety of a laparoscopic approach is similar to that of open surgery [10, 11]. Although an open surgery including nephroureterectomy and radical cystectomy involve one large midline incision with greater morbidity and longer convalescence, the laparoscopic approach implicates very small trocar incisions and an incision of 4–5 cm to remove the specimen. In effect, the specimen can be removed through a small lower midline incision, Pfannenstiel incision or transvaginally in female patients. We preferred a small midline incision for the specimen removal due to the lower risk of evisceration. According to small series, performing in a single session laparoscopic nephroureterectomy and cystectomy is feasible, with good oncological results and early recovery [7–9, 10, 11]. A large-scale prospective study will be necessary to provide more information on this surgery in the future.

Conclusion

In conclusion, the laparoscopic approach is widely spreading in urology and, in some cases, it has become a standard of care. In selected cases, performing in a single-session laparoscopic radical cystectomy and nephroureterectomy is oncologically safe and technically reproducible, offering oncological and functional results similar to those of open surgery. In addition, choosing

a minimally invasive approach, the cosmetic results are better, also with faster post-operative recovery and lower bleeding rates.

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5. "BORDEAUX NEOBLADDER": First Evaluation Of The Urodynamic Outcomes

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Objective

The intracorporeal orthotopic Y-modified "Bordeaux" neobladder (iYNB) was first described in 2016. No urodynamic evaluation of this neobladder has been performed yet. To present the urodynamic features of the iYNB and incontinence specific health-related quality-of-life (HRQoL) outcomes.

Materials and Methods

We prospectively assessed 26 patients operated between September 2018-November 2020. Robotic radical cystectomy (RARC) for malignant disease of the bladder and iYNB by a single surgeon.

Results

Mean age at surgery was 65.4 years. Mean follow-up was 27 months (12-38). Mean time for the neobladder reconstruction was 192 minutes (110-340). Mean maximum capacity was 431cm3 (range 200-553). The mean post-void residual was 101.6 ml (0-310) and the rate of clean intermittent catheterization was 17.6%. With the exception of a significant reduction in the volume of the first sensation of bladder fullness, no other statistically significant changes in the UDS parameters of both the storage and voiding phase were observed over time. Daytime and nighttime continence rate was 58.8% and 23.5%. Mean postoperative I-QoL score was 103.3 (89-110). Limitations include the small number of patients and short follow-up.

Discussions

Three months after surgery and in November 2021, consenting patients underwent clinical evaluation and multichannel urodynamics (UDS). The incontinence quality of life (I-QoL) questionnaire was used to evaluate HRQoL. Continence was classified into daytime and nighttime and clinically defined as the use of zero pads. A descriptive statistical analysis was performed.

Conclusion

The UDS evaluation of iYNB demonstrates that both the volumetric and pressure characteristics are acceptable and may enhance QoL. Prospective studies with larger numbers of patients and longer follow-up are needed to further evaluate the iYNB. Patient Summary: The "Bordeaux" neobladder provides acceptable urodynamic outcomes. It is associated to high levels of health-related QoL and good rates of continent patients

6. Evaluation Of Perioperative Outcomes And Complications Of Patients Undergoing Radical Cystectomy With Intracorporeal Reconstruction For Bladder Cancer Following A New Enhanced Recovery After Surgery (ERAS) Protocol

Erika Palagonia[1], Benedetta Bianchi[1], Annalisa Mantella[1], Marilena Gubbiotti[1], Antonio Palumbo[1], Saba Khorrami[1], Michele De Angelis[1], Filippo Annino[1]

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Objective

Enhanced recovery after surgery (ERAS) concepts are implemented in various surgical disciplines to improve morbidity, enhance recovery, and reduce hospital stays. To describe our new ERAS protocol used in patients (pts) who underwent robotic radical cystectomy (RARC) with intracorporeal ileal conduit (IIC) or ileal intracorporeal neobladder (NB) reconstructions for bladder cancer. First evaluation after 5 years of RARC in a high volume referred center.

Materials and Methods

86 RARC with intracorporeal reconstruction were performed in our centre from 2016 to July 2022, of these 52 pts were IIC and 34 were ileal NB reconstruction. All the procedures were performed by the same surgeon. All the pts were selected for our new ERAS protocol. The protocol consists of a preoperative counseling and education of patients and caregivers with optimization of medical and nutrition conditions with use of immunostimulant. The day before surgery the pt starts antithrombic prophylaxis with enoxaparine 4000 UI 1 fl administered postoperatively following EAU guidelines. Antibiotics prophylaxis with piperacillin plus tazobactam starts the day before surgery and then for 48h. To create loading carbohydrate the pt takes 800 ml of maltodextrin the evening before and 200 ml the morning of surgery. After the procedure the nasogastric tube (NGT) is removed and support therapy consists in metoclopramide 3 times day for three days, paracetamol 1 gr 3 times days for 48 hours and 2000 ml of normal saline for 1 day. We normally encourage mobilization the first postoperative day and then progressively day by day, we suggest use of chewing gum during the day. Oral nutrition can start with soft food the 2nd day after surgery, increasing progressively. We analyzed perioperative surgical, functional outcomes and complications.

Results

Median age was 70,3 yrs (range 49-87). Mean BMI was 27 (range 19-40). Mean follow-up was 6 months. The median operative time was 332 (range 185-546 min). The median length of hospital stay was 10,6 (range 5-27). In 8 (6,9%) pts NGT was repositioned after 48 hours from surgery because of nausea and vomit and in 9 pts (7,7%) was removed some days after surgery. Mean bowel canalization was 2 days, mean stool canalization was 5 days later. 22 pts (18,9%) developed complications clavien dindo (CD) <2 (10 anemizations, 10 urinary infection or sepsis, 2 TEP, 1 lymphocele, 1 urinoma) and in 2 cases (1,7%) CD>3b, one reintervention for abdominal occlusion and one for laparocele.

Conclusion

These initial results show that a careful nutritional evaluation and a progressive rehabilitation are fundamental for the rapid recovery of bowel canalization in case of RARC with intracorporeal ileal reconstructions. This first analysis of our new ERAS protocol shows promising results, a multidisciplinary approach with nutritionist and physiotherapist can improve the recovery of the canalization after surgery.

13 maggio 2023

11:30 - 12:30

sala B

Comunicazioni 5 -
Facciamo i "calcoli"

Moderatori: Letterio D'Arrigo, Ferdinando De Marco

Focus on: RIRS, ECIRS, URS: cosa ne pensa l'uretere? - *Ferdinando De Marco*

1. Ureteral Iliac Artery Fistula: A Rare But Potentially Life-Threatening Case Of Hematuria

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Objective

The aim of the present study was to report and analyze the management of a series of patients with ureteral-iliac artery fistula (UAF) treated in author's hospitals.

Materials and Methods

We conducted a retrospective analysis of prospectively collected data about three patients of two different high volume public hospitals (San Filippo Neri Hospital of Rome and Cardarelli Hospital of Naples) with UAF. We analyzed patients' characteristics, presenting symptoms, and diagnostic work out. Also, we reviewed treatment and postoperative outcomes.

Results

Our series included 1 men and 2 woman treated in the last two years. First patient was a 83 y.o. male underwent ureteral stenting and emicolectomy with adjuvant abdominal radiotherapy for colic neoplasia. Second patient was a 64 y.o. female underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy followed by pelvic radiatherapy for carcinoma of the cervix. Third patient was a 52 y.o. female underwent radical cistectomy and bilateral ureterocutaneostomy for local advanced bladder cancer followed by pelvic radiotherapy. They all had inaugural and persistent macroscopic haematuria. Initially, a clear evidence of a fistula was not possible – neither through CT scan nor through selective angiography. Definitive diagnosis was obtained only by a provacative maneuver that means mobilizing the ureteral cateter and performing retrograde pielography during ureteroscopy. All patients were succesfully treated with endovascular iliac stenting plus nefrostomy tube.

Discussions

Etiology of UAF includes a variety of medical conditions including previous vascular surgery, pelvic radiation therapy or pelvic surgery, previous urinary diversion, and ureteral stenting [1]. Clinical symptoms can range from refractory microscopic haematuria to severe gross haematuria that can lead to serious anemia. The exact mechanism of the devolopment of UAF is still uncertain, but it seems that the previous conditions (surgery or radiation therapy) can affect the integrity of ureteral vasa vasorum. This results in a weakening of arterial walls with disruption of adventitia and media layers. This condition can lead to ureteral necrosis and formation of a fistula [3]. Mortality rate is very high: up to 64% [1] because the diagnosis is difficult. In approximately one third of the patients with UAF angiography may not reveal abnormal findings [4]. Provocative pielography involving manipulation of ureteral stent during ureteroscopy can show active and detectable bleeding of the fistula [fig.1]. Open surgery has represented the first line treatment [5-6] but nowadays endovascular techniques have proven to be effective and minimally invasive in patients already higly debilitated.

Conclusion

UAF has to be considered a rare but potentially life-threatening condition [2] that requires a high index of suspicion for prompt diagnosis in patients with heamaturia. Our series highlight the need of a multidisciplinary approach (urologist, radiologist, and vascular surgeons) for a succesfull managment of this challenging condition.

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2. Treatment Of Long Ureteric Strictures With Free Peritoneal Graft: Long-Term Results

Emanuela Trenti[1], Salvatore Palermo[1], Carolina D'Elia[1], Evi Comploj[1], Christian Ladurner[1], Christoph Gamper[2], Stefan Pycha[1], Margherita Palermo[3], Armin Pycha[1]

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Objective

The ureteral strictures and defects represent one of the most serious reconstructive challenges for urologists, especially in case of very long lesions of proximal ureter and in case of involvement of middle ureter. When these lesions cannot be treated with end-to-end anastomosis, they might require more advanced surgical techniques like bowel replacement, trans-uretero-uretero-stomy or auto transplantation of the kidney. These procedures need high technical competence and are associated with high rates of complications and long-term morbidity [1,2,3,4]. The aim of the study is to describe a new technique of complex ureteral reconstruction using a free peritoneal graft

Materials and Methods

Between 2006 and 2021 we treated 11 patients with long complex ureteral strictures involving the middle ureter in 9 cases and the proximal ureter in 2 cases. Stricture length ranged from 3 to 12 cm (mean 7 cm). Three cases were secondary to retroperitoneal fibrosis after vascular surgery in 2 cases and to Ormond disease in 1 case; 4 cases followed an extensive resection for large intra-ureteral masses, 3 cases were secondary to repeated endoscopic procedures for urinary stones and 1 case followed repeated pyeloplasty. After a longitudinal ureteral incision, a free peritoneal flap was harvested from nearby healthy peritoneum and fixed as an onlay-patch with running suture to the remaining ureteral plate after placement of a ureteral catheter. The ureter was finally wrapped with omentum

Results

Follow-up has ranged from 12 to 122 months (mean 61.6 months). Seven patients were free from recurrence after 12, 18, 60, 78, 98, 99 and 122 months (mean 69.5 months), without dilatation of the upper urinary tract and normal renal function. Four patients had a recurrence: in 1 patient the recurrence was detected after 60 months without symptoms and with mild hydronephrosis with no need for surgery. In 1 patient with Ormond disease, the recurrence occurred 6 months after the procedure without symptoms with involvement of the distal part of the 10 cm of treated ureter: a resection of the stenotic segment with psoas-hitch was performed. In the 2 other patients an obstruction below the reconstructed segment with hydronephrosis occurred 3 and 6 months after the procedure without impairment of renal function. No further surgery was performed in these patients.

Discussions

The limitation of this study is the small sample series, due to the high selective indications.

Conclusion

This technique allows the preservation of any remaining vascular supply of the ureter and can be a feasible and useful alternative to nephrectomy, ileal ureter, uretero-uretero-stomy and auto-transplantation in highly selected cases.

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3. Same-Session Retrograde Intrarenal Surgery For Kidney Stones In The Modern Era. An Analysis Of 1250 Patients Treated In A Real-Life Setting

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Objective

Urolithiasis represents one the most frequent urologic pathologies in general population, with an estimated incidence risk of stone formation estimated around 11% in males and 7% in females (1,2). Consequently, the incidence of the newly diagnosed bilateral stone disease is estimated in up to 15% of patients with new onset urolithiasis according to recent studies (3). Recent technological advances in endourology have led to an implementation of indications to retrograde intrarenal surgery (RIRS), which is become the preferred methodic for treatment of renal stones, with higher stone-free rate (SFR) compared to shock-wave lithotripsy (SWL) (4). Recent literature points out the feasibility of single-session bilateral simultaneous endoscopic treatment (SBES) by means of contemporary supine percutaneous nephrolithotomy (PCNL) and RIRS. Aim of this study is to provide the results of a wide multicentric casistic of bilateral endoscopic stone treatment by means of single-session bilateral RIRS.

Materials and Methods

A retrospective analysis of all consecutive patients who had RIRS for stones between January 2015 and June 2022 in 21 international centers was performed. Inclusion criteria were age ≥18 years, stone(s) of any size and location located in both kidneys and deemed suitable for RIRS, surgery performed surgery in both sides. Exclusion criteria were pediatric cases, concomitant ureteral lithotripsy, RIRS done as a combined procedure for endoscopic combined intrarenal surgery, and surgery performed solely on one side. Stone size was calculated on the largest diameter. In the case of multiple stones, data from the largest stone were gathered. Lithotripsy was carried out either by HL (low-power ≤30W; high-power >30W) or TFL. Surgical time was estimated as the time from the start of cystoscopy to the placement of a bladder catheter. SFR was assessed 3 months after surgery according to the local standard of care with KUB X-Ray and/or ultrasound or non-contrast CT scan and was defined as absence of any RF ≤2 mm.

Results

During the study period, 1250 patients meet the inclusion criteria and were included in the analysis. There were 844 (67.5%) males. Median age was 48.0 (36-61) years. Pain was the most common symptom at presentation (59.8%) followed by hematuria and pain (22.5%). Roughly half of the patients (46.2%) were recurrent stone formers. More than half of the patients were presented (58.2%, bilaterally in 21.7%, and unilaterally in 36.5%). The most common reason for pre-stenting was routine practice (32.2%) followed by symptoms (28.5%). Pre-stenting lasted more than 14 days in 61.2% of patients. Most of the patients (94.7%) had normal bilateral renal/collecting systems. Median stone diameter was 10 mm on both sides and the pelvis was the most common stone location in both kidneys. Multiple stones were present in 45.3% and 47.9% of left and right kidneys, respectively. Antibiotic prophylaxis was administered in 84% of cases. General anesthesia was performed in 1118 (89.4%) of patients. Multiple surgeons were involved in 204 (16.3%) procedures. Only 98 cases (7.8%) were performed sheathless, whereas the most common outer diameter of UAS was 12 Fr (29.8%). UAS was employed bilaterally in most of the cases (72.6%). A reusable ureteroscope was used in 56.9% of cases. Low-power HL was used in 41.4% of cases, followed by high-power HL (33.2%) and TFL (24.4%). A combination of techniques was the most common lithotripsy mode (71%). Surgery was stopped in only 85 (6.8%) cases and the most common reason was prolonged operation time (58.8%) followed by concern for sepsis (43.5%). Most patients had a stent positioned after RIRS (97.3%, bilaterally in 58.4%) mainly as a routine practice (86.2%). Median X-ray time was 78.0 (48-120) seconds. Median surgical time was 75.0 (55-90) minutes. On table, bilateral SFR was 64.1%. Regarding early postoperative complications, 134 (10.7%) patients had transient fever (Clavien 1), 69 (5.5%), fever/infection needing prolonged stay (Clavien 2), 25 (2%) sepsis

requiring intensive care admission (Clavien 4b) and 16 (1.3%) required a blood transfusion (Clavien 2). Median hospital stay was 2 (1-2) days, whilst 241 (14.3%) patients were discharged within 24 hours of surgery. Analysis was available in 1045 stones and the most common composition was calcium oxalate monohydrate (45.8%) followed by calcium oxalate dihydrate (29.8%). At 3-months follow-up, bilateral SFR was 73.0%, whereas unilateral SFR was 17.4%. Female (OR 2.99 95% CI 1.18-7.55, p=0.02), kidneys anomalies (OR 5.3 95% CI 1.76-15.97, p<0.01) and surgical time (OR 1.02 95% CI 1.01-1.03, p<0.01) were factors associated with sepsis at multivariable analysis. Female (OR 1.81 95% CI 1.31-2.50, p<0.001), bilateral pre-stenting (OR 3.15 95% CI 1.16-8.56), p=0.03), use of high-power HL (OR 1.64 95% CI 1.16-2.33, p<0.01) and TFL (OR 3.40 95% CI 1.84-6.29, p<0.001) were predictors of bilateral SFR at multivariable analysis, whereas age (OR 0.98 95% CI 0.97-0.99, p<0.001), stone size (OR 0.95 95% CI 0.92-0.98, p<0.01 in left kidney; OR 0.96 95% CI 0.92-0.98, p<0.01 in right kidney) and surgical time (OR 0.99 95% CI 0.98-0.99, p<0.001) were less likely associated with SFR.

Discussions

This is the first wide casistic of same session bilateral RIRS presented in Literature. All cases were performed in high-volume stone centers. As showed from intraoperative data, the procedure was feasible in the most part of cases and was interrupted in case of prolonged surgical time to minimize the risk of sepsis. The complication rate is comparable to wide series of single site ureteroscopies, also in terms of postoperative sepsis. According to multivariate analysis, better results in terms of SFR were achieved with new generations HL or TFL, demonstrating how much this procedure can be enhanced with new technologies (digital flexible URS, lasers, ureteral access sheath).

Conclusion

Single-session bilateral RIRS represent a feasible treatment option for medium-sized bilateral renal stones in high-volume centers. Proper selection of patients and surgical expertise, extending surgery on the second side only when the first side was uneventful, are the key point to ensure a complete safety of the procedure. Those results should encourage a widespread adoption of this approach.

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4. Is There A Relationship Between Metabolic Syndrome And Ureteral Wall Thickness In Predicting The Spontaneous Passage Of Dmax < 5mm Ureteral Lithiasis? Results From A 5-Years Monocentric Retrospective Cohort

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Objective

As described in many papers, metabolic syndrome is associated with a marked immune activation and the increased release of inflammatory mediators. These processes promote a low-grade chronic inflammatory state, silent and persistent over time. In presence of ureteral lithiasis, the ureteral wall could undergo changes related to an inflammatory state developing in an increasing of its thickness. Aim to our study is to evaluate if metabolic syndrome and ureteral wall thickness are predicting factor of "non spontaneous passage" of ureteral stones.

Materials and Methods

From January 2017 to February 2022, all patients hospitalized in our centre for renal colic due to ureteral stones were retrospectively collected. Among these patients, we have excluded all patients who needed immediate stenting/urs for urosepsis(fever> 38.0 ° C or hypothermia <36.0 ° C, tachycardia> 90 beats/ minute, tachypnoea> 20 breaths/minute, leucocytosis> 12 000 /l or leukopenia <4000/l), uretheral lithiasis Dmax >5mm, patients with AKI for bilateral stones or solitary kidney stones. We assessed the following parameters for each patient and divided them into the following categories: Metabolic Syndrome(Y/N), ureteral wall thickness(<2mm/≥2mm), c-reactive protein (<100/≥ 100). We have also created crosstabs for all the parameters considered for evaluation of "spontaneous stone passage" (yes/no). Logistic regression analysis was used to assess the association between spontaneous lithiasis passage, and all parameters evaluated. We assumed p <0.05 as statistical significance value

Results

A total of 645 patients were enrolled in the study. After applying the exclusion criteria, we have created a cohort of 336 patients admitted to our division .Main characteristics of the cohort were described in Table 1. Metabolic Syndrome was found in 117 pts, ureteral wall thickness ≥2mm in 174 pts. At the logistic regression analysis for spontaneous lithiasis passage presence of metabolic syndrome (OR 3.64 CI 95% 1.53-8.66 p = 0.006) , an ureteral wall thickness ≥2mm (OR 5.31 CI95% 1.26-22.44 p = 0.023) were positively associated with non spontaneous stone passage. Elevated values of C-reactive proteine (OR 1.99 p = 0.40)

was otherwise not positively associated.

Conclusion

Metabolic syndrome is currently one of the most common conditions in western population. The proinflammatory state, characterizing the syndrome, in presence of ureteral lithiasis can manifest itself as an increasing thickness of the ureteral wall and therefore lead to not spontaneous passage. Therefore, in patients with metabolic syndrome, ureteroscopy or ureteral stenting should be performed immediately.

5. Treatment Of 2-4 Cm Kidney Stones In Multicenter Experience. Comparison Of Safety, Efficacy And Costs Of Percutaneous Nephrolithotomy (PCNL) And Retrograde Intrarenal Surgery (RIRS)

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Objective

Objective of this study is to compare the safety and efficacy, through the stone free rate (SFR), as well as the costs between RIRS and PCNL, for > 2 cm kidney stones or multiple kidney stones.

Materials and Methods

In our study we analyzed the data relating to RIRS and PCNL performed in 3 reference centers for kidney stones, in the period between 1/2019 and 12/2021. 130 cases (63 RIRS and 67 PCNL) encompassing 2-4 cm or multiple (for example 2/3 stones of 15 mm each) kidney stones have been treated. Age, performance status through Charlson score, number of stones, duration of procedures, intra and postoperative complications, side treated, location of the stone (upper, middle, lower calyx or renal pelvis). For PCNL, the patient's position was analyzed (Valdivia VS prone position), puncture mode for renal access (radio or ultrasound-guided), diameter of nephroscopy sheat and and energy used for lithotripsy. For all RIRS the laser was the energy used in lithotripsy, with 220 and 365 µm fibers. Duration was considered for all surgical procedures. The intra and postoperative complications were considered and classified according to the Clavien score. The days of hospitalization were considered and, finally, the stone free rate (SFR), defined in our work as the absence of lithiasic fragments or <3 mm. We compared all these parameters looking for similarities and differences between PNCL and RIRS, considering that the surgeons were experienced in the procedures (> 50 procedures each). We looked for statistically significant differences through the Student's t test. We also included an important discussion, considering data in the literature comparing RIRS and PNCL, then drawing conclusions. All the results were compared considering two groups: 2-3 cm and 3-4 cm stones.

Results

We have treated 130 patients, 63 with RIRS and 67 with PCNL . The median value for age is 56 (σ: 12.81). 98% of the procedures were unilateral. Only 3 procedures were bilateral with RIRS, and all three were partial with duration > 2 h. In 72 procedures (55%) the kidney stones were multiple or staghorn calculi. The median value of the maximum diameter of the single stones, therefore also considering the multiple stones, was 20 mm (σ: 7.00). 44 patients (33.8%) had stones exclusively in the renal pelvis , 73 patients (56.2%) exclusively within a renal calyx (mainly the lower calyx), and 13 patients (10 %) with the involvement of several districts. In over 85% of PCNL procedures the sheath diameter was 22-24 F. In a few selected cases, with complex staghorn stones, the 30 F sheat was used. In all RIRS, except for two procedures, the diameter used for the ureteral sheat was 11-13 F. We created two groups to analyze the results: 2-3 cm and 3-4 cm stones, group 1 and group 2 respectively. The median value for duration of RIRS was 90 and 115 minuts for group 1 and 2 respectively. The median value for duration of PCNL was 135 and 145 minuts for group 1 and 2, respectively. The difference in duration between RIRS and PCNL was statistically significant in group 1 (p: 0.000014). In PCNLs, for 22.2% of procedures was used exclusively the ultrasonic energy. In the other procedures the energy was used in hybrid mode (e.g. ultrasonic + pneumatic; ultrasonic + holmium laser). In RIRS the lithotripsy of stones was obtained by laser energy, both with dusting and fragmented, depending on the operator's choicedusted, fragmented, through 200-365 µm fibers. There were no intraoperative complications in RIRS, although the procedures did not last longer than 2 h, so in some cases the stone lithotripsy was partial. 5 patients had fever (Clavien 1) which required an extension of the hospital stay. The median value for hospital stay was 2 days for RIRS (σ: 1.66). For PCNL 3 patients had intraoperative bleeding which required discontinuation of procedure. 4 patients had fever (Clavien 1) 4 patients had post-operative anemization, which required blood transfusion (Clavien 2), 1 patient required arterial embolization and 1 patient had the renal pelvis injury requiring placement of ureteral stenting and retroperitoneal drainage (both Clavien 3). The difference in postoperative complications shows a statistically significant difference, but with low relevance (p: 0.011). The median value for hospital stay was 5 days for PCNL (σ: 4.2). The SFR for RIRS was 78 % and 21% for group 1 and 2, respectively. The SFR for PCNL was 92% and 81% for group 1 and 2 respectively. Therefore there is a statistically significant difference, even more evident for > 3 cm and multiple stones (p: 0.0057 for group 1 and p: 0.000146 for group 2). The difference in costs was estimated by calculating the expected costs for the single surgical procedure (€ 1700 for RIRS and € 4300 for PCNL) and estimated cost per day for ordinary hospitalization (€ 709,23). Whereas the median hospital stay was 2 days for RIRS and 6 for PCNL, we can estimate a total cost of € 3.118,46 for RIRS and €

8.555,38 for RIRS. By calculating a difference in costs on 100 procedures, obviously excluding the costs due to prolonged hospitalization due to complications, we can deduce that the estimated costs € 311.846 for 100 RIRS are and € 855.538 for 100 PCNL.

Discussions

PCNL is the first choice in the management of large stones, but serious life threatening complications can be seen 7. PCNL may not be suitable in patients with obesity, bleeding disorders and anatomic anomalies complicating percutaneous access 8 9. However, in a systematic review and network meta-analysis of Doo Yong Chung et al, PCNL showed the highest success and stone-free rate in the surgical treatment of renal stones 10. In our study we compared PCNL and RIRS by analyzing the effectiveness through the stone free rate, and also the complication rate and the costs to perform the procedures and hospital stays. It's evident, also from the data present in the literature, that for stones> 2 cm or multiple PCNL seems to be the most effective treatment. However, RIRS is a safe method and has less complications and hospitalization time 11. Post-operative complications of our study, in agreement with the data in literature, were significantly fewer in the RIRS, especially the need for blood transfusions. So RIRS has a high efficiency for the management of intrarenal stones with a slight complication to patients 12 13. Another parameter to consider is the expertise needed for PCNL. It's considered as routine procedure of urologists, but hands-on training for PCNL is still not adequate in most institutions during residency period. Hence, before starting independent practice, a urologist has to spend further 1-2 years in a high volume center to attain expertise in PCNL, to improve and modify skills of the procedure to reduce the likelihood of adverse outcomes 14. Even for the most experienced urologist, complications can occur; up to 7% of patients undergoing PCNL suffer a major complication, and minor complications may be encountered in up to 25% of patients 15. Although RIRS are safe and effective procedures (less for large stones), the need for re-treatment is greater than PCNL. One of the risks of a new treatment is the development ureteral stricture. It's one of the more serious complications that may occur after ureteroscopy. Approximately two decades ago, the reported incidence of ureteral stricture after ureteroscopy was as high as 10%. More recently, however, the incidence of a postoperative stricture is reported to be 3% to 6% 16. The choice between RIRS and PCNL is based on several features. First of all, the anatomical characteristics: the surgeon must perform the procedure optimizing the effectiveness and reducing the risk of complications. For example, an obese patient and / or an abnormally positioned kidney may make difficult the access of the calyx to perform PCNL. On the other hand, a severe ureteral stenosis, although the stones may seem easily accessible and susceptible to laser lithotripsy, can make retrograde access impossible with RIRS. The patient's comorbidities may also allow for a shift from PCNL to RIRS, for example in patients with chronic renal insufficiency, anemia or solitary kidney. Finally, the choice of the patient, with the awareness of the benefits and risks associated with the procedure. The patient should be informed that, in the case of complex stones (> 3 cm), the effectiveness of RIRS is very low and the risk of reoperation is concrete A further analysis was carried out on the costs of the procedures. A study of So-Young Yang et al is based on the non-retreatment rates (NRRs) and their respective real-world costs for RIRS and ESWL. They were derived through retrospective analysis of health insurance claims data from 2015 to 2017. Decision tree modeling was performed to demonstrate the cost-effectiveness of RIRS. Probabilistic modeling also indicated that the introduction of RIRS as the first line of treatment was least likely to be cost-effective, when compared to other options of introducing RIRS as the second, third, or fourth line of treatment. Conclusion of this study was that performing RIRS as early as possible can be recommended for eligible patients to reduce the overall failure, even if it is not as cost-effective as performing RIRS later 17. In our study we compared the costs of PCNL and RIRS considering mainly surgery and hospitalization, referring to the median values, as described in "Results". This would seem to disadvantage the PCNL with much higher costs. However, considering that many RIRS, especially for stones > 3 cm, need a new treatment, the costs of this would increase. If we consider the costs of a new single treatment we could declare that to perform 100 RIRS, with satisfactory SFR, the real costs would be € 561.322,8 and € 1.026.645,6 for PCNL. Therefore, if from a first analysis the difference in costs on 100 procedures was € 543.692, from a second analysis it appears reduced, that is € 465.322,8. We can therefore conclude that, despite the need for new treatments, RIRS remain cheaper than PCNL.

Conclusion

Treatment of 2-4 cm stones can be safely treated with both RIRS and PCNL, but RIRS should not be chosen as an option for stones> 3 cm, except in selected cases. PCNL remains the gold standard for the treatment of complex stones, especially for stones> 3 cm. The risk of postoperative complications (especially anemia) is higher in PNCL, even if this difference is not so great. The costs of RIRS, even recalculating the need for new treatments, remain cheaper.

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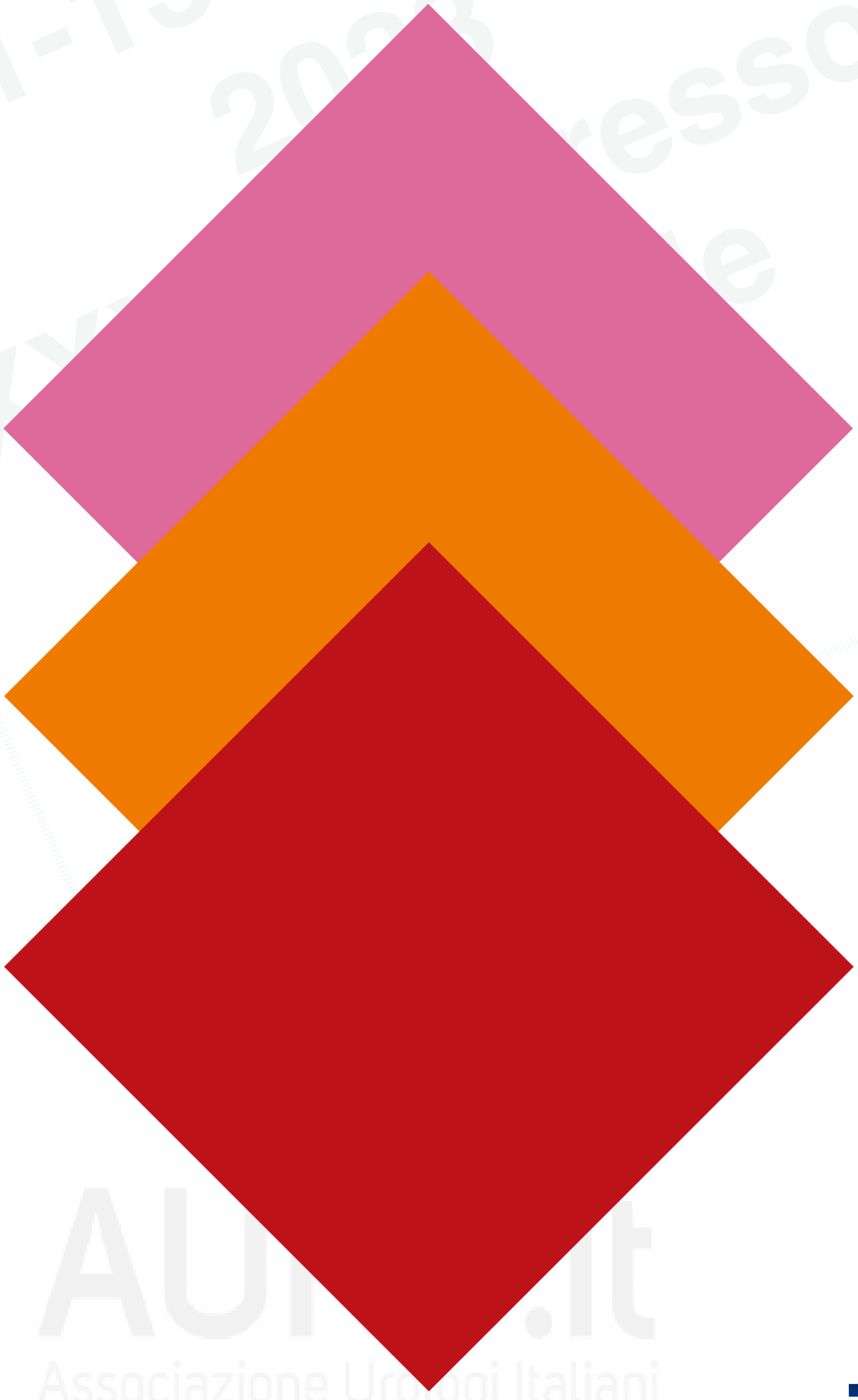

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