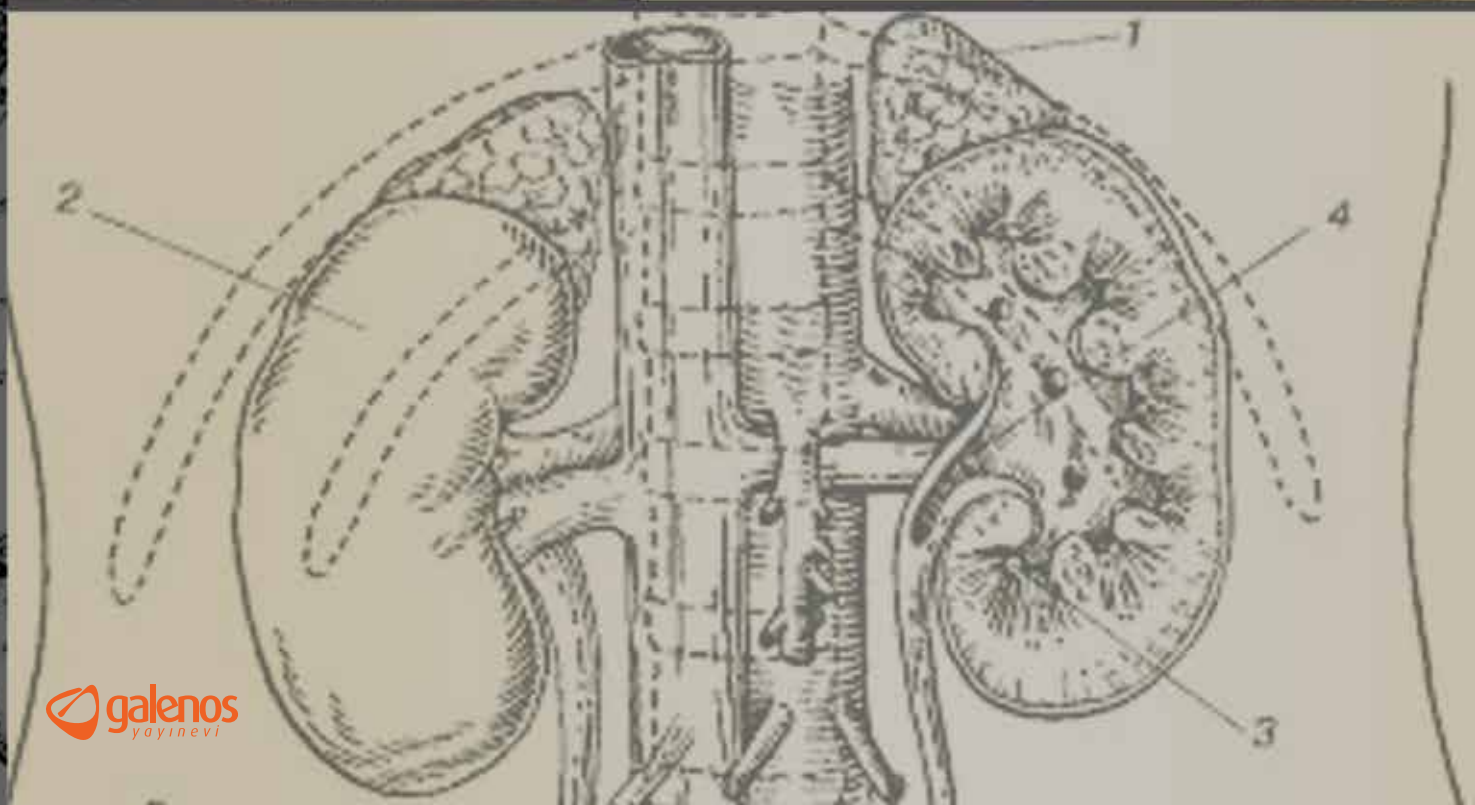
2010
Society of Urological Surgery
in Turkey

ISSN 2148- 9580

JOURNAL OF UROLOGICAL SURGERY

Volume 3 / Issue 2 / Haziran 2016 www.jurolsurgery.org



galenos yayinevi

ORIGINAL RESEARCH

Doi: 10.4274/jus.2016.938
J Urol Surg 2016;2:38-41

Partial Nephrectomy for Stage I Renal Cell Carcinoma: On-clamp or Off-clamp?

Evre I Böbrek Tümöründe Parsiyel Nefrektomi: İskemili mi? İskemisiz mi?

Kaan Çömez, Serdar Çelik, Ozan Bozkurt, Ömer Demir, Güven Aslan, Adil Esen

Dokuz Eylül University Faculty of Medicine, Department of Urology, İzmir, Turkey

What's known on the subject? and What does the study add?

Partial nephrectomy is the standard surgical approach for small renal tumors. Different techniques may have different outcomes in terms of cancer control, renal functions and complications. The present study explores the possible differences between the evaluated operation techniques.

ABSTRACT

Objective

Partial nephrectomy represents the gold standard surgical procedure for the treatment of small renal cortical tumors. Tumor resection may be performed with the following techniques: on-clamp (warm or cold ischemia) and off-clamp (zero-ischemia). We aimed to share our experience with these two techniques and compare treatment outcomes in the present study.

Materials and Methods

Patients who have undergone open partial nephrectomy for clinical stage I renal cell carcinoma in our department between 2008 and 2012 were enrolled. Group 1 comprised patients with off-clamp technique and group 2 with on-clamp technique. Demographic data, length of operation, length of hospitalization, preoperative estimated glomerular filtration rate (eGFR) and postoperative eGFR on the last visit, complications and requirement of additional procedures, pathologic stage, and surgical margin status were compared between the groups retrospectively.

Results

A total of 73 patients, 40 in group 1 and 33 in group 2, were included in the study. Mean age, rate of comorbidities, R.E.N.A.L. nephrometry scores, preoperative eGFR, length of operation, length of hospitalization, complications, surgical margin status and additional procedure requirement did not differ significantly between the groups. Transfusion requirement was higher in group 1, however, it did not reach statistical significance (0.7±1.2 U vs. 0.2±0.5 U, p=0.066). After a median follow-up of 27 months for group 1 and 33 months for group 2, postoperative eGFR values were also similar (72.6±31.0 ml/min/1.73 m^2 vs. 78.3±22.3 ml/min/1.73 m^2, p=0.651).

Conclusion

Both surgical techniques, on-clamp and off-clamp partial nephrectomy, can be performed according to the surgeons' preferences safely with similar outcomes.

Keywords

Ischemia, partial nephrectomy, renal cell carcinoma

ÖZ

Amaç

Parsiyel nefrektomi küçük renal kortikal tümörler için altın standart tedavidir. Parsiyel nefrektomi iskemili ve iskemisiz olarak yapılabilmektedir. Biz bu çalışmada kliniğimizde yapılan iskemili ve iskemisiz açık parsiyel nefrektomi deneyimlerimizi paylaşmayı amaçladık.

Gereç ve Yöntem

Kliniğimizde 2008 ve 2012 yılları arasında klinik evre 1 renal hücreli karsinom için açık parsiyel nefrektomi yapılan hastalar değerlendirildi. Grup 1 hastalar iskemi uygulanmayan ve grup 2 hastalar iskemi uygulanan olmak üzere iki gruba ayrıldı. İki grubun demografik verileri, operasyon süresi, hospitalizasyon süresi, preoperatif glomerüler filtrasyon hızı (GFH) değeri ile son vizit tarihindeki GFH değeri, postoperatif dönemde ek girişim gereksinimi, postoperatif patolojik evre ve cerrahi sınır açısından retrospektif olarak değerlendirildi ve karşılaştırıldı.

Bulgular

Grup 1'de 40 hasta, grup 2'de 33 hasta olmak üzere toplamda 73 hasta çalışmaya alındı. Her iki grubun ortalama yaş, komorbidite, R.E.N.A.L nefrometri skoru, preoperatif eGFH, operasyon süresi, hospitalizasyon süresi, postoperatif dönemde ek girişim gereksinimi, komplikasyon ve cerrahi sınır açısından benzerdi. Grup 1'de transfüzyon ihtiyacı daha yüksekti ama sonuç istatiksel olarak anlamlı değildi (0,7±1,2 U vs. 0,2±0,5 U, p=0,066). Ortalama takip süresi grup 1 için 27 ay, grup 2 için 33 ay idi. Postoperatif eGFH sonuçları benzerdi (72,6±31,0 ml/min/1,73 m^2 vs. 78,3±22.3 ml/min/1,73 m^2, p=0,651).

Sonuç

İskemili ve iskemisiz parsiyel nefrektomi yöntemlerinin ikisi de cerrahların deneyimine göre etkin ve güvenli bir şekilde uygulanabilir.

Anahtar Kelimeler

Böbrek tümörleri, iskemi, parsiyel nefrektomi

Correspondence
Ozan Bozkurt MD, Dokuz Eylül University Faculty of Medicine, Department of Urology, İzmir, Turkey
Phone: +90 232 412 34 51 **E-mail:** drozanbozkurt@gmail.com **Received:** 27.04.2016 **Accepted:** 29.04.2016
This manuscript was presented in 2nd National Urological Surgery Congress.

Introduction

Renal cell carcinoma represents 2-3% of all cancers, with higher incidences in developed regions (1). As a result of rapid technological developments and easy access to imaging modalities, there has been a visible increase in incidentally detected renal masses and this has led to more widespread use of partial nephrectomy. The main objective of partial nephrectomy is to preserve as much functional renal parenchyma as possible with following the oncological principles. Partial nephrectomy is usually performed with warm/cold ischemia for the control of bleeding after tumor resection. Ischemia/reperfusion injury may further damage the kidney resulting in deterioration in renal functions. Ischemia/reperfusion injury does not generally cause any clinical problem in patients with normal preoperative kidney function, whereas it may result in worsening of kidney function in patients with solitary kidney or chronic kidney disease. Renal functions usually decline if warm ischemia time exceeds twenty minutes which is generally regarded as a cut-off time limit (2). Surgical techniques, such as early unclamping (3), selective renal parenchymal clamping (4) and partial clamping (5) have been introduced in order to reduce warm ischemia time and minimize ischemia/reperfusion injury. Zero ischemia technique has also been described under controlled hypotension and microvascular dissection of tumor-specific vessels abandoning global ischemia of the kidney (6,7). Long-term kidney functions in patients who have undergone partial nephrectomy in our department with or without ischemia are explored in the present study.

Materials and Methods

Charts of the patients, who have undergone open partial nephrectomy for clinical stage I renal cell carcinoma in our department, were retrospectively reviewed. They were divided into two groups according to the ischemia status. Group 1 comprised patients who were operated with off-clamp technique without global ischemia and group 2 with on-clamp technique with warm ischemia. Warm ischemia is preferred to cold ischemia because of better visualisation of the surgical field. On-clamp or off-clamp technique was performed according to surgeon's preference. All procedures were performed under general anesthesia using the flank approach and enucleoresection technique. Renal hilar dissection and renal artery identification was performed in both groups. Mannitol infusion was started 10 minutes before clamping for on-clamp technique and the renal artery was clamped with a bulldog vascular clamp. No occlusion or compression was performed in patients in the off-clamp group. Renoraphy after tumor removal was performed with both internal stitches and also using PTFE Teflon felt in both groups. Age, comorbidity status [diabetes mellitus (DM), hypertension (HT)], transfusion requirement, ischemia time, R.E.N.A.L nephrometry scores, preoperative and postoperative estimated glomerular filtration rates (eGFRs) calculated by the Modification of Diet in Renal Disease formula, length of hospitalization, complication rates, postoperative auxillary procedures, postoperative pathological stage, and surgical margin status were retrospectively analyzed and compared between the groups. R.E.N.A.L nephrometry scores were calculated according to the original report described by Kutikov and Uzzo (8) in 2009.

Statistical Analysis

Descriptive data were analyzed and t-test was used for the comparison of numerical variables between the groups with SPSS software version 20. A p value of less than 0.05 was deemed statistically significant.

Results

A total of 73 patients were included with 40 patients in group 1 and 33 patients in group 2. The median follow-up time was 27 months for group 1 and 33 months for group 2. Seventeen patients had DM (11 in group 1 and 6 in group 2) and 35 patients had HT (22 in group 1 and 13 in group 2) at admission. Mean age, length of operation and hospitalization, maximum tumor diameter and R.E.N.A.L nephrometry score were similar between the groups (Table 1). Average ischemia duration was 18.3±7.9 (5-40) minutes in group 2. Transfusion requirement was less in group 2 compared to group 1 though the difference was not statistically significant. Preoperative and postoperative eGFR did not differ significantly between the groups (Table 1). Surgical margins were positive for tumor in 20% and 15.2% of patients in group 1 and 2, respectively. Twenty-five, 9, 3, 2 and 1 patient had pathological stage T1a, T1b, T2a, T3a and T4 disease, respectively in group 1. Twenty-five and 8 patients had pathological stage T1a and T1b disease, respectively in group 2. Three patients in group 1 underwent double-J catheter insertion due to prolonged urinary drainage and one of the three patients, whose drainage did not resolve, underwent percutaneous fibrin glue application. One patient in group 2 needed double-J catheter insertion and two patients had wound dehiscence in group 2.

Discussion

Partial nephrectomy for kidney tumors was first described by Czerny (9) in 1887. It has been the gold standard surgical approach for small

Table 1. Comparison of outcomes between group 1 (off-clamp technique) and group 2 (on-clamp technique)

	Group 1 off-clamp (n=40)	Group 2 on-clamp (n=33)	p
Age (years)	57.9±12.8	56.2±11.9	0.560
Tumor diameter (mm)	37.6±15.4	34.8±11.2	0.645
R.E.N.A.L nephrometry score	6.6±0.3	6.6±0.4	0.962
Transfusion requirement (U)	0.7±1.2	0.2±0.5	0.066
Operation time (minutes)	157.5±45.7	150.9±40.7	0.522
Hospitalization time (days)	7±5	6.8±4	0.859
Preoperative eGFR (ml/dk/1.73 m^2)	75.4±29.6	87.2±22.2	0.375
Postoperative eGFR (ml/dk/1.73 m^2)	72.6±31.0	78.3±22.3	0.651

eGFR: Estimated glomerular filtration rate

kidney tumors by preserving kidney functions and demonstrating equivocal oncological outcomes with radical nephrectomy during the last decade (10,11). R.E.N.A.L nephrometry score was developed by Kutikov and Uzzo (8) in 2009 for the evaluation of renal masses in terms of complexity, surgical approach and estimation of complications as well as standardization of data regarding operation outcomes. Rosevear et al. (12) have reported that patients who underwent radical nephrectomy had higher mean R.E.N.A.L nephrometry score than patients undergoing partial nephrectomy, highlighting that radical nephrectomy may be preferred in daily practice for more complex tumors and this scoring system may aid in surgical approach. We also used R.E.N.A.L nephrometry score for measuring tumor complexity and standardizing the comparison of the two surgical approaches. Average R.E.N.A.L nephrometry scores in the two groups were nearly identical providing a more reliable comparison between the groups. Despite the limitation of the present study for its retrospective nature, it is an important point that preoperative R.E.N.A.L nephrometry score did not affect the surgeon's technical preference. The main objective with partial nephrectomy is protecting functional kidney parenchyma as much as possible. The procedure is usually performed after temporary occlusion of the renal artery. Because of the significant association between prolonged renal ischemia time and postoperative renal damage, it is suggested that renal warm ischemia time should not exceed twenty minutes (13). Simmons et al. (14) have evaluated the parenchymal atrophy grade by measuring parenchymal thickness before and after the operation and concluded that parenchymal atrophy was more prominent in patients in whom renal warm ischemia time exceeded 40 minutes in partial nephrectomy. Nohara et al. (15) have compared selective and global clamping in partial nephrectomy and reported that there was no significant difference in preoperative and postoperative creatinine levels between the selective clamping group and the global clamping group, whereas the mean creatinine level increased to 1.05 mg/dl postoperatively from the preoperative 0.9 mg/dl in the global clamping group. Borofsky et al. (16) demonstrated a 14.9 ml/min decrease in GFR postoperatively compared to preoperative GFR in patients in whom the operation was performed with global ischemia, where as the difference was just 1.8 ml/min in the regional ischemia group. Harke et al. (17) have also reported a higher decrease in GFR for the total clamping technique when compared to selective clamping technique. There was not any significant difference in our study in terms of preoperative and postoperative eGFR values between the on-clamp and off-clamp techniques at a median follow-up of 27 and 33 months. Another limitation of our study is the small sample size which requires the validation of these findings with further larger patient cohorts. However, considerably longer follow-up time with regard to previous studies is favorable. Considering the transfusion requirements, previous studies did not report any significant difference between selective and global clamping techniques (18). In our study, transfusion requirement was higher in the off-clamp group compared to that in the on-clamp group, however, it did not reach a statistical significance probably due to the low number of patients in both groups. Negative surgical margin status is an important oncological outcome parameter related to tumor size, location and surgical experience. Similarity of the R.E.N.A.L nephrometry scores and maximum tumor diameter between the groups ensured the true comparison of both techniques and, as a result, no significant difference was observed between the groups in surgical margin status.

Conclusion

In conclusion, both off-clamp and on-clamp techniques are feasible and safe if surgical rules are strictly complied according to the experience of the center and the surgeon. Prospective controlled studies with large patient cohorts are needed for validation of these findings.

Ethics

Ethics Committee Approval: Ethics committee approval was not obtained because this was a retrospective study, Informed consent: Written informed consent was not obtained from patients because this was a retrospective study.

Peer-review: Internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Ömer Demir, Güven Aslan, Adil Esen, Concept: Kaan Çömez, Serdar Çelik, Ozan Bozkurt, Design: Kaan Çömez, Serdar Çelik, Ozan Bozkurt, Data Collection or Processing: Kaan Çömez, Serdar Çelik, Analysis or Interpretation: Serdar Çelik, Ozan Bozkurt, Literature Search: Kaan Çömez, Ozan Bozkurt, Writing: Kaan Çömez, Ozan Bozkurt.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Ljungberg B, Bensalah K, Canfield S, Dabestani S, Hofmann F, Hora M, Kuczyk MA, Lam T, Marconi L, Merseburger AS, Mulders P, Powles T, Staehler M, Volpe A, Bex. EAU guidelines on renal cell carcinoma: 2014 update. Eur Urol 2015;67:913-924.
2. Thompson RH, Lane BR, Lohse CM, Leibovich BC, Fergany A, Frank I, Gill IS, Blute ML, Campbell SC. Every minute counts when the renal hilum is clamped during partial nephrectomy. Eur Urol 2010;58:340-345.
3. San Francisco IF, Sweeney MC, Wagner AA. Robot- assisted partial nephrectomy: early unclamping technique. J Endourol 2011;25:305-308.
4. Viprakasit DP, Altamar HO, Miller NL, Herrell SD. Selective renal parenchymal clamping in robotic partial nephrectomy: initial experience. Urology 2010;76:750-753.
5. Kowalczyk KJ, Alemozaffar M, Hevelone ND, Ulmer WD, Plaster BA, Lipsitz SR, Yu HY, Hu JC. Partial clamping of the renal artery during robot-assisted laparoscopic partial nephrectomy: technique and ınitial outcomes. J Endourol 2012;26:469-473.
6. Gill IS, Eisenberg MS, Aron M, Berger A, Ukimura O, Patil MB, Campese V, Thangathurai D, Desai MM. "Zero ischemia" partial nephrectomy: novel laparoscopic and robotic technique. Eur Urol 2011;59:128-134.
7. Ng CK, Gill IS, Patil MB, Hung AJ, Berger AK, de Castro Abreu AL, Nakamoto M, Eisenberg MS, Ukimura O, Thangathurai D, Aron M, Desai MM. Anatomic renal artery branch microdissection to facilitate zero-ischemia partial nephrectomy. Eur Urol 2012;61:67-74.
8. Kutikov A, Uzzo RG. The R.E.N.A.L. nephrometry score: a comprehensive standardized system for quantitating renal tumor size, location and depth. J Urol 2009;182:844-853.
9. Czerny HE. Cited by Herczle: Ueber Nierenextirpation. Beitr Z Klin Chir 1890;6:484-486.

10. Herr HW. Partial nephrectomy for unilateral renal carcinoma and a normal contraleral kidney. J Urol 1999;161:33-34.
11. Fergany AF, Hafez KS, Novick AC. Long-term results of nephron sparing surgery for localized renal cell carcinoma: 10 year followup. J Urol 2000;163:442-445.
12. Rosevear HM, Gellhaus PT, Lightfoot AJ, Kresowik TP, Joudi FN, Tracy CR. Utility of the RENAL nephrometry scoring system in the real world: predicting surgeon operative preference and complication risk. BJU Int 2012;109:700-705.
13. Derweesh IH, Novick AC. Mechanisms of renal ischaemic injurj and their clinical impact. BJU Int 2005;95:948-950.
14. Simmons MN, Lieser GC, Fergany AF, Kaouk J, Campbell SC. Association between warm ischemia time and renal parenchymal atrophy after partial nephrectomy. J Urol 2013;189:1638-1642.
15. Nohara T, Fujita H, Yamamoto K, Kitagawa Y, Gabata T, Namiki M. Modified anatrophic partial nephrectomy with selective renal segmental artery clamping to preserve renal function: a preliminary report. Int J Urol 2008;15:961-966.
16. Borofsky MS, Gill IS, Hemal AK, Marien TP, Jayaratna I, Krane LS, Stifelman MD. Near- infrared fluorescence imaging to facilitate super-selective arterial clamping during zero- ischaemia robotic partial nephrectomy. BJU Int 2013;111:604-610.
17. Harke N, Schoen G, Schiefelbein F, Heinrich E. Selective clamping under the usage of near- infrared fluorescence imaging with indocya- nine green in robot-assisted partial nephrectomy: a single-surgeon matched-pair study. World J Urol 2014;32:1259-1265.
18. Wang Y, Qu H, Zhang L, Chen S, Xu B, Lu K, Liu C, Tao T, Yang Y, Chen M. Safety and postoperative outcomes of regional versus global ischemia for partial nephrectomy: a systematic review and meta-analysis. Urol Int 2015;94:428-435.

ORIGINAL RESEARCH

Doi: 10.4274/jus.2016.814
J Urol Surg 2016;2:42-44

Our Results in Penile Fractures

Penil Fraktür Sonuçlarımız

Tufan Süelözgen[1], Hakan Türk[2], Sıtkı Ün[3], Osman Köse[3], Yusuf Özlem İlbey[1], Ferruh Zorlu[1]

[1]*Tepecik Training and Research Hospital, Clinic of Urology, İzmir, Turkey*
[2]*Dumlupınar University Evliya Çelebi Training and Research Hospital, Clinic of Urology, Kütahya, Turkey*
[3]*Katip Çelebi University Atatürk Training and Research Hospital, Clinic of Urology, İzmir, Turkey*

What's known on the subject? and What does the study add?

Literature review and referral of penile fracture patients to surgery without losing time.

ABSTRACT

Introduction

Penile fracture is a urological emergency caused by direct trauma to an erected penis, tearing the tunica albuginea in the corpus cavernosum. The preferred treatment method is draining the hematoma and surgical repair of tunica albuginea tear as soon as possible following diagnosis.

Materials and Methods

Forty-nine patients who were diagnosed with penile fracture between January 2009 and December 2014 were reviewed. Physical examination was performed to see the extent of penile hematoma, the side of the penile curvature and the presence of blood in the external meatus. Two patients who were diagnosed with urethrorrhagia underwent retrograde urethrogram for urethral injury. In all patients, penile skin was peeled using a circular subcoronal degloving incision and tunica tear was repaired using absorbable suture materials. The patients were then followed for painful erections, penile deformities and erection angles.

Results

The average age of the 49 patients, who were included in the study, was 36.5 years (21-65). In their etiological questioning, most patients reported the fracture occurring during sexual intercourse. Retrograde urethrography was indicated in 2 patients with blood in the external meatus and were diagnosed with urethral injury. The patients were taken to emergency surgery. Tunica defects varied between 1 and 2 cm. Incomplete urethral injuries were primarily repaired around 18 French Foley catheter. None of the patients reported penile deformity or painful erections. Their erection angles were found to be within the normal range.

Conclusion

Even though it is a relatively rare condition, penile fractures are so important that might cause serious complications when not treated surgically. A thorough anamnesis and physical examination suffice for diagnosis.

Keywords

Penile fracture, penis, sexual intercourse, erection

ÖZ

Amaç

Penil fraktür, ereksiyon halindeki penisin direkt travmaya maruz kalması sonucu gelişen korpus kavernozumda tunika albugineanın yırtılması ile ortaya çıkan ürolojik acil bir durumdur. Önerilen tedavi tanı konulduktan sonraki en kısa zamanda hematomun boşaltılması ve tunika albugineadaki yırtığın tamir edilmesidir.

Gereç ve Yöntem

Ocak 2009 ile Aralık 2014 tarihleri arasında penil fraktür tanısı konularak tedavisi yapılan 49 hasta değerlendirildi. Yapılan fizik muayene ile penil hematomun yayılımı, penil eğriliğin hangi tarafta olduğu ve eksternal meatusta kan olup olmadığına bakıldı. Üretroraji saptanan iki hastada üretra yaralanması düşünülerek retrograd üretrografi çekildi. Hastaların hepsinde sirküler subkoronal sirkümsizyon insizyonla girilerek penis derisi soyuldu ve tunikadaki yırtık emilebilir sütür materyali ile onarıldı. Takip edilen hastalar ağrılı ereksiyon, penil deformite ve ereksiyon derecesi açısından değerlendirildi.

Bulgular

Çalışmaya dahil edilen 49 hastanın ortalama yaşı 36,5 (21-65) yıl idi. Operasyon öncesinde etiyolojik sorgularında hastalar çoğunlukla fraktürün cinsel ilişki esnasında olduğunu ifade etti. İki hastanın eksternal meatusunda kan görülmesi üzerine retrograd üretrografi çekildi ve üretra yaralanması tespit edildi. Hastalar acilen operasyona alındı. Tunikadaki defektler 1-2 cm arasında değişmekteydi. İki hastada mevcut olan inkomplet üretra yaralanmaları 18 French Foley sonda etrafında primer olarak onarıldı. Hastaların hiçbirinde penil deformite ve ağrılı ereksiyon saptanmadı. Ereksiyon açıları normal olarak bulundu.

Sonuç

Penil fraktür çok sık karşılaşılan bir durum olmasa da cerrahi tedavi ile tedavi edilmediğinde ciddi komplikasyonlara yol açan bir durumdur. Tanı için anamnez ve fizik muayene yeterlidir.

Anahtar Kelimeler

Penil fraktür, penis, cinsel ilişki, ereksiyon

Correspondence
Hakan Türk MD, Dumlupınar University Evliya Çelebi Training and Research Hospital, Clinic of Urology, Kütahya, Turkey
Phone: +90 555 551 68 85 **E-mail:** hkntrk000@hotmail.com **Received:** 12.04.2016 **Accepted:** 13.04.2016
This study was 24th Turkish Urology Congress.

Introduction

Penile fracture is a urological emergency that is caused by direct trauma to an erected penis, tearing the tunica albuginea in the corpus cavernosum. The tear in tunica is mostly unilateral, although may be occasionally bilateral (1). There may also a concomitant urethral injury depending on the degree of trauma (2). Clinically, the patients hear a snapping sound during erection followed by severe pain, rapid loss of erection, swelling, ecchymosis and penile deviation (3). The preferred treatment method is draining of the hematoma and surgical repair of the tunica albuginea tear as soon as possible following diagnosis (4).

Materials and Methods

Forty-nine patients, who were diagnosed and treated with penile fractures between January 2009 and December 2014, were reviewed. Three patients were excluded for not attending control exams. A total of 46 patients were eventually included in the study. First, a careful history taking was completed at the time of admittance. The patients were inquired about the causes of the fracture. Physical examination was performed to see the extent of penile hematoma, the side of the penile curvature and blood presence in the external meatus. Two patients, who were diagnosed with urethrorrhagia, underwent retrograde urethrogram for urethral injury. Urethral injury was detected as a result of opaque matter extravasation. In all patients, the penile skin was peeled by circular subcoronal degloving incision and tunica tear was repaired using 2/0 VICRYL® (polyglactin 910) absorbable suture materials. Right corpus cavernosum rupture was present in 25 patients (54%), left corpus cavernosum rupture in 19 (41%) and bilateral corpus cavernosum rupture was present in 2 patients (5%). In two of the patients with urethral injury, primary repair was performed on the defect around 18 Fr (French) Foley catheter. All patients underwent elastic bandage for 24 hours. Broad spectrum antibiotics and anti-inflammatory medication were started. Medical therapy was scheduled for 5 days. Patients who underwent urethral repair were discharged after removing the Foley catheters on day 7 and the rest of the patients were discharged within 24 hours. The patients were followed up for 17 (3-30) months in average for painful erection and presence and degree of penile deformities. Additional uroflowmetry and urethrography were performed in patients having undergone urethral repair.

Results

The average age of the 49 patients, who were included in the study was 36.5 years (21-65). In their etiological questioning before surgery, most patients reported the fracture occurring during sexual intercourse. Yet, some causes were also reported as etiological causes although we are in the opinion that these may not be true etiological causes due to various reasons (Table 1). Patients having been diagnosed with physical examination presented with penile hematoma, ecchymosis and swelling. Retrograde urethrography was indicated in 2 patients with blood in the external meatus and were diagnosed with urethral injury. The patients were taken to emergency surgery. The extent of the tunica defect varied between 1 and 2 cm. Incomplete urethral injuries were primarily repaired around 18 Fr Foley catheter. One patient with urethral injury had rupture in both corpora cavernosa, whereas the other had only unilateral rupture. The locations of the corpus cavernosa ruptures are provided in Table 1. All patients underwent drainage with Foley catheter. No complication developed pre- or post-operatively. First controls were started in month 3. They were physically examined and questioned for erection. None of the patients reported penile deformity or painful erections. Their erection angles were found to be within the normal range. The patients having undergone primary repair for urethral injury were checked with uroflowmetry. One patient who reported micturition complaints was suspected for stenosis. Stenosis was confirmed by retrograde urethrography and treated with dilatation. Restenosis was not detected in this patient.

Discussion

Penile fractures are rare injuries although the real incidence remains unknown (5). Etiologically, the most common cause of penile fracture is sexual intercourse (33-60%) (6). The rate of fracture formation during intercourse was found to be 42% in our study. Many other causes, including turning during sleep, falling from bed, abnormal bending during masturbation or attempting to put on trousers with an erected penis, have been reported (7). During erection, the tunica albuginea thins from 2 mm to 0.25-0.5 mm being a predisposing factor for penile fracture (8). Patients present with typical history and physical examination findings. Severe pain, sudden onset erectile dysfunction, swelling and ecchymosis are reported following fracture. Although some authors suggest preoperative diagnostic cavernosography for all patients (9), majority are in the opinion that typical history and physical examination findings would suffice for diagnosis excluding the need for extra tests since cavernosography may give misleading results (10,11). Penile ultrasonography and magnetic resonance imaging modalities have limited success (12,13). Urethrography should be added in the spectrum of tests in the presence of urethrorrhagia or hematuria which may be suggesting urethral injury (14). All patients in our study were diagnosed with history taking and physical examination. We performed retrograde urethrography in two patients due to presence of blood in the meatus and detected urethral injury. In a study done in forty patients (15), concomitant urethral injury rate was reported to be 7.5%, which was 4.5% in our study. Until 1970's, penile fractures were mostly treated with conservative management including penoscrotal elevation, compression, or antibiotics and anti-inflammatory medication (16). Emergency surgery was first performed by Meares in 1971 for drainage of hematoma and primary repair of the tear in the corpus cavernosum. Penile fractures present with major complications, such as penile deformity, painful erection, challenged coitus, poor erection quality, and pseudodiverticula. Such complications have been reported in the range of 10-30% particularly in the conservatively treated patients whereas the same remains

Table 1. Patient distribution according to fracture causes

	Number of patients	Ratio
Sexual intercourse	19	42%
Masturbation	9	19%
Turning in sleep	7	15%
Falling from bed	5	11%
Other	6	13%
Total	46	100%

between 0 and 10% in the surgically treated cases (17,18,19,20). No complication has been reported in our patient group. Another major advantage of surgical repair of penile fractures is shorter hospital stay, which varies between 4 and 71 days in conservatively treated patients but considerably shorter in the surgically treated patients (21,22). Hospital stay did not exceed 24 hours in our study.

Conclusion

Even though it is a relatively rare condition, penile fractures might cause serious complications when not treated surgically. A thorough anamnesis and physical examination suffice for diagnosis. The possibility of urethral injury should always be considered. Emergency surgical repair may provide successful outcomes.

Ethics

Ethics Committee Approval: Ethics committee approval was not obtained becasue of retrospective study, Informed consent: Written informed consent was not obtained from patient/patients becasue of retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: Tufan Süelözgen, Design: Hakan Türk, Data Collection or Processing: Hakan Türk, Sıtkı Ün, Analysis or Interpretation: Tufan Süelözgen, Osman Köse, Yusuf Özlem İlbey, Ferruh Zorlu, Literature Research: Tufan Süelözgen, Hakan Türk, Writing: Tufan Süelözgen.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Asgari MA, Hosseini SY, Safarinejad MR, Samadzadeh B. Penile fractures: eveluation, therapeutic approaches and long-term results. J Urol 1996;155:148-149.
2. Tsang T, Demby AM. Penile fracture with urethral injury. J Urol 1992;147:446-448.
3. Cendron M, Whitemore KE, Corpinello V, et al. Traumatic rupture of the corpus cavernosum: evaluation and managament. J Urol 1990;144:987-991.
4. Özkan S, Yiğitbaşı O, Özmen E, Ersoy H, Topaloğlu H, Yalçınkaya F. Penis fraktürü tedavi ve takibi. Bulletin of Urooncology 1991;2:132-133.
5. Oesterwitz H, Bick C, Braun E. Report of 6 cases and review of the literature. Int Urol Nephrol 1984;16:123-127.
6. Nicolaisen GS, Melamud A, Williams RD, McAninch JW. Rupture of the corpus cavernosum: surgical treatment. J Urol 1983;130:917-919.
7. Meares EM. Traumatic rupture of the corpus cavernosum. J Urol 1971;105:407-408.
8. Karadeniz T, Topsakal M, Ariman A, Erton H, Basak D. Penile fracture: differantial diagnosis, management and outcome. Br J Urol 1996;77:279-281.
9. Dever DP, Saraf PG, Catanese RP, Feinstein MJ, Davis RS. Penile fracture: operative management and cavernosography. Urology 1983;22:394-396.
10. Nicely ER, Costabile RA, Moul JW. Rupture of the deep dorsal vein of the penis during sexual intercourse. J Urol 1992;147:150-152.
11. Grosman H, Gray RR, St Louis EL, Casey R, Keresteci AG, Elliott DS. The role of corpus cavernosography in acute fracture of the penis. Radiology 1982;144:787-788.
12. Wallton JK. Fracture of the penis with laceration of the urethra. Br J Urol 1979;51:308-309.
13. Uder M, Gohl D, Takahashi M, et al. MRI of penile fracture: diagnosis and therapeutic follow-up. Eur Radiol 2002;12:113-120.
14. Parrillo SJ, Suzanna EK, Finkelstein L. Fracture of the penis. Ann Emerg Med 1980;10:376-378.
15. Beysel M, Tekin A, Gurdal M, Yücebaş E, Sengör F. Evaluation and treatment of penile fractures: accuracy of clinical diagnosis and the value of corpus cavernosograpy. Urology 2002;60:492-496.
16. Farah R, Stiles R Jr, Cerny JC. Surgical treatment of deformity and coital difficulty in healed traumatic rupture of corpora cavernosa. J Urol 1978;120:118-120.
17. Kalash SS, Young JD Jr. Fracture of penis: Controversy of surgical versus conservative tretament. Urology 1984;24:21-24.
18. Uygur MC, Gülerkaya B, Altuğ U, Germiyanoğlu C, Erol D. 13 years'experience of penile fracture. Scand J Urol Nephrol 1997;31:265-266.
19. Zargooshi J. Penile fracture in Kermanshah, Iran: report of 172 cases. J Urol 2000;164:364-366.
20. Lee SH, Bak CW, Choi MH, Lee HS, Lee MS, Yoon SJ. Trauma to male genital organs: a 10-year review of 156 patients, including 118 treated by surgery. BJU Int 2008;101:211-215.
21. Kılıçarslan H, Gökçe G, Kaya K, Ayan S, Gültekin Y. Penis fraktürlerinin cerrahi tedavisi. Ulus Travma Acil Cerrahi Derg 2003;9:54-59.
22. Soylu A, Güneş A, Uğraş My, İpek D, Baydinç C. Penil Fraktür: 11 yıllık deneyim. Türk Üroloji Dergisi 2003;29:344-350.

ORIGINAL RESEARCH

Doi: 10.4274/jus.2016.851
J Urol Surg 2016;2:45-47

Penile Fracture and Early Repair Outcomes

Penil Fraktür ve Erken Onarım Sonuçları

Serdar Çelik, Sedat Karakoç, Ozan Bozkurt, Ömer Demir, Ahmet Adil Esen

Dokuz Eylül University Faculty of Medicine, Department of Urology, İzmir, Turkey

What's known on the subject? and What does the study add?

Early repair with degloving method is effective method in postoperative erectile success in young patients.

ABSTRACT

Objective

In this study, we aimed to present clinical characteristics and repair outcomes in patients who had sexual intercourse-induced penile trauma and underwent early surgical repair in our clinic.

Materials and Methods

We retrospectively evaluated records of patients who underwent early surgical repair due to penile trauma between 2004 and 2014 in our clinic. Preoperative, peroperative and postoperative data were analyzed. Patient characteristics, penile trauma characteristics, pre-trauma and postoperative International Index of Erectile Function-Erectile Function Domain Scores (IIEF-ED), and operation features were evaluated.

Results

Twenty-six male patients who were admitted to the emergency room with penile trauma and underwent early surgical repair were investigated. Four patients had only dorsal vein laceration and twenty-two had corpus cavernosum rupture. Postoperative erectile dysfunction was observed in three patients (the patients were older than 45 years of age, a patients had bilateral corpus cavernosum rupture and two patients had concomitant urethral trauma). Early repair was successful (86.4%) in the remaining 19 patients. The average erection hardness grade and IIEF-ED value were 4.75 and 28.6 before penile fracture; postoperative mean erection hardness grade and IIEF-ED value were found to be 4.2 and 24.9, respectively (p>0.05).

Conclusion

As a result, in sexual intercourse-induced penile fracture, early repair with degloving approach is effective method in postoperative erectile success in young patients and patients with isolated unilateral fractures.

Keywords

Penile fracture, early repair, International Index of Erectile Function-Erectile Function Domain Scores, urethral injury, erectile dysfunction

ÖZ

Amaç

Bu çalışmada cinsel ilişki nedenli penil travması olan ve kliniğimizde erken cerrahi onarım uygulanan hastaların klinik özellikleri ve onarım sonuçlarını sunmayı amaçladık.

Gereç ve Yöntem

2004-2014 tarihleri arasında penil travma nedenli kliniğimizde erken cerrahi onarım uygulanan erkek hastalar retrospektif olarak değerlendirildi. Hastaların preoperatif, peroperatif ve postoperatif verileri incelendi. Hastaların genel özellikleri ile penil travma özellikleri, travma öncesi ve postoperatif Uluslararası Erektil Fonksiyon İndeksi-Erektil Fonksiyon Alanı Skoru (IIEF-ED) değerleri ve operasyon özellikleri değerlendirildi.

Bulgular

Penil travma nedenli acil servise başvuran ve degloving yöntemi ile erken cerrahi onarım uygulan 26 erkek hasta incelendi. Hastaların dördünde sadece dorsal ven laserasyonu, yirmi ikisinde kavernozum rüptürü mevcuttu. Üç hastada (üç hasta da 45 yaş üstüydü, birinde bilateral rüptür ve ikisinde eşlik eden üretral travma mevcuttu) postoperatif erektil disfonksiyon olduğu gözlendi. Geri kalan on dokuz hastada (%86,4) erken onarımın başarılı olduğu saptandı. Tüm hastaların fraktür öncesi ortalama ereksiyon sertlik derecesi 4,75 ve IIEF-ED değeri 28,6 iken, postoperatif ereksiyon sertlik derecesi 4,2 ve IIEF-ED değeri 24,9 saptandı (p>0,05).

Sonuç

Sonuç olarak cinsel ilişki sonucu gelişen penil fraktürlerde degloving yöntemi ile erken onarımın genç ve izole tek taraflı fraktürlerde postoperatif ereksiyon başarısında etkili yöntem olduğu söylenebilir.

Anahtar Kelimeler

Penil fraktür, erken onarım, Uluslararası Erektil Fonksiyon İndeksi-Erektil Fonksiyon Alanı Skoru, üretral yaralanma, erektil disfonksiyon

Correspondence
Serdar Çelik MD, Dokuz Eylül University Faculty of Medicine, Department of Urology, İzmir, Turkey
Phone: +90 232 412 34 51 **E-mail:** serdarcelik84@hotmail.com **Received:** 18.04.2016 **Accepted:** 25.04.2016

Introduction

Penile fracture is a rare urological emergency (1). Majority of the patients come to the emergency department immediately after the trauma and are operated for repair in a short span of time. History and clinical examination are essential for diagnosis. Detumescence, penile swelling, bruise and deformation are observed during the examination. In rare cases of uncertainty, radiological imaging methods are also used. These methods are magnetic resonance imaging (MRI), ultrasonography (US), cavernosography and urethrography (2). When penile fracture case reports are examined, penile trauma was found to be more common in Middle East and North Africa when compared to the rest of the world (3). Most of the fractures in the United States develop during the sexual intercourse as a result of dislocation of the penis from the vagina due to 'faux pas du coit' and as a result of hitting the perineum or the pubic bone (4,5). In this study, we aimed to present the early repair outcomes in patients who developed penile fracture during sexual intercourse.

Materials and Methods

Male patients, who underwent early surgical repair in our clinic due to penile trauma between June 2004 and December 2014, were evaluated retrospectively. Preoperative, perioperative and postoperative data were investigated upon the review of the patient records. The patients were evaluated in terms of age, height, weight, comorbidity, type and cause of trauma, erection hardness grade during sexual intercourse, pre-trauma International Index of Erectile Function-Erectile Function Domain Score (IIEF-ED), presence of fracture at physical examination, presence of urethral trauma, location of the fracture on the penis, fracture length, operation time, postoperative erectile dysfunction, postoperative IIEF-ED value, post-repair development of penile curvature and voiding dysfunction. Preoperative and postoperative IIEF-ED scores were compared with the use of the Wilcoxon test in order to predict the repair success. Furthermore, absence of postoperative erectile dysfunction, penile curvature and voiding dysfunction was considered as early surgical success. A p value of less than 0.05 was considered statistically significant.

Results

Twenty-six male patients, admitted to the emergency service due to penile trauma, were investigated. General characteristics of the patients (age, weight, height, body mass index) are given in Table 1. The patients applied with the complaint of hearing a sound during intercourse, development of detumescence, penile swelling and bruise. The mean time to admission of the patients was 6.4 (2-14) hours. Furthermore, three of the patients had blood in their external meatus. US was performed in two patients due to uncertainty in trauma diagnosis. The rest of the patients were diagnosed clinically. Early surgical repair was performed in all patients by using the degloving technique with incision from the circumcision scar. Physical examination and operative findings of the patients are given in Table 2. Four patients had only dorsal vein laceration without rupture of the corpus cavernosum, whereas the remaining 22 patients had rupture of the corpus cavernosum. In patients with dorsal vein laceration, dorsal vein ligation was applied following the degloving procedure. Primary repair was performed in 22 patients with a mean rupture of 16.7 (5-20) mm of the corpus cavernosum. While one patient had bilateral rupture of the corpus cavernosum, three of the patients had concomitant urethral injury. The mean operation time was 56.5 (30-120) minutes. Perioperative urethral catheter was inserted in all patients. The catheters were removed by the end of first day in patients without urethral injury and by the end of day 10 in those with urethral injury. Three of the patients developed erectile dysfunction postoperatively. These patients were over the age 45,

Table 1. General characteristics of the patients

n	26
Mean age (year)	35.6 (33-70)
Mean height (cm)	174.5 (166-180)
Mean weight (kg)	76.5 (64-95)
Mean BMI (kg/m^2)	25.3 (21.5-29.8)
Comorbidity (n)	1

BMI: Body mass index

Table 2. Physical examination and operative findings of the patients

	n (26)
Trauma (n, %)	
Unilateral corpus cavernosum rupture	21 (84.6)
Bilateral corpus cavernosum rupture	1 (3.8)
Dorsal vein laceration	4 (15.4)
Urethral rupture	3 (11.5)
Rupture side (n, %)	
Bilateral ventral	1 (4.5)
Right ventral	8 (36.4)
Left ventral	4 (18.2)
Right dorsal	4 (18.2)
Left dorsal	5 (22.7)
Rupture localization (n, %)	
Proximal	9 (40.9)
Mid	7 (31.8)
Distal	6 (27.3)
Rupture size (mm)	16.7 (5-20)
Operation time (min.)	56.5 (30-120)

Table 3. Pre-trauma and post-repair erection hardness grade and International Index of Erectile Function-Erectile Function Domain Scores values of the patients who underwent penile fracture repair

	Pre-trauma	Postoperative	p
Erection hardness grade	4.75 (4-5)	4.21 (1-5)	0.066
IIEF-ED	28.56 (25-30)	24.86 (1-30)	0.144

IIEF-ED: International Index of Erectile Function-Erectile Function Domain Scores

one of them had bilateral corpus cavernosum rupture and two had concomitant urethral injury. Furthermore, penile curvature developed postoperatively in the patient with bilateral rupture, whereas none of the patients developed voiding dysfunction. Early surgery was found to be successful in nineteen of the 22 patients (86.4%). Furthermore, while the average pre-fracture erection hardness grade of the patients was 4.75 and IIEF-ED value was 28.6, the mean postoperative erection hardness grade was found to be 4.2 (1-5) and IIEF-ED value was 24.9 (1-30). There was no statistically significant difference between the preoperative and postoperative values ($p>0.05$) (Table 3).

Discussion

Two different surgical repair incision methods are generally defined in penile fracture repair. These are the degloving method with the degloving incision/circumcision incision and the ventral midline incision method (2). While postoperative complications have been reported to be higher with the ventral midline incision in the literature, no statistically significant difference was found (6). The degloving method was used in all the patients in our series and our postoperative complication rates were not statistically significant and were found to be lower than those reported in the literature. When the series of 300 patients reported from Tunisia is assessed, 60% of the fractures were reported to develop during masturbation and 5% of patients had concomitant urethral injury (7), whereas the rate of bilateral rupture of 10% has been reported and the rate of the presence of concomitant urethral ruptures was 18-38% according to the outcomes of the studies from the United States and Canada (1,6,8). When the outcomes of the studies from the Middle East countries are assessed, the success rate of early repair was found to be around 92-100% and the self-recovery was reported down to 40% (9,10). In series from Spain, Germany-Croatia and Switzerland, the number of patients was around 9-29 and the early repair success rate was to be around 80-95% (11,12,13). In one of the recent studies, postoperative success was reported to be 65%. However, in this series, ventral midline incision method was used (6). With 86.4% of early surgical success, our series seems to have similar outcomes when compared to the study, in which degloving method was applied. Our rates of bilateral corpus cavernosum and urethral rupture of 3.8%, are lower than that of 11.5% reported in other series. Besides the early surgical success rate, postoperative IIEF-ED value and mean erection hardness grades also contribute to the early surgical success, when compared to the values before the fracture. One of the major results of our study is that the main factor affecting surgical success is age and the extension of the fracture when the failing patients are assessed. In penile fracture cases, it is recommended to ask about the time to admission, age and pre-trauma erection quality and to identify the extension of the corpus cavernosum rupture and the presence of concomitant urethral trauma. The patient should be advised to have early fracture repair with the degloving method and be informed on the potential development of postoperative erectile dysfunction on the basis of the findings.

Conclusion

In conclusion, early repair with the use of the degloving method is identified as an effective method for the success of postoperative erection in sexual intercourse-induced penile fracture cases. Besides the early repair, other factors contributing to surgical success are the repair technique, age of the patient, pre-fracture erection hardness grade and IIEF-ED score, bilateral corpus cavernosum rupture, and the presence of urethral injury.

Ethics

Ethics Committee Approval: Ethics committee approval was not obtained because this was a retrospective study, Informed consent: Written informed consent was not obtained from patients because this was a retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: Serdar Çelik, Design: Serdar Çelik, Data Collection or Processing: Serdar Çelik, Sedat Karakoç, Analysis or Interpretation: Serdar Çelik, Ozan Bozkurt, Ömer Demir, Ahmet Adil Esen, Literature Research: Serdar Çelik, Sedat Karakoç, Ozan Bozkurt, Writing: Serdar Çelik.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Aaronson DS, Shindel AW. U.S. national statistics on penile fracture. J Sex Med 2010;7:3226.
2. Kamdar C, Mooppan UM, Kim H, Gulmi FA. Penile fracture: preoperative evaluation and surgical technique for optimal patient outcome. BJU Int 2008;102:1640-1644.
3. Zargooshi J. Penile fracture in Kermanshah, Iran: the long-term results of surgical treatment. BJU Int 2002;89:890-894.
4. Fergany AF, Angermeier KW, Montague DK. Review of the Cleveland Clinic experience with penile fracture. Urology 1999;54:352-355.
5. Bitker MO, Belin J, Jardin A, Chatelain C. "Faux pas du coit" with associated rupture of corpora cavernosa and urethra. Urology 1988;32:447-448.
6. Swanson DE, Polackwich AS, Helfand BT, Masson P, Hwong J, Dugi DD, Martinez Acevedo AC, Hedges JC, McVary KT. Penile fracture: outcomes of early surgical intervention. Urology 2014;84:1117-1121.
7. El Atat R, Sfaxi M, Benslama MR, Amine D, Ayed M, Mouelli SB, Chebil M, Zmerli S. Fracture of the penis: management and long-term results of surgical treatment. Experience in 300 cases. J Trauma 2008;64:121-125.
8. Al-Shaiji TF, Amann J, Brock GB. Fractured penis: diagnosis and management. J Sex Med 2009;6:3231-3240.
9. Zargooshi J. Sexual function and tunica albuginea wound healing following penile fracture: an 18-year follow-up study of 352 patients from Kermanshah, Iran. J Sex Med 2009;6:1141-1150.
10. El-Bahnasawy MS, Gomha MA. Penile fractures: the successful outcome of immediate surgical intervention. Int J Impot Res 2000;12:273-277.
11. Moreno Sierra J, Garde Garcia H, Fernandez Perez C, Galante Romo I, Chavez Roa C, Senovilla Perez JL, Silmi Moyano A. Surgical repair and analysis of penile fracture complications. Urol Int 2011;86:439-443.
12. Muentener M, Suter S, Hauri D, Sulser T. Long-term experience with surgical and conservative treatment of penile fracture. J Urol 2004;172:576-579.
13. Persec Z, Persec J, Puskar D, Sovic T, Hrgovic Z, Fassbender WJ. Penile injury and effect on male sexual function. Andrologia 2011;43:213-216.

CASE REPORT

Doi: 10.4274/jus.2015.412
J Urol Surg 2016;2:48-50

A Case of Cystitis Mimicking Bladder Tumor

Mesane Tümörünü Taklit Eden Sistit Olgusu

Ahmet Çamtosun[1], Hüseyin Çelik[1], Ramazan Altıntaş[1], Nusret Akpolat[2]

[1]Turgut Özal Medical Center, Clinic of Urology, Malatya, Turkey
[2]Turgut Özal Medical Center, Clinic of Pathology, Malatya, Turkey

ABSTRACT

Chronic cystitis is a usual inflammatory disease of the bladder in children. Patients typically show irritative voiding symptoms. In addition, bladder mass accumulation with the possibility of malignancy can rarely be observed. We present a 12-year-old male patient in whom radiological investigations showed a focal papillary lesion. In this paper, we aimed to discuss the management of chronic cystitis.

Keywords

Bladder cancer, cystitis, diagnosis

ÖZ

Kronik sistit çocuklarda sık görülen enflamatuvar bir hastalıktır. Hastalar tipik olarak irritatif işeme semptomları gösterirler. Bu hastalarda bazen mesanede kitle görülebilir ve bu durum masene kanseri ile karışabilir. Biz radyolojik incelemelerde fokal papiller lezyon saptanan 12 yaşında bir erkek hasta olgusunu sunarak kronik sistit yönetimini tartışmayı amaçladık.

Anahtar Kelimeler

Mesane kanseri, sistit, tanı

Introduction

Chronic cystitis, which can be a chronic papillary reaction to the injury of the bladder mucosa, may be seen as a benign papillary lesion mimicking papillary urothelial tumors. Similar lesions can occur throughout the urothelial epithelium in the urethra, ureter and renal pelvis named as polypoid urethritis, polypoid ureter and pyelitis, respectively (1). Parasitosis, food and drug allergies, tuberculosis, malignancies, bladder injury, chronic bladder irritation, urinary bladder catheterization, and bladder surgeries can be predisposing factors via affecting the immune system (2,3,4).

Case Presentation

A twelve-year-old male patient was admitted with the complaint of gynecomasty. The patient had no urological symptoms, such as pain or dysuria, and he did not have a history of previous surgery. Complete blood count revealed the followings: neutrophils: 40.1%, lymphocytes: 41.6%, monocytes: 7.4%, basophils: 0.3%, eosinophils: 10.6%, hemoglobin: 13.3 g/dl, and white blood cells: 7900/ml. Eosinophils were double than the normal level. The biochemical and hormonal parameters were normal. There were no erythrocytes and leukocytes in microscopic examination of the urine. Urine specific gravity was 1024 and nitrite and urine cultures were negative. There was a smooth eccentric thickening of the left side wall of the bladder towards the bladder base on computed tomography images (Figure 1). Cystoscopic examination revealed a 1x1 cm polypoidal erythematous mass on the left ureteral orifice superolaterally (Figure 2). Transurethral resection (TUR) of the mass was done. Histopathological examination showed the majority of the homogeneous acellular eosinophilic material accumulation in the lamina propria and chronic inflammation on the surface (Figure 3a). Lamina propria contained an intense eosinophilic material accumulation around and in the vessels (Figure 3b). Congo-red showed a positive staining in the eosinophilic material accumulated areas (Figure 3c). Eosinophilic material accumulation indicated negative crystal violet staining (Figure 3d). The case was reported as an amyloid-negative chronic active cystitis histopathologically.

Discussion

Chronic cystitis is not so rare in childhood and the symptoms can change according to the size of the area affected in the bladder. In our case, chronic cystitis was involving only the left orifice, however, in other reported cases the bladder mucosa was totally impressed (2,3). Eosinophilic cystitis (EC), another rare condition, is a benign disease,

Correspondence
Ahmet Çamtosun MD, Turgut Özal Medical Center, Clinic of Urology, Malatya, Turkey
Phone: +90 422 377 30 00-58 07 **E-mail:** drcamtosun@yahoo.com **Received:** 20.04.2015 **Accepted:** 21.05.2015

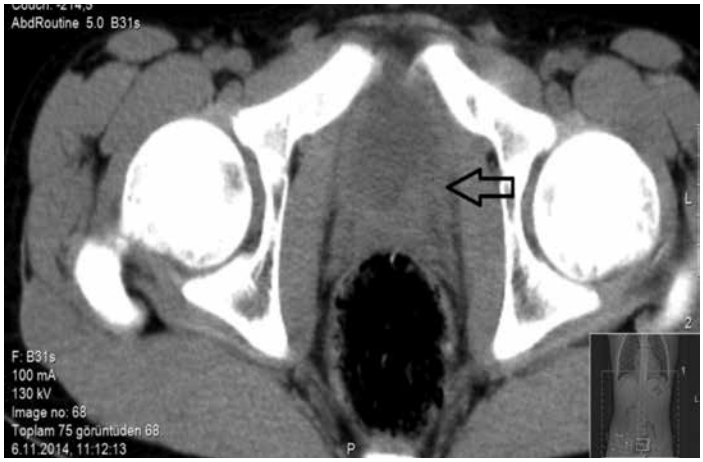


Figure 1. Non contrast-enhanced computed tomography showing intraluminal mass lesion with marked arrow

Figure 2. Cystoscopy shows papillary lesion like a bladder tumor

in which eosinophils can affect myofibroblastic inflammation, mimicking bladder tumors. Benign tumors of the bladder are rare in childhood. Bladder tumors in childhood also appear locally. To distinguish cystitis from tumors via radiological imagining methods is not possible. Instead of aggressive treatments, bladder-sparing approaches, including TUR or partial cystectomy are recommended to control these benign inflammatory lesions in children (5). In this age group, cystoscopic examination with histopathological evaluation should be performed for differential diagnosis. EC, which is characterized by massive eosinophilic infiltration of the bladder wall, is a rare inflammatory lesion of the bladder. It is often confused with bladder tumors and may cause urinary tract infections (6). It has been postulated that the unwanted antigen enters the bladder and forms antigen-antibody complexes, which bringing and accumulating eosinophils into the bladder wall (7). Pollen, dust, mites, and food

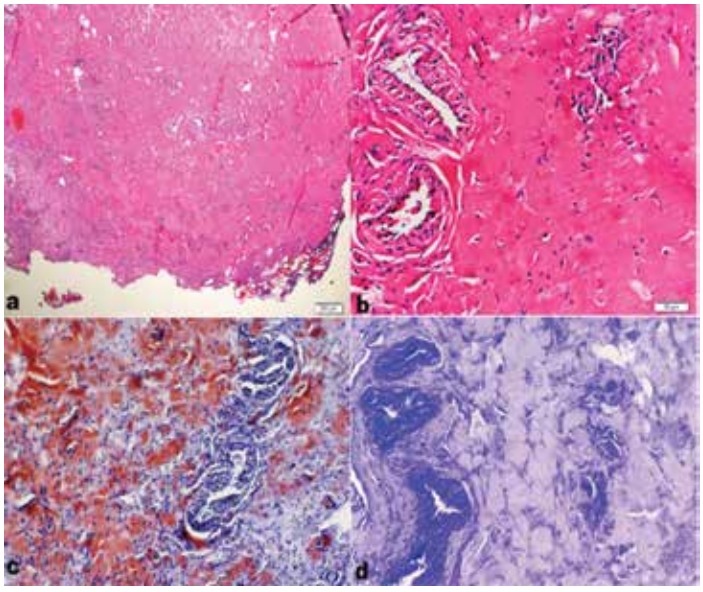


Figure 3. a) Histopathological examination was shown that the majority of the homogeneous acellular eosinophilic material accumulation in the lamina propria and chronic inflammation seen on the surface, b) Lamina propria is contained an intense eosinophilic material accumulation around and vessels, c) Kongo-red showed a positive staining in the eosinophilic material accumulated areas, d) Eosinophilic material accumulation indicated negativity with crystal violet

allergens are known as the priority allergens. Some allergic diseases, such as asthma are believed to be associated with EC, however, any specific allergen was not detected in the present case (8). Our patient was a 12-year-old male and had no known history of allergy.

Conclusion

Cystitis is more common than bladder tumors in childhood and can sometimes mimic bladder tumors. Biopsy and histopathological examination is the first step for diagnosis. Treatment options vary according to the diagnosis.

Ethics

Informed Consent: Consent form was filled out by all participants.

Peer-review: Internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Ahmet Çamtosun, Ramazan Altıntaş, Concept: Ramazan Altıntaş, Design: Ahmet Çamtosun, Hüseyin Çelik, Data Collection or Processing: Ahmet Çamtosun, Nusret Akpolat, Analysis or Interpretation: Ahmet Çamtosun, Literature Search: Ahmet Çamtosun, Hüseyin Çelik, Writing: Ahmet Çamtosun, Ramazan Altıntaş.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Lane Z, Epstein JI. Polypoid/papillary cystitis: a series of 41 cases misdiagnosed as papillary urothelial neoplasia. Am J Surg Pathol 2008;32:758-764.

2. Rossi E, Pavanello P, Marzola A, Franchella A. Eosinophilic cystitis and nephrogenic adenoma of the bladder: a rare association of 2 unusual findings in childhood. J Pediatr Surg 2011;46:31-34.
3. Verhagen PC, Nikkels PG, de Jong TP. Eosinophilic cystitis. Arch Dis Child 2001;84:344-346.
4. Torricelli M, Cerri M, Leva E, Magro P, Roma G, Runza L, Selvaggio G. An unusual case of macroscopic hematuria in pediatric age. Pediatr Med Chir 1998;20:81-83.
5. Netto JM, Pérez LM, Kelly DR, Joseph DB. Pediatric inflammatory bladder tumors: Myofibroblastic and eosinophilic subtypes. J Urol 1999;162:1424-1429.
6. Guerra LA, Pike J, Filler G, Udjus K, de Nanassy J, Leonard M. Pseudotumoral eosinophilic cystitis in a 3 year-old girl. Can J Urol 2005;12:2846-2848.
7. Frensilli FJ, Sacher EC, Keegan GT. Eosinophilic cystitis: observations on etiology. J Urol 1972;107:595-596.
8. Rubin L, Pincus MB. Eosinophilic cystitis: the relationship of allergy in the urinary tract to eosinophilic cystitis and the pathophysiology of eosinophilia. J Urol 1974;112:457-460.

CASE REPORT

Doi: 10.4274/jus.2015.574
J Urol Surg 2016;2:51-53

Circumventing the Urologist: A Case of Poorly Executed Self-Circumcision

Ürologdan Kaçmak: Başarısız Olmuş Bir Kendi Kendine Sünnet Olgusu

Timothy Rogers[1], Omar Mostafa[2], Hesham Mostafa[1], Tim Suttle[1]

[1]*The University of Toledo Medical Center, Department of Urology, Ohio, USA*
[2]*Northeast Ohio Medical University, Ohio, USA*

ABSTRACT

Circumcision is a relatively brief and safe procedure when performed by a medical professional. Recently, clamp-assisted circumcisions in the adult male have gained increased interest due to potential public health benefits. With the heightened interest has come an increased accessibility to such devices, creating the opportunity for ill-advised home attempts at circumcision by private citizens. To our knowledge, we present the first reported case of poorly executed self-circumcision in an adult male.

Keywords

Circumcision, clamp-assisted circumcions, phimosis, paraphimosis, balanoposthitis

ÖZ

Sünnet, medikal bir uzman tarafından yapıldığında göreceli olarak kısa ve güvenli bir işlemdir. Günümüzde, pens yardımıyla sünnet işlemine olan ilgi potansiyel halk sağlığı yararlarından dolayı erişkin erkekler arasında artış kazanmıştır. İşleme olan artmış ilgi beraberinde bu cihazlara erişilebilirliği de arttırmıştır ve vatandaşlar tarafından evde tedbirsiz sünnet girişimi için fırsat yaratmıştır. Bildiğimiz kadarıyla, yetişkin bir erkek hastada başarısız kendi kendine sünnet ile ilgili ilk olguyu sunuyoruz.

Anahtar Kelimeler

Sünnet, pens yardımıyla sünnet, fimozis, parafimozis, balonopostit

Introduction

Circumcision is one of the oldest recorded surgical procedures and is widely practiced with an average of 1 million newborn males circumcised yearly in the United States alone. Disposable plastic clamps have been developed to simplify adult circumcisions in developing countries with the aim to decrease human immunodeficiency virus (HIV) transmission. With the heightened interest in the simplification of the procedure has come increased accessibility to various circumcision clamps via Internet vendors. This provides those that would rather avoid visiting a trained professional, the opportunity for self-circumcision.

Case Presentation

Patient is a 31-year-old male, previously uncircumcised, with complaints of a deflected urine stream secondary to redundant foreskin. To obviate the need to retract his prepuce prior to voiding, he purchased a disposable plastic circumcising clamp from an Internet supplier to perform his self-circumcision (Figure 1). Five days after placement, the clamp was removed along with the redundant foreskin, and the patient noticed ventral separation of the skin edges. He then placed a single, midline, interrupted, 2-0 chromic stitch in the attempt to re-approximate the skin edges but was unable to place additional sutures due to discomfort (Figure 2). He then attempted to re-approximate the remaining dehiscence with skin glue but was unsuccessful. The patient presented to the emergency department approximately 36 hours following removal of the clamp at which point the urology service was consulted. No signs or symptoms of infection were noted and granulation tissue was present so conservative management with bacitracin ointment was decided upon. He was discharged home from the emergency department that day and returned to our clinic one month later. On follow-up, the wound was noted to have healed well with no significant sequelae.

Discussion

Circumcision is one of the oldest surgical procedures in history (1) and is widely practiced in the US, with an average of 1 million newborn males circumcised yearly (2). The benefits of circumcision

Correspondence
Timothy Rogers MD, The University of Toledo Medical Center, Department of Urology, Ohio, USA
Phone: +90 614 578 41 79 **E-mail:** timothy.rogers@rockets.utoledo.edu **Received:** 27.10.2015 **Accepted:** 08.11.2015

Figure 1. Penis with ventral suture placed by patient

Figure 2. Clamp used by patient

are numerous, including prevention of phimosis, paraphimosis, balanoposthitis as well as a decreased risk of penile cancer and HIV (3). Despite this, up to 30% of adult males are uncircumcised in the US (2). Cultural practices of circumcision are common in regions such as sub-Saharan Africa, the Philippines, and Indonesia. The Abrahamic faiths exercise this ritual within the first week of birth with the belief that those who are circumcised are 'purified' in the eyes of God. The most popular belief of circumcision in these sub-Saharan African and Southeast Asian cultures is that it is a right of passage to manhood. Other reasons include proof of masculinity, self-identity, and spirituality. Circumcision is also practiced in these regions due to psychosocial dynamics. The idea here is that some ethnic groups, such as Dogon and Dowayo of West Africa, believe that the foreskin represents the female aspect of the penis and must be removed in order to transition to manhood (4). The indications for circumcision in the adult male include the preventable conditions listed above as well as excessive foreskin redundancy, frenular tears and patient preference due to social, religious or personal motivations as alluded to above (5). Recently, there has been increased interest in the procedure after three large randomized-controlled trials showed evidence that circumcision reduces transmission of HIV between 51% and 60% (6,7,8). Not surprisingly, these studies have lead to the advent of new technology aimed at simplifying the manner in which circumcisions can be performed, particularly in the form of clamps (9). The relative simplicity of clamp-assisted circumcisions has lead to an increase in accessibility to the devices, to the point that various clamps are now available for purchase via the Internet. It is important that patients be made aware that regardless of how easy these devices appear to use, they should only be utilized by those with the appropriate training. The dilemma lies in how to appropriately inform these specific patients on the potential complications of self-circumcision including: infection, bleeding, urethrocutaneous fistula, penile amputation, disfigurement, penile shortening, neurovascular injury, or even erectile dysfunction. With continued availability of these devices, however, urologists should be prepared to manage cases of poorly executed self-circumcision.

Conclusion

With the commercial availability of circumcising clamps, we may begin to see an increase in complications from patients that attempt to perform their own circumcisions at home. The dilemma lies in how to appropriately inform these specific patients on the potential complications of self-circumcision. With continued availability of these devices, however, urologists should be prepared to manage cases of poorly executed self-circumcision.

Ethics

Informed Consent: Informed consent was obtained.

Peer-review: Internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Tim Suttle, Concept: Timothy Rogers, Tim Suttle, Hesham Mostafa, Design: Timothy Rogers, Tim Suttle, Hesham Mostafa, Data Collection or Processing: Timothy Rogers, Omar Mostafa, Analysis or Interpretation: Timothy Rogers, Omar Mostafa, Literature Research: Timothy Rogers, Omar Mostafa, Writing: Timothy Rogers, Omar Mostafa.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Mokal N, Chavan N. Modified safe technique for circumcision. Indian J Plast Surg 2008;41:47-50.
2. Gerharz EW, Haarmann C. The first cut is the deepest? Medicolegal aspects of male circumcision. BJU Int 2000;86:332-338.

3. American Academy of Pediatrics Task Force on Circumcision. Circumcision policy statement. Pediatrics 2012;130:585-586.
4. Pfenninger JL, Fowler GC. Procedures for primary care physicians. WB Saunders Company; 1994.
5. Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren A. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. PLoS Med 2005;2:298.
6. Bailey RC, Moses S, Parker CB, Agot K, Maclean I, Krieger JN, Williams CF, Campbell RT, Ndinya-Achola JO. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. Lancet 2007;369:643-656.
7. Gray RH, Kigozi G, Serwadda D, Makumbi F, Watya S, Nalugoda F, Kiwanuka N, Moulton LH, Chaudhary MA, Chen MZ, Sewankambo NK, Wabwire-Mangen F, Bacon MC, Williams CF, Opendi P, Reynolds SJ, Laeyendecker O, Quinn TC, Wawer MJ. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. Lancet 2007;369:657-666.
8. Abdulwahab-Ahmed A, Mungadi IA. Techniques of male circumcision. J Surg Tech Case Rep 2013;5:1-7.
9. "UNAIDS." Male Circumcision: Context, Criteria and Culture (Part 1). N.p., n.d. Web. 07 Aug. 2015.

J Urol Surg 2016;2:54-57

Andrology

doi: 10.4274/jus.2016.02.011

Re: Outcomes of Microdissection Testicular Extraction in Men with Nonobstructive Azoospermia due to Maturation Arrest

Bernie AM[1], Shah K[1], Halpern JA[1], Scovell J[2], Ramasamy R[2], Robinson B[3], Schlegel PN[4]

[1]*Weill Cornell Medical College, Clinic of Urology, New York, USA*

[2]*Baylor College of Medicine, Houston, Texas, USA*

[3]*Weill Cornell Medical College, Clinic of Pathology and Laboratory Medicine, New York, USA*

[4]*Weill Cornell Medical College, Clinic of Urology, New York, USA*

Fertil Steril 2015;104:569-573.e1. doi: 10.1016/j.fertnstert.2015.05.037. Epub 2015 Jun 18.

EDITORIAL COMMENT

Previous studies showed that, compared with men with late maturation arrest (MA), men diagnosed with early MA had a decreased sperm recovery rates by testicular sperm extraction (TESE). In this study, the authors classified patients with non-obstructive azoospermia (NOA) as either early or late, and focal or diffuse and compare sperm recovery rates by a single surgeon using micro TESE operation technique. Early MA was defined in patients whose pathology results showed spermatogenetic arrest at the spermatogonia or spermatocyte stage; and late MA in those arrest occurred at spermatid stage. On biopsy, MA may also vary in its heterogeneity from focal to diffuse pattern in whole seminiferous tubule of the pathology sample. The authors concluded that men with late and focal MA have a higher sperm recovery rate as compared to men with early and diffuse MA. In the presence of MA pathology, a high level of follicle-stimulating hormone (FSH) may predict heterogeneity of testicular tissue. The authors advise the clinicians to be aware of those men with normal FSH and normal testicular volume, with NOA, may have particularly poor sperm recovery rate.

Emre Bakırcıoğlu, MD

Andrology

doi: 10.4274/jus.2016.02.012

Re: Fourteen Babies Born after Round Spermatid Injection into Human Oocytes

Tanaka A[1], Nagayoshi M[1], Takemoto Y[1], Tanaka I[1], Kusunoki H[2], Watanabe S[3], Kuroda K[4], Takeda S[4], Ito M[5], Yanagimachi R[6]

[1]Institute for ART, Clinic of Saint Mother Obstetrics and Gynecology, Fukuoka, Japan

[2]Kobe University, Graduate Faculty of Agriculture, Faunal Diversity Sciences, Kobe, Japan

[3]Hirosaki University Graduate Faculty of Medicine, Department of Anatomical Science, Hirosaki, Japan

[4]Juntendo University Faculty of Medicine, Department of Obstetrics and Gynecology, Tokyo, Japan

[5]Hamamatsu University Faculty of Medicine, Department of Infectious Diseases, Hamamatsu, Japan

[6]University of Hawaii Medical Faculty, Department of Anatomy, Physiology, and Biochemistry, Honolulu, USA

Proc Natl Acad Sci USA 201524;112:14629-34. doi: 10.1073/pnas.1517466112. Epub 2015 Nov 2.

EDITORIAL COMMENT

In some infertile men, who have nonobstructive azoospermia, round spermatids (haploid male germ cells that have completed meiosis) are the most mature cells that are found after testicular sperm extraction operation. The microinjection of a round spermatid into an oocyte is called round spermatid injection (ROSI). Currently, human ROSI is considered a very inefficient procedure and of no clinical application. In this study, the authors reported the birth and development of 14 children born to twelve women following ROSI of 734 oocytes activated by an electric current. They concluded that the success was the ability to identify round spermatids accurately and oocyte activation by electric stimulation. All children were born after ROSI without any unusual physical, mental, or epigenetic problems. In this recent study, it has unexpectedly been shown that round cells, which are immature spermatozoa, may have ability to achieve pregnancy and live birth in human. ROSI may be considered an option and last chance for men whose germ cells are unable to develop beyond the round spermatid stage to have their own genetic offspring.

Emre Bakırcıoğlu, MD

doi: 10.4274/jus.2016.02.013

Re: Transurethral Resection of the Prostate Biopsy of Suspected Anterior Prostate Cancers Identified by Multiparametric Magnetic Resonance Imaging: A Pilot Study of a Novel Technique

Dason S, Allard CB, Wright I, Shayegan B

McMaster University Faculty of Medicine, Department of Urology, Ontario, Canada

Urology 2016;91:129-135. doi: 10.1016/j.urology.2015.12.063. Epub 2016 Feb 1.

EDITORIAL COMMENT

miss or undersample anterior prostate cancers (APCs). Multiparametric magnetic resonance imaging (mpMRI) plays an increasing role in the diagnosis of prostate cancer. In this study, the authors report a novel technique of cognitively directed transurethral resection of the prostate (TURP) to biopsy APCs identified by mpMRI and evaluate the feasibility of this approach among participants with prior negative TRUS-guided biopsies. Participants aged 50-75 years were offered inclusion if they had an elevated prostate-specific antigen level, a lesion suspicious for APC on mpMRI, and at least 1 prior negative TRUS-guided prostate biopsy with a minimum of 10 cores. Exclusion criteria included previous pathologically confirmed prostate cancer, nonanterior prostate lesions, multiple lesions on mpMRI, prostate lesions having benign appearance on mpMRI, and prostate lesions abutting the external urethral sphincter. The TURP biopsy procedure was cognitively directed on the basis of the suspected APC location in 3 dimensions, which had been previously noted from the mpMRI images and the anticipated APC location was resected. A total of 16 consecutive participants were enrolled. Thirteen (81.3%) participants had clinically significant APC detected by TURP biopsy. Seven participants (43.8%) underwent radical prostatectomy that confirmed clinically significant disease in all 7 participants. This study shows that among patients with anterior prostate lesions on mpMRI and prior negative TRUS-guided biopsy, TURP biopsy detects some clinically significant cancers and comparative trials on the concept are needed.

Özgür Yaycıoğlu, MD

doi: 10.4274/jus.2016.02.014

Re: Comparable Survival of En Bloc versus Standard Donor Kidney Transplants in Children

Winnicki E, Dharmar M, Tancredi D, Butani L

University of California Davis, Department of Pediatrics, California, USA

J Pediatr 2016;19. pii: S0022-3476(16)00131-1. doi: 10.1016/j.jpeds.2016.01.054. Epub ahead of print.

EDITORIAL COMMENT

En bloc kidney transplantation, which refers to harvesting of both kidneys along with major blood vessels, and performing anastomoses of the allograft vena cava and aorta to the recipient vessels, has an increased risk of graft thrombosis and hyperfiltration injury. However, reports of adult recipients from very young donors show very good long-term results. Contrary to that in adults, the data on en bloc kidneys in pediatric recipients is limited. In this retrospective cohort study, the authors has compared time to allograft failure and estimated glomerular filtration rate (eGFR) in 6882 pediatric recipients of both en bloc and standard criteria deceased donors using Organ Procurement and Transplantation Network data for over a 13-year period. Besides showing a similar allograft survival to standard criteria deceased donors, en bloc kidney recipients (1.8%) also had a shorter wait list time and superior kidney function in the intermediate term supporting the use of these kidneys for pediatric recipients. The use of en bloc pediatric kidney transplants is a reasonable option for children awaiting a cadaveric kidney at transplantation centers experienced in en bloc kidney transplantation. However, longer-term outcomes, including the risk of hyperfiltration injury, need to be determined.

Yarkın Kamil Yakupoğlu, MD

doi: 10.4274/jus.2016.02.015

Re: Prolonged Warm Ischemia Time is Associated With Graft Failure and Mortality After Kidney Transplantation

Tennankore KK[1], Kim SJ[2], Alwayn IP[3], Kiberd BA[1]

[1]Dalhousie University Faculty of Medicine, Department of Nephrology, Nova Scotia, Canada; Nova Scotia Health Authority, Nova Scotia, Canada

[2]University Health Network, University of Toronto Faculty of Medicine, Department of Nephrology, Ontario, Canada; Institute of Health Policy, University of Toronto Faculty of Medicine, Department Management and Evaluation, Ontario, Canada

[3]Dalhousie University Faculty of Medicine, Department of Surgery, Multi-Organ Transplant Program, Nova Scotia, Canada

Kidney Int 2016;89:648-658. doi: 10.1016/j.kint.2015.09.002. Epub 2015 Dec 30.

EDITORIAL COMMENT

The effect of warm ischemia time (the time from organ removal from cold storage to reperfusion with warm blood) on death and graft survival was investigated on a very large cohort of kidney recipients consisting of 131677 patients with 35901 events (20032 graft failures and 15869 deaths) over a 13-year period by using the data from the Scientific Registry of Transplant Recipients. Therefore, the 10-to-under-20 minute interval was chosen as the reference group. For each increment of 10 minutes of warm ischemia time was associated with an increased risk of death and graft failure. Interestingly, it was reported that after stratification by donor type (living vs. deceased donor) and delayed graft function status, the association between prolonged warm ischemia time and death/graft failure persisted. Longer times may be inevitable for some surgeries depending on the given donor and recipient factors even for the same surgeon. It is still not clear whether there is an ideal time below which there is no effect, however, strategies to reduce warm ischemia time like increasing surgical skills in simulation laboratories in order to achieve anastomosis times less than 30-35 minutes should be encouraged. In addition, better documentation of warm ischemia during surgery might help predict the future outcomes.

Yarkın Kamil Yakupoğlu, MD

doi: 10.4274/jus.2016.02.016

Re: Rac1-dependent Lamellipodial Motility in Prostate Cancer PC-3 Cells Revealed by Optogenetic Control of Rac1 Activity

Kato T[1], Kawai K[2], Egami Y[2], Kakehi Y[1], Araki N[2]

[1]Kagawa University Faculty of Medicine, Department of Urology, Kagawa, Japan

[2]Kagawa University Faculty of Medicine, Department of Histology and Cell Biology, Kagawa, Japan

PLoS One 2014;9:e97749. doi: 10.1371/journal.pone.0097749.

EDITORIAL COMMENT

Optogenetics is a biological method which includes the use of light to control cells in living tissue as neurons that have been genetically modified to express light sensitive ion channels. The key reagents used in optogenetics are light-sensitive proteins. Neuronal control is achieved using optogenetic actuators like channelrhodopsin, halorhodopsin and archaerhodopsin, while optical recording of neuronal activities can be made with the help of optogenetic sensors for calcium (GCaMP), vesicular release (synaptopHluorin), neurotransmitter (GluSnFRs) or membrane voltage (Arcclightining, ASAP1). In this study, the authors suggested Rac1-dependent lamellipodial motility in prostate cancer PC-3 cells revealed by optogenetic control of photoactivatable Rac1 activity. The lamellipodium plays an important role in invasion and metastasis of cancer cells for cell migration. Rac1 recognized as a main player in the formation of lamellipodium. They revealed the role of phosphatidylinositol 3-kinase (PI3K) in Rac1-dependent lamellipodial motility in PC-3 prostate cancer cells. Especially, inhibition of the neural hyperactivity in the micturation centers regulated by optogenetic application is a new therapeutic approach used to treat irreversible neurologic bladder dysfunction. In addition to the urooncology and neurourology, optogenetic researches will be focused on andrology (i.e. 5-hydroxy tryptamine 1A receptors). Optogenetic is a promising new field of research that will be applied in the treatment of various urological diseases in the future.

Fehmi Narter, MD

doi: 10.4274/jus.2016.02.017

Re: Autophagy in Cancer Stem Cells: A Potential Link Between Chemoresistance, Recurrence and Metastasis

Ojha R[1], Bhattacharyya S[2], Singh SK[1]

[1]Post Graduate Institute of Medical Education and Research, Clinic of Urology, Chandigarh, India

[2]Post Graduate Institute of Medical Education and Research, Clinic of Biophysics, Chandigarh, India

Biores Open Access 2015;4:97-108. doi: 10.1089/biores.2014.0035.

EDITORIAL COMMENT

Autophagy is a homeostatic, catabolic degradation process whereby cellular proteins and organelles are engulfed by autophagasomes, digested in lysosomes and recycled to sustain cellular metabolism. Autophagy has dual roles in cancer development. Generally, cancer cells activate autophagy for energy production and can enable cell survival. As well known, a small number of cancer stem cells (CSCs) able to self-renew, repopulate a tumor after treatment, and initiate metastatic growth. Inhibition of autophagy (i.e. 3-methyladenine, wortmannin, antimalarial drugs chloroquine and hydroxychloroquine, LY294002, bafilomycin, monensin) restored chemosensitivity and enhanced tumor cell death. A major regulator of autophagy is the mammalian target of rapamycin (mTOR) pathway which consists of two distinct signaling complexes known as mTORC1 and mTORC2. mTOR is activated downstream of PI3K-AKT, a pathway that is commonly dysregulated in human cancer. It can be inhibited by many therapeutics via this pathway. Autophagy is a predominant factor that helps in the acquisition of resistance to chemotherapy. Some authors reported that stress-induced autophagy in CSCs help their survival and, inhibition of autophagy can overcome CSC resistance. In the context of this knowledge, autophagy can be a novel therapeutic target. Targeting autophagy in cancer will provide new opportunities for drug development in the near future.

Fehmi Narter, MD

Doi: 10.4274/jus.2016.02.018
J Urol Surg 2016;2:58-61

Robot-assisted Radical Prostatectomy: How I Do It

Nasıl Yapıyorum: Robot Yardımlı Radikal Prostatektomi

Cemil Uygur[1], Fethullah Gevher[2]

[1]*Anadolu Health Center, Clinic of Urology, Kocaeli, Turkey*
[2]*Medical Park Gaziosmanpaşa Hospital, Clinic of Urology, İstanbul, Turkey*

ABSTRACT

In this article, we describe surgical technique for robot assisted radical prostatectomy using the four-arm da Vinci robotic surgical system (SI, Intuitive Surgical, Sunnyvale, CA, USA). We have continually refined our technique to improve patient outcomes.

Keywords

Prostate cancer, radical prostatectomy, robot assisted laparoscopic surgery, sugical technigue

ÖZET

Bu makalede, dört kollu da Vinci robotik cerrahi sistemi (SI, Intuitive Surgical, Sunnyvale, CA, USA) kullanarak robot yardımlı radikal prostatektomi tekniğimizi tanımlıyoruz. Daha iyi sonuçlar elde edebilmek için cerrahi tekniği tekniğimizi sürekli geliştirme çabası içindeyiz.

Anahtar Kelimeler

Prostat kanseri, radikal prostatektomi, robot yardımlı laparoskopik cerrahi, cerrahi teknik

Patient Positioning

A silicone pad is put over the operating table. The patient is placed over this pad in supine position. Once the patient is under general anesthesia, the arms are tucked in with foam rolls in the palms of the hands and shoulder braces are placed in order to prevent patient slipping. The patient's legs are placed in padded boot stirrups in a low lithotomy position. The distance between the legs must be enough to allow the robot docking. A 20Fr Foley catheter is installed to drain the bladder. Ultimately, abdominal, genital and perineal areas are scrubbed followed by sterile draping. After these preparations and port placement have been completed, the patient is put in the Trendelenburg position in which the patient is inclined at 30 degrees and robot is docked (Figure 1).

Port Placement

A standard 5-port placement is done. Of these, 4 are used for the robotic arms (three 8-mm metallic robotic trocars which are bonded to number 1, 2 and 3 robotic arms and a 12-mm trocar for the robotic camera). There is also a 12-mm trocar for the assistant usage. A 12-mm incision, 1-2 cm above the umbilicus is done. Pneumoperitoneum is established using

Figure 1. Trendelenburg position

Figure 2. Port placement; A) Insertion of the Veress needle, B) Port placement

Correspondence
Cemil Uygur MD, Anadolu Health Center, Clinic of Urology, Kocaeli, Turkey
E-mail: cemil.uygur@gmail.com **Received:** 28.04.2016 **Accepted:** 28.04.2016
Journal of Urological Surgery, published by Galenos Publishing.

a Veress needle through this incision. The insufflation is started at 1-2 L/min for a total of 3-5 L. An intraperitoneal pressure of 16 mmHg is then achieved. Then, the Veress needle is retrieved and a 12-mm trocar is placed. Later, primary inspection of the intraperitoneal cavity is performed to ensure that no injuries to the bowels or adjacent organs have occurred and to verify the presence of adhesions. Other trocars are then placed under laparoscopic guidance on a slightly curved parabolic line. Two 8-mm robotic trocars are placed 1-2 cm below on each side of the camera port and 4-5 finger breadths lateral to the camera port. On the right side of the patient, a third 8-mm robotic trocar is placed lateral to and 1-2 cm below and 4-5 finger breadths from the other 8-mm robotic trocar. On the left side of the patient, the 12-mm assistant port is placed again 1-2 cm below and 4-5 finger breadths lateral to the 8-mm robotic port (Figure 2).

Surgical Technique

Step 1

Mobilization of the Colon: The colon and other parts of the bowels that are stitched to the pelvic wall are mobilized (Figure 3).

Step 2

Mobilization of the Bladder: Bilateral medial umbilical ligaments are cauterized and divided. The fourth arm prograsp is used to provide traction. The bladder is then liberated off the anterior surface of the abdominal wall. Dissection is made towards the avascular plane until reaching the pubic bone (Figure 4).

Step 3

Endopelvic Fascia Dissection: After removing the layer of fat over the prostate and endopelvic fascia, better visualization of the puboprostatic ligaments, the dorsal venous complex and the junction between the bladder and the prostate is allowed. Endopelvic fascia is incised with the monopolar scissors towards to the prostate apex. The levator ani muscle fibers are removed by blunt dissection from the prostate (Figure 5).

Step 4

Apical Dissection: Bilateral levator ani muscle fibers are removed from both sides of the prostate apex using blunt dissection. Thereafter, pubo-prostatic ligaments are cut (Figure 6).

Step 5

Dorsal Vein Complex Ligation: The suture (using a 36-mm needle, 0 monocryl) is passed beneath the dorsal vein complex (DVC) and anterior to the urethra. A total of two suture ligations are put in place (one distal and another more proximal) (Figure 7). At this step, the DVC is not yet cut.

Step 6

Bladder Neck Transection: The bladder is hold and stretched backwards using the fourth arm prograsp. After identification of the proper plane of dissection, the bladder neck is divided horizontally using monopolar cauterization until the urethral catheter is seen. The Foley catheter is then deflated. While external counter traction is exerted on the penile meatus via the Foley catheter by the bedside assistant, the prostate is suspended anteriorly towards the abdominal wall by grasping the internal tip of the catheter and lifting it upwards (Figure 8). By this way, the posterior bladder wall is addressed. The detrusor fibers and mucosa are taken down using monopolar cauterization.

Step 7

Posterior Dissection, Exposure of the Seminal Vesicles and the Denonvillier's

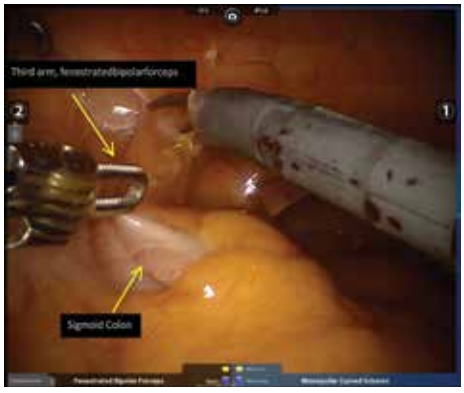
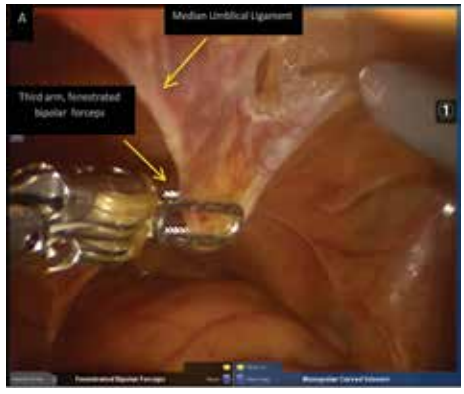


Figure 3. Mobilization of the colon



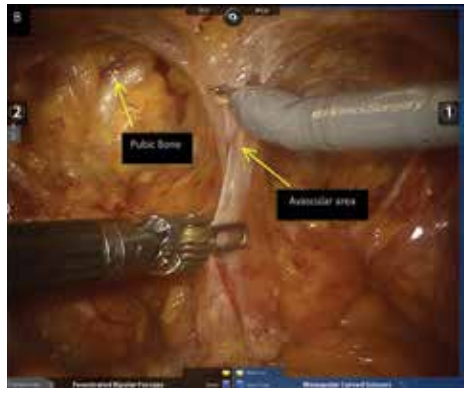


Figure 4. Mobilization of the bladder, A) Cauterization of the umbilical ligament, B) Dissection of the avascular plane

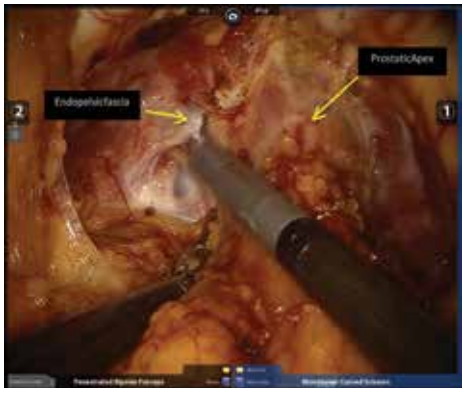


Figure 5. Incision of the endopelvic fascia

Figure 6. Apical dissection

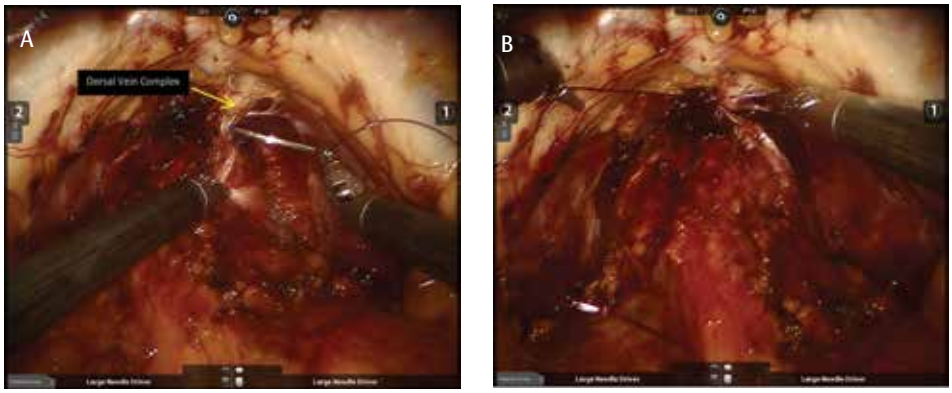


Figure 7. Dorsal vein complex ligation (A, B)

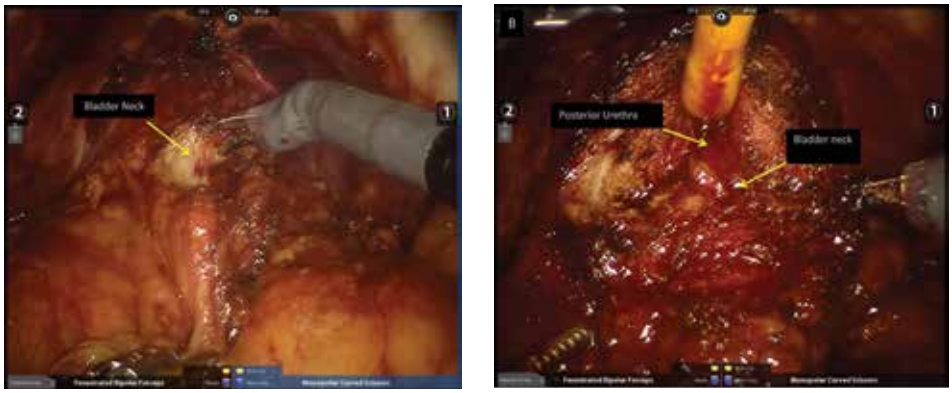


Figure 8. Bladder neck transection; A) Dividing the bladder neck horizontally, B) Prostate is suspended towards the abdominal wall

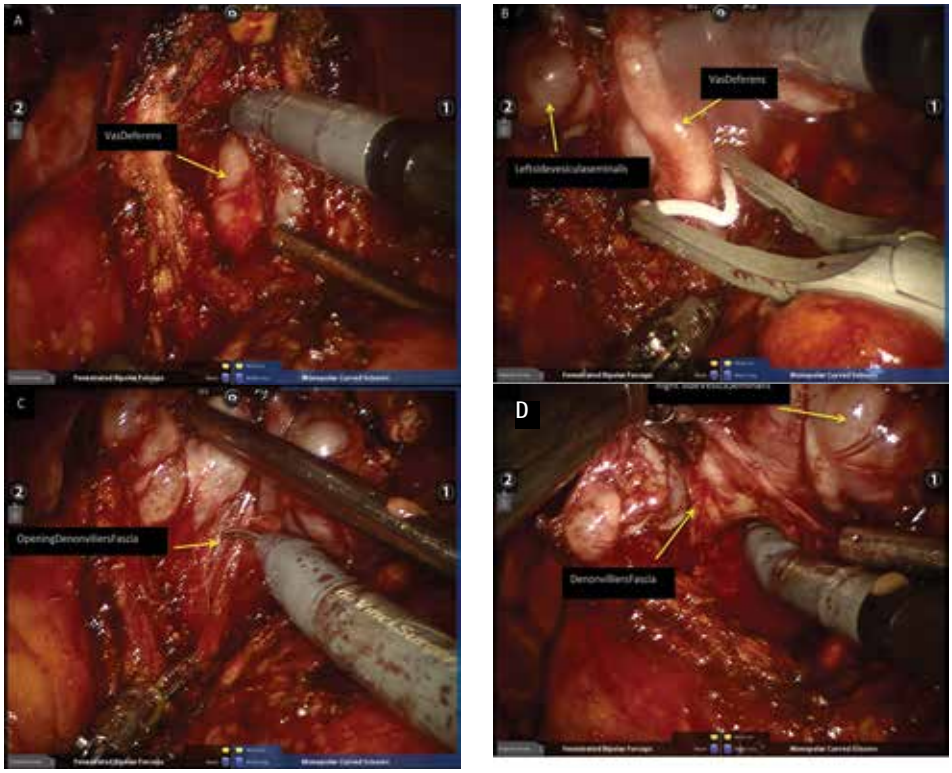


Figure 9. Posterior dissection, exposure of the seminal vesicles and the Denonvillier's fascia; A) The vas deferens and the accompanying vessels are exposed, B) The vas deferens are clipped and then divided, C) Seminal vesicle dissection is done, D) Deep posterior dissection is continued

Fascia: Bipolar graspers are used to dissect through and divide fibrovascular tissue to the desired plane. Through the dissection of the retroprostatic tissue, the vas deferens and the accompanying vessels are exposed. A monopolar scissor is used to free adjoining vessels. The vas deferens are then divided bilaterally. Afterwards, in order to dissect the seminal vesicles, the assistant provides upper traction of the vas deferens and downward traction with the suction tip. Blunt dissection of the fibrovascular tissue overlying the surface of the seminal vesicle is done. After mobilization of the seminal vesicle, it is grasped by the bipolar instrument and elevated. Rigorous blunt dissection is continued to allow complete dissection of the seminal vesicle. Deep posterior dissection is then continued to the level of Denonvillier's fascia (Figure 9).

Step 8

Neurovascular Bundle Preservation: It is mandatory to use an athermal dissection technique in the proximity of the nerve bundles also to limit the amount of stretch. Lateral pedicles are dissected afterwards, clipped by the assistant using a medium 10-mm Weck Hem-o-lok clip (Figure 10). Once the clips are placed, sharp scissor cutting between them liberates the tissue. After releasing the prostate from its vascular pedicles and completing the posterior plane dissection by dissecting through the Denonvillier's fascia to the prostate apex, small stroking movements using the back end of the monopolar scissor are made to liberate the tissues. The avascular plane is followed laterally along the prostatic capsule and antegrade dissection can be carried out along this plane from the base to the apex of the prostate.

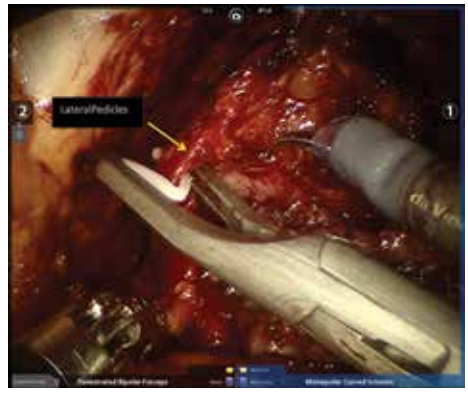


Figure 10. Neurovascular bundle preservation

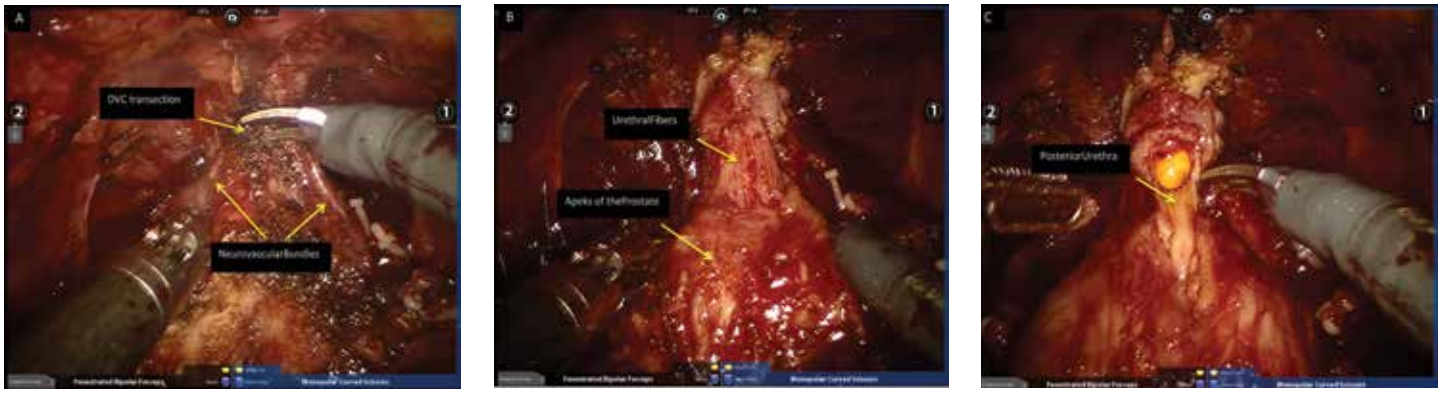


Figure 11. Transection of the dorsal vein complex and urethral division; A) Transection of the dorsal vein complex, B) Urethra, C) Division of the urethra

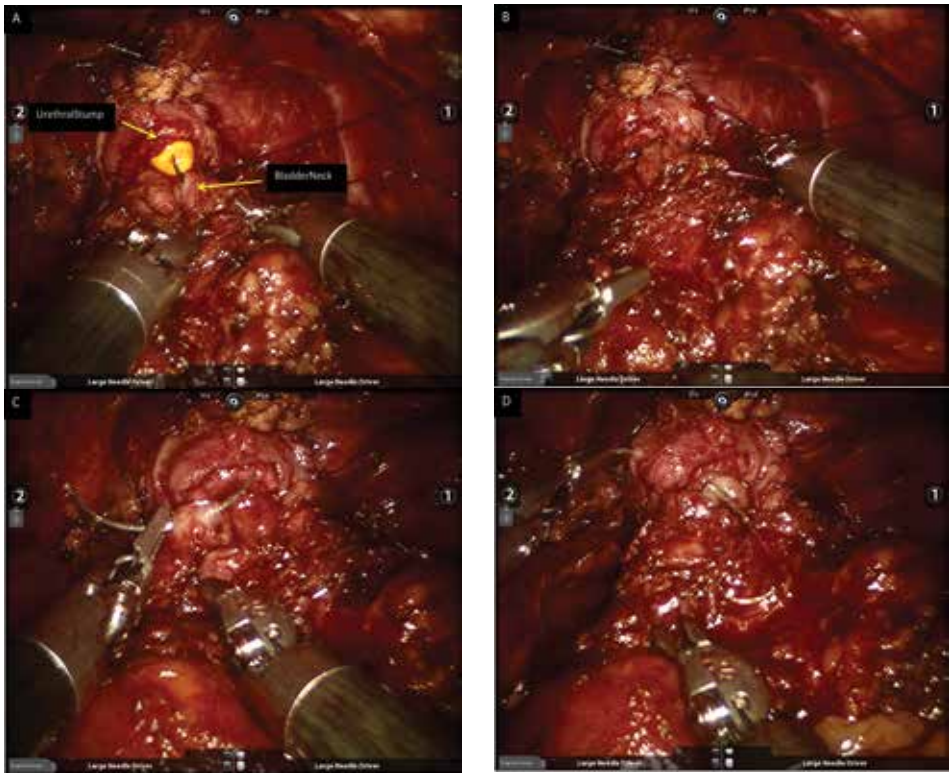


Figure 12. Continuous vesico-urethral anastomosis, A) The 'outside-in' (bladder), B) 'Inside-out (urethra) bites along the right side of the vesicourethral anastomosis, C) The 'outside-in' (bladder), D) 'Inside-out (urethra) bites along the left side of the vesicourethral anastomosis

Step 9

Transection of the Dorsal Vein Complex and Urethral Division: Starting beneath the DVC, monopolar scissors are used to divide the tissue. After transection of the DVC, the urethra is then skeletonized to delineate the boundary of the end of the prostate and the released neurovascular bundles. The anterior urethra is cut until visualization of the Foley catheter is possible. The Foley catheter is withdrawn to expose its tip. The remaining posterior wall is then cut sharply until the prostate is liberated (Figure 11). The prostate is placed in an endo-catch bag.

Step 10

Continuous Vesico-Urethral Anastomosis: The anastomosis is done using two different colored 2/0 monocryl sutures. The two sutures are bonded together. Both suture needles are anchored at the 6 o'clock position of the bladder. Detrusor muscve and bladder mucosa are grasped and passed through with the needle. While the assistant introduces the Foley catheter, the needles are positioned toward the urethra. This time, both sutures are passed through the posterior side of the urethra at the same 6 o'clock position. The sutures are then pulled backwards with repetitive, short pulls until the bladder neck mucosa is adjacent to the urethral stump with no gap. The 'outside-in' bites along the bladder and the 'inside-out' urethral bites are continued in a running fashion from 6 to 12 o'clock on the both sides, independently assuring adequate tension (Figure 12). The two sutures are then ligated together; the knot is placed above the bladder and not over the vesico-urethral anastomosis (VUA). The integrity of the VUA is verified with 180 cc saline instilled in the bladder. The needles are snapped out and removed from the body by the assistant.

Step 11

Case Completion and Postoperative Considerations: No drain is put if it is not mandatory. The specimen within the endo-catch bag is extracted through extension of the assistant trocar site. The fascial defect is then closed by 2/0 Vicryl sutures. The skin defects are closed with a subcuticular absorbable suture (4/0 monocry). Closure of the fascial defects for the 5 mm and 12 mm trocar sites are not needed. Regular diet is offered the evening of the surgery and patients are mobilized out of bed within hours of surgery. The Foley catheter is placed to a leg-bag upon discharge. Removal of the Foley catheter is planned on postoperative day 7.

RADIOLOGY PAGE
Urooncology

doi: 10.4274/jus.2016.875
J Urol Surg 2016;2:62-63

Penile Metastasis as the First Manifestation of Sarcomatoid Renal Cell Carcinoma

Sarkomatoid Renal Hücreli Karsinomun İlk Bulgusu Olarak Ortaya Çıkan Penil Metastaz

İlkay Çamlıdağ, Murat Danacı, Mehmet Selim Nural

Ondokuz Mayıs University Faculty of Medicine, Department of Radiology, Samsun, Turkey

Introduction

A 51-year-old male patient without any history of a systemic disease was admitted to the urology department with the complaints of terminal hematuria and a penile mass. Physical examination confirmed the presence of a mass in the penile shaft and the patient was referred for magnetic resonance imaging (MRI) examination. On abdominal MRI, a 70-mm sized, well-circumscribed, heterogeneous, enhancing mass lesion was detected in the interpolar region of the right kidney and interpreted as renal cell carcinoma (RCC) (Figure 1). MRI also revealed a mass lesion infiltrating a long segment of the corpus spongiosum in the penile shaft and a few millimeters sized similar mass lesions in the corpus cavernosum (Figure 2). The patient underwent radical nephrectomy for the renal mass and excisional biopsy was performed from the corpus cavernosum. The histopathological diagnosis was consistent with Fuhrman grade IV RCC showing sarcomatoid features and penile metastasis. The patient was referred to the medical oncology department for sunitinib treatment.

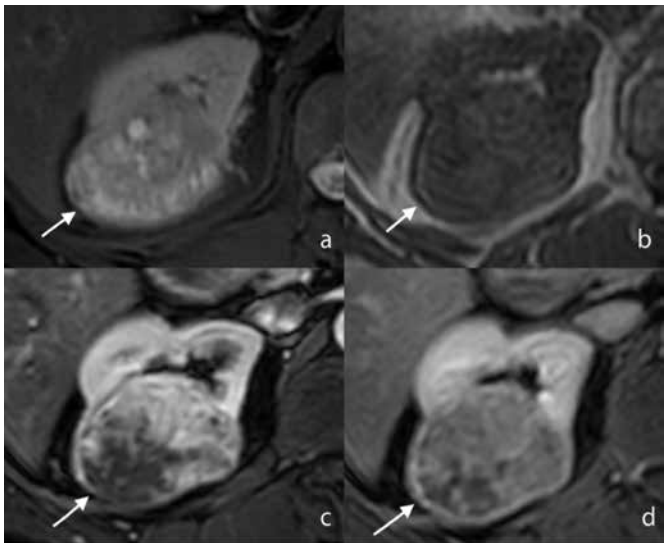


Figure 1. On axial magnetic resonance images, a 70-mm sized, well-circumscribed, heterogenous mass lesion is seen in the interpolar region of the right kidney (arrows). The mass was slightly hyperintense on both T2-weighted (a) and T1-weighted image (b). The mass avidly enhanced on nephrographic phase contrast-enhanced image (c) and washed out on delayed phase image (d)

Figure 2. Coronal (a) and sagittal (b) T2-weighted images revealed a mass infiltrating a long segment of corpus spongiosum in the penile shaft and a few milimeter sized similar mass lesions in the corpus cavernosum (arrows). Lesions were hyperintense on diffusion weighted image (a) and hypointense on apparent diffusion coefficient map (b) consistent with restricted diffusion

Correspondence
İlkay Çamlıdağ MD, Ondokuz Mayıs University Faculty of Medicine, Department of Radiology, Samsun, Turkey
E-mail: ilkayozaydin@hotmail.com **Received:** 25.03.2016 **Accepted:** 05.04.2016

Secondary penile cancers are extremely rare and usually originate from primary pelvic malignancies with bladder cancer being the most common primary followed by prostate and rectosigmoid cancer in 69% of all cases. RCC constitutes 6.9% of all cancers causing penile metastasis and, to date, less than 50 cases of penile metastasis originating from RCC has been defined in the literature (1). To our knowledge, our case is the third case of penile metastasis originating from RCC with sarcomatoid features (2,3) which is a very aggressive type. The most common manifestation of penile metastases is malignant priapism which is seen in about 40% of cases. The other manifestations are indurated nodules and masses, skin lesions, perineal pain, dysuria, and hematuria (4). Penile nodules involve both corpora cavernosa in about 70% of patients which explains the increased frequency of priapism. Corpus spongiosum and the glans penis are less frequently involved (1). Penile metastasis is associated with advanced disease and, therefore, has a poor prognosis with a short life expectancy (5). Various treatment modalities, such as radiotherapy, systemic chemotherapy, local excision or total penectomy could be preferred according to the clinical status of the patient but has no proven survival benefit (4,5). Penectomy has shown to be beneficial as a palliative treatment in cases with intractable pain. Imaging modalities, such as ultrasonography, computed tomography, and MRI are helpful in the diagnosis and determining the extent of the disease. However, differentiating from a primary neoplasm and making a definitive diagnosis is only possible by excisional biopsy or fine needle aspiration and histopathological analysis (1). In conclusion, penile metastasis is very rare. It is associated with advanced disease and a poor prognosis. Imaging is helpful in diagnosing the primary disease and showing the extent of penile involvement.

Keywords

Penile metastasis, renal cell carcinoma, sarcomatoid

Anahtar Kelimeler

Penil metastaz, renal hücreli karsinom, sarkomatoid

Ethics

Peer-review: Internal peer-reviewed.

Authorship Contributions

Concept: İlkay Çamlıdağ, Murat Danacı, Mehmet Selim Nural, Design: İlkay Çamlıdağ, Murat Danacı, Data Collection or Processing: İlkay Çamlıdağ, Analysis or Interpretation: İlkay Çamlıdağ, Literature Research: İlkay Çamlıdağ, Mehmet Selim Nural, Writing: İlkay Çamlıdağ.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Mearini L, Colella R, Zucchi A, Nunzi E, Porrozzi C, Porena M. A review of penile metastasis. Oncol Rev 2012;6:10.
2. Takahashi H, Hirano Y, Ishikawa A, Ushiyama T, Suzuki K, Fujita K. Penile metastasis from renal cell carcinoma: a case report. Hinyokika Kiyo 2000;46:463-465.
3. Liou VD, Darwish OM, Henry MM, Jun IC, Siddiqui SA. Sarcomatoid renal cell carcinoma metastasis to the penis. Case Rep Urol 2015;2015:467974.
4. Berkmen F, Ayyıldız A. Metastatic penile carcinoma: a study of nine cases and review of the literature. Afr J Urol 2005;11:22-26.
5. Lee CL, Su B, Kuo HC. The dreadful and the deadly erection: Malignant priapism from renal cell carcinoma. Urological Science 2014;25:152-154.

PATHOLOGY PAGE

Doi: 10.4274/jus.2016.993
J Urol Surg 2016;2:64-65

Endometriosis of the Bladder

Mesanenin Endometriozisi

Zübeyde Yıldırım Ekin

Tepecik Training and Research Hospital, Clinic of Pathology, İzmir Turkey

Introduction

Endometriosis is characterized by the presence of functional endometrial tissue outside the uterus. Endometriosis is common entity, but the involvement of the urinary tract is rare (1). Although endometriosis frequently occurs in women of reproductive age, bladder endometriosis is an uncommon condition (approximately 1% of all endometriosis cases). On the other hand, the bladder is the most affected organ in the urinary tract (2). Two forms of bladder endometriosis have been defined: One occurs in women without a history of uterine surgery (primary), and the other one develops after pelvic operation (iatrogenic or secondary) (3). The average age of cases is approximately 35 years. Frequency, hematuria, dysuria and urgency are the most common symptoms, however, approximately 50% of patients are asymptomatic. Severity of symptoms is related to the size of endometriotic lesions and the location. Endometriosis of the muscularis propria may show similar symptoms to those of interstitial cystitis. There is a palpable suprapubic mass in almost 50% of cases, and it may undergo catamenial expansion. Therefore, it must be kept in mind in the differential diagnosis of hematuria especially in female patients in the reproductive age (4,5). Rarely, endometriosis has been described in postmenopausal female patients treated with estrogen, likewise in men treated with hormone therapy for prostate cancer (5). Cystoscopic examination of endometriosis reveals edematous, erythematous mucosal elevations overlying blue-black or red-blue cysts, a grossly hemorrhagic, ill-defined, polypoid lesion. The overlying urothelium sometimes may be eroded. If the lesions are located in the muscularis propria or serosa, the mucosa may be intact. The bladder wall around the lesion may be thickened because of hyperplasia and fibrosis (1). Microscopically, the lesion is consisted of endometrial glands and stroma which is identical endometriosis as seen elsewhere (Figure 1). The diagnosis depends on identification

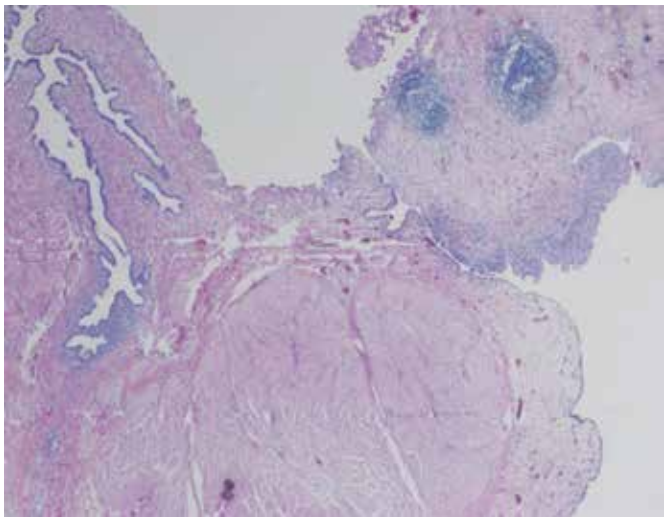


Figure 1. Several irregularly shaped endometrial glands surrounded by endometrial stroma adjacent to a detrusor muscle bundle. The glandular epithelium lacks cytologic atypia and mitotic activity

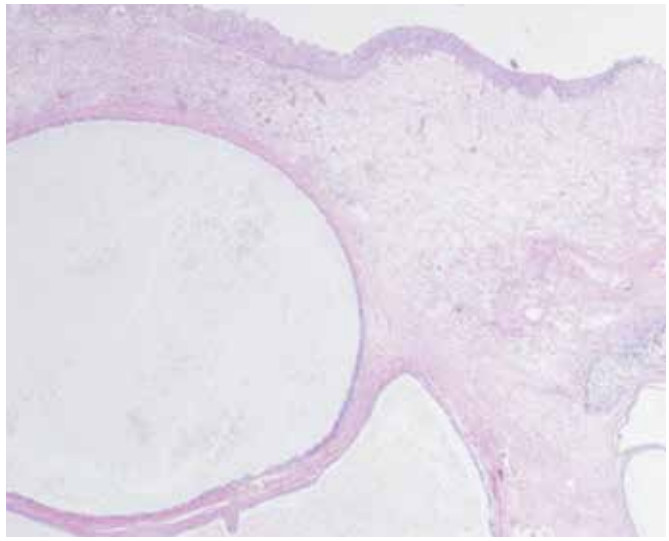


Figure 2. Glands lined by flattened epithelium with luminal eosinophilic, proteinaceous material located under the urothelium

Correspondence
Zübeyde Yıldırım Ekin MD, Tepecik Training and Research Hospital, Clinic of Pathology, İzmir, Turkey
Phone: +90 506 852 45 33 **E-mail:** zubeydeyildirimekin@gmail.com **Received:** 03.05.2016 **Accepted:** 03.05.2016

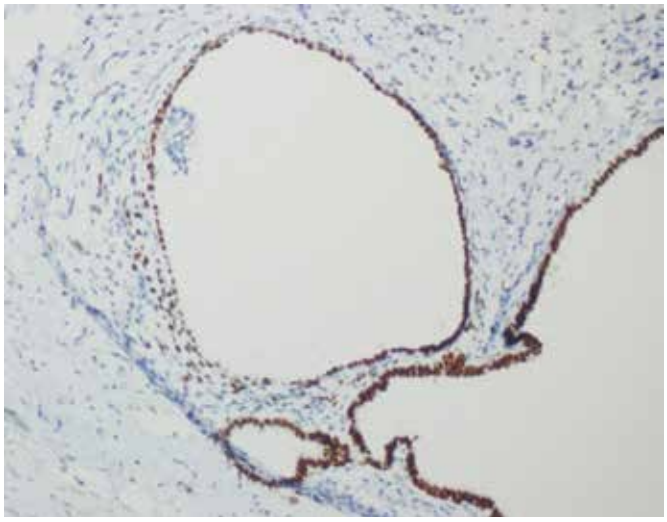


Figure 3. Immunostains for estrogen receptor is nuclear positive in epithelial cells lining the endometriotic glands

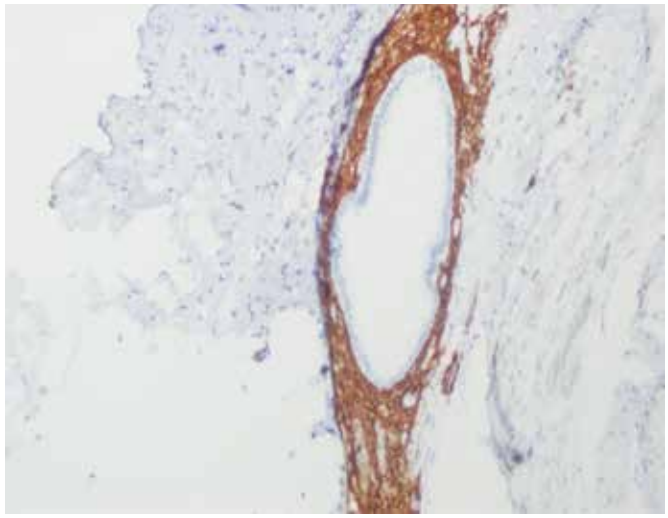


Figure 4. The endometrial stromal cells highlighted by CD10 immunostaining

of two of the three criteria: endometrial stromal cells, endometrial glands, and recent or old hemorrhage (Figure 2). Sometimes Arias-Stella reaction, endometrial hyperplasia or malignant transformation can be seen in endometriosis. Immunohistochemically, endometriosis shows expression of epithelial cells for CK7, CA125, estrogen receptor, and progesterone receptor as well as CD10 expression within stroma (Figure 3, 4). These immunohistochemical markers may be helpful in diagnostically challenging cases (2). Endometriosis is rare entity which should be kept in mind in the differential diagnosis of primary invasive adenocarcinoma of the bladder, especially when it involves muscularis propria.

Ethics

Peer-review: Internal peer-reviewed.

References

1. Gupta A, Bhatnagar A, Seth BN, Dang A, Gupta V. Bladder endometriosis mimicking TCC-a case report. J Clin Diagnostic Res 2016;10:12-13.
2. Al-Khawaja M, Tan PH, MacLennan GT, Lopez-Beltran A, Montironi R, Cheng L. Ureteral endometriosis: clinicopathological and immunohistochemical study of 7 cases. Hum Pathol 2008;39:954-959.
3. Donnez J, Spada F, Squifflet J, Nisolle M. Bladder endometriosis must be considered as bladder adenomyosis. Fertil Steril 2000;74:1175-1181.
4. Bulut S, Aktaş BK, Özden C, Erkmen AE, Güreşçi S, Kulaçoğlu S, Memiş A. A case of primary bladder endometriosis who had undergone partial cystectomy. 2014;21:157-159.
5. Oliker AJ, Harris AE. Endometriosis of the bladder in a male patient. J Urol 1971;106:858-859.