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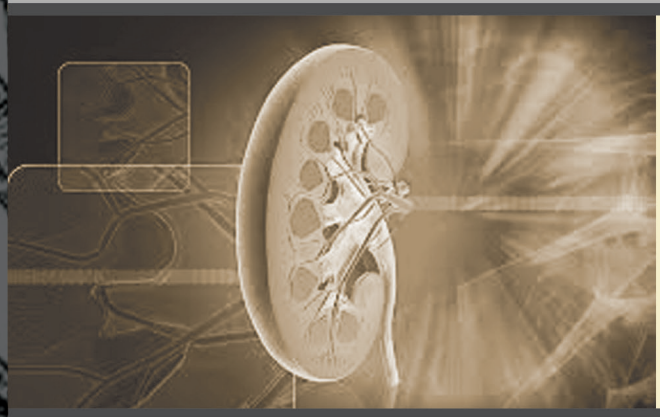

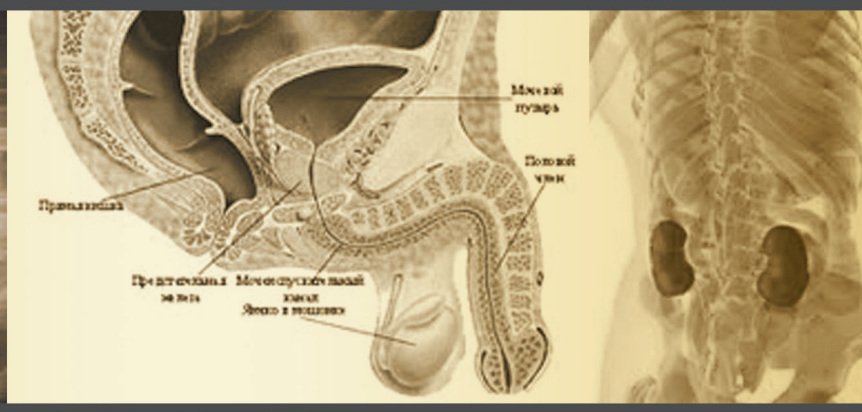

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Statistics: Describe the statistical methods used in enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. Statistically important data should be given in the text, tables and figures. Provide details about randomization, describe treatment complications, provide the number of observations, and specify all computer programs used.

Results: Present your results in logical sequence in the text, tables, and figures. Do not present all the data provided in the tables and/or figures in the text; emphasize and/or summarize only important findings, results, and observations in the text. For clinical studies provide the number of samples, cases, and controls included in the study. Discrepancies between the planned number and obtained number of participants should be explained. Comparisons, and statistically important values (i.e. p value and confidence interval) should be provided.

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2. Organization as Author

Yaycioglu O, Eskicorapci S, Karabulut E, Soyupak B, Gogus C, Divrik T, Turkeri L, Yazici S, Ozen H; Society of Urooncology Study Group for Kidney Cancer Prognosis. A preoperative prognostic model predicting recurrence-free survival for patients with kidney cancer. Jpn J Clin Oncol 2013;43:63-68.

3. Complete Book

Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA. Campbell-Walsh Urology, 10th ed. Philadelphia, Elsevier&Saunders, 2012.

4. Chapter in Book

Pearle MS, Lotan Y Urinary lithiasis: etiology, epidemiology, and pathogenesis. In: Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA. Campbell-Walsh Urology, 10th ed. Philadelphia, Elsevier&Saunders, 2012, pp 1257-1323.

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5. Abstract

Nguyen CT, Fu AZ, Gilligan TD, Kattan MW, Wells BJ, Klein EA. Decision analysis model for clinical stage I nonseminomatous germ cell testicular cancer. J Urol 2008;179:495a (abstract).

6. Letter to the Editor

Lingeman JE. Holmium laser enucleation of the prostate-If not now, when? J Urol 2011;186:1762-1763.

7. Supplement

Fine MS, Smith KM, Shrivastava D, Cook ME, Shukla AR. Posterior Urethral Valve Treatments and Outcomes in Children Receiving Kidney Transplants. J Urol 2011;185(Suppl):2491-2496.

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acquisition of data, or analysis and interpretation of findings. All persons designated as an author should qualify for authorship, and all those that qualify should be listed. Each author should have participated sufficiently in the work to take responsibility for appropriate portions of the text.

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CONTENTS

ORIGINAL RESEARCH
Functional Urology

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Journal of Urological Surgery, 2017;4:1-7

Design and Validation of the Marmara Post-prostatectomy Incontinence Symptom Score

Marmara Post-prostatektomi İdrar Kaçırma Semptom Skoru Oluşturulması ve Validasyonu

Murat Akgül[1], Muhammed Sulukaya[2], Ahmet Şahan[3], Nural Bekiroğlu[4], İlker Tinay[2], Levent Türkeri[2], Tufan Tarcan[2]

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[2]Marmara University Faculty of Medicine, Department of Urology, İstanbul, Turkiye
[3]Ümraniye Training and Research Hospital, Clinic of Urology, İstanbul, Turkiye
[4]Marmara University Faculty of Medicine, Department of Biostatistics, İstanbul, Turkiye

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

Incontinence developing after post-prostatectomy is a very disturbing problem. There are many questionnaires for evaluating incontinence in the field of urology. There is however no dedicated form which evaluates incontinence that develops particularly after prostatectomy. The present study explores a valid and reliable questionnaire in analysis of post-prostatectomy incontinence.

Abstract

Objective: This study aims to validate the "Marmara post-prostatectomy incontinence symptom score (M-PPISS)" designed for the assessment of post-prostatectomy incontinence (PPI).

Materials and Methods: The questionnaire consists of 3 sections including 8 questions (4 questions examining the type and degree of PPI, 3 questions examining the effect of PPI on quality of life (QoL) and 1 question examining bladder emptying) and an analogue scale to assess the impact of PPI on the QoL. The questionnaire was completed by 106 patients, who underwent radical prostatectomy (RP) in our clinic between 2007 and 2015, at the end of the first week, first month and at 3-month intervals up to one year after RP.

Results: The mean score of 106 patients at the end of the first week after the operation was 6.57 (minimum: 0, maximum: 24). The internal consistency coefficient measured for our questionnaire was found to be higher (Cronbach's alpha: 0.887). When an item was deleted, Cronbach's alpha was not lower than 0.85 for any value. According to the 27% rule, p value was calculated as 0.0001. In the numerical evaluation of total score and the analogue scale considering QoL (satisfaction and dissatisfaction); patients with a total score of 0-4 were accepted as "satisfied with QoL", while patients with a total score of ≥5 were included in the dissatisfied group (cut-off value: 5).

Conclusion: The M-PPISS was found to be a reliable and valid instrument in the evaluation of urinary incontinence after RP.

Keywords: Prostatectomy, incontinence, questionnaire, validation

Öz

Amaç: Çalışmamızda prostatektomi sonrası idrar kaçırma (PSİK) değerlendirilmesi için oluşturduğumuz "Marmara post-prostatektomi idrar kaçırma semptom skoru (M-PPİKSS)" validasyonu amaçlandı.

Gereç ve Yöntem: Sorgulama formu 3 bölümden oluşmakta ve idrar kaçırma şeklini ve miktarını sorgulayan 4 soru, idrar kaçırmanın yaşam kalitesi üzerine olan etkilerini sorgulayan 3 soru ve mesane boşaltımını sorgulayan 1 soru olmak üzere toplam 8 soru bulunmaktadır. Bu sorgulama formu kliniğimizde 2007-2015 yılları arasında radikal prostatektomi (RP) operasyonu uygulanan hastalardan 106 tanesine operasyon sonrası 1. hafta, 1. ay ve 3 aylık kontrolleri sırasında doldurduldu ve sonuçları sorgulama formunun validasyonu açısından değerlendirildi.

Bulgular: Ameliyat sonrası 1. haftada toplam 106 hastanın ortalama skorları 6,57 (minimum: 0, maksimum: 24) olarak bulundu. Sorgulama formu için hesaplanan iç tutarlılık katsayısı yüksek tespit edildi (Cronbach's alfa: 0,887). Öğe silindiğinde Cronbach's alfanın hiçbir değer için 0,85'in altına düşmediği izlendi. %27 kuralına göre ise p değeri 0,0001 olarak hesaplandı. Toplam skor ile analog skala arasında yaşam kalitesi düşünülerek

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(memnuniyet ve memnuniyetsizlik) yapılan sayısal değerlendirmede ise, toplam skoru 0-4 aralığında olanlar yaşam kalitesi için memnun olarak kabul edilirken, toplam skoru ≥5 olanlar ise memnun olmayanlar grubuna dahil edildi (eşik değeri: 5).
Sonuç: M-PPİKSS, RP sonrası idrar kaçırma değerlendirilmesinde geçerli ve güvenilir bir araç olduğu saptandı.
Anahtar Kelimeler: Prostatektomi, idrar kaçırma, sorgulama formu, validasyon

Introduction

Incontinence, which develops after surgical interventions for prostatic diseases such as prostate cancer (PC) and benign prostatic hyperplasia, is a disturbing problem and affects a significant group of patients with varying intensity (1). Radical prostatectomy (RP) remains the most common treatment option for the treatment of localized PC (2). However, in spite of the advances in the techniques and technology, post-RP incontinence affects 4 to 50% of patients mildly and 0 to 15.4% of patients severely (3,4,5).

Besides routine urological evaluation for post-RP incontinence, using a questionnaire can be helpful for the assessment of the nature and quantity of the incontinence and its effect on the quality of life (QoL). There are a number of questionnaires for evaluating incontinence in the field of urology. Those forms are important for the purpose of standardizing the information received from the patients and eliminating subjectivity and, such questionnaires are recommended to be used in daily practice (6). There are 4 questionnaires, which are validated, investigating incontinence and impotence after RP (7,8,9,10). However, the need for a brief and dedicated questionnaire still exists for the evaluation of incontinence developing particularly after RP.

In this study, we aimed to introduce and validate the "Marmara post-prostatectomy incontinence symptom score (M-PPISS)" form for the evaluation of post-prostatectomy incontinence.

Materials and Methods

The M-PPISS questionnaire consists of 3 sections with a total of 8 questions (Annex 1). In the first section, there are 4 questions regarding the type and severity of incontinence where five different answers can be given from (0) never to permanently/ frequently (4). In the second section, there are 3 questions, questioning the effects of incontinence on the QoL, where four different answers can be given from (0) never to very much (3). And in the last section, there is 1 question questioning bladder emptying, where four different answers can be given from (0) (I urinate comfortably) to 3 (I cannot urinate at all).

Total scores vary between 0 and 28. Furthermore, there is an analog scale which helps to evaluate the overall QoL related to micturition status at the end of the questionnaire. Such analog scale is in the range I am happy (0) - I feel miserable (6).

For the validation of the questionnaire, a total of 106 patients, who underwent RP operation in our clinic between 2007 and 2015, completed the M-PPISS at the 1st week, 1st month and 3 months controls after the RP.

Statistical Analysis

Validity and reliability analyses were performed using SPSS 17.0 software. A p value of less than 0.05 was considered statistically significant.

Results

The average age of the 106 patients, who completed the M-PPISS questionnaire, was 63.9±6.4 years. The average M-PPISS scores of the patients are presented in Table 1, where continuous decreases were observed with longer follow-up periods (Table 1).

After test-retest analysis carried out by means of comparing 1st week, 1st month and 3 monthly M-PPISS during follow-up, where significant differences were observed in the answers given by the patients to each question, in total score and in averages ($p<0.05$).

The internal consistency coefficient calculated for the questionnaire was high (Cronbach's alpha: 0.887) and when an element was deleted for each question within the M-PPISS questionnaire, Cronbach's alpha value did not drop below 0.85 for any value (Table 2).

The correlation analysis of the M-PPISS total score and analog scale is given in Table 3, where the "27% rule" applied for the M-PPISS questionnaire form has been found to be significant at an advanced level ($p=0.0001$).

A total score between 0 and 4 was considered satisfactory with regard to QoL, while a total score of ≥5 was interpreted as unsatisfied (threshold: 5) (Figure 1). Numerical evaluation was performed between total score and analog scale (satisfaction and dissatisfaction) and the sensitivity was calculated as 91.1 and specificity as 85.2.

Discussion

Although the international literature describes questionnaires and specific scales for incontinent patients, instruments specific for post-RP incontinence are scarce. The M-PPISS shows excellent internal consistency and reliability. Furthermore, the test-retest correlation, which is another

measurement of reliability, has also been found to be high. The threshold value we offer for the total score is 5 and as evident in the receiver operating characteristic curve, beyond such threshold is the value with highest sensitivity (91%) and specificity (85%).

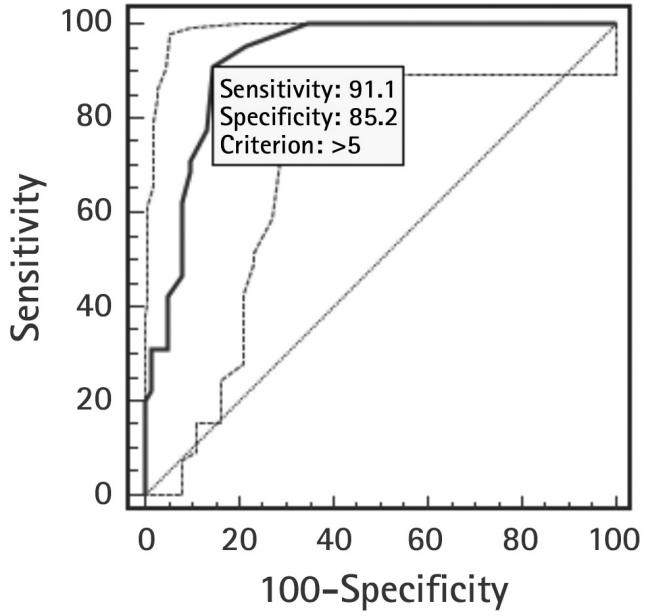

Figure 1. The receiver operating characteristic analysis formed between total score and analog scale, considering the quality of life

Table 1. Average scores of the patients in Marmara post-prostatectomy incontinence symptom score

	n	Average	Standard error
1st week	106	6.57	0.60
1st month	106	5.44	0.63
3rd month	104	4.12	0.56
6th month	103	3.75	0.53
9th month	97	3.38	0.54
12th month	91	2.89	0.54

Table 2. Cronbach's alpha value when an element was deleted for each question within the Marmara post-prostatectomy incontinence symptom score questionnaire (n=106)

Question number	Cronbach's alpha value when an element was deleted
1	0.875
2	0.874
3	0.857
4	0.873
5	0.861
6	0.862
7	0.877
8	0.894

Incontinence is a significant QoL issue after RP and post-prostatectomy incontinence has been reported at various levels and rates (3,4,5). With the advancing techniques for preservation of the neurovascular bundle, provision the length of the remaining urethra at a maximum level and creation of vesico-uretral anastomoses, post-RP urine control rates are maintained at a higher level (11). The first detailed study on the influence of post-RP problems was carried out by Fowler et al. (12) in 1995 using "Medicare database" and 89% of the patients stated that they would prefer surgery to other treatment options as it provided better cancer control in spite of post-RP incontinence and impotence complaints. Fortunately, the urinary control increases as the time advances after the operation. In a study carried out by Lepor and Kaci (13), in a two-year post-RP follow-up, 71%, 87%, 92% and 98.5% of patients achieved continence, which was defined as the use of no pad or a single protective pad in a 24-hour period, in 3rd, 6th, 12th and 24th months, respectively.

Post-RP incontinence is known to affect the QoL significantly (14). There are questionnaires assessing the complaints of incontinence and analyzing the effect of incontinence on the QoL. The subjective data received from the patient will be standardized from clinical and practical points of view using these questionnaires (6). For this purpose, The International Continence Society (ICS) recommends many questionnaires aimed at assessing male incontinence. The most important one among those is the ICSmaleSF questionnaire, which questions urinary symptoms and their influence on QoL in benign prostate hyperplasia (15). However, that form has been used in patients suffering from incontinence due to benign lesions of the prostate, and does not cover incontinence in patients who underwent RP for PC.

The validated forms, which have been used frequently for the assessment of post-RP incontinence, are summarized in Table 4 (16). The University of California-Los Angeles Prostate Cancer Index (UCLA-PCI) contains 20 questions related to post-RP incontinence, impotence and intestinal problems of patients (7). The Expanded Prostate Index Composite (EPIC) is a long and comprehensive questionnaire consisting of 50 questions

Table 3. The Marmara post-prostatectomy incontinence symptom score total score and correlation of the analog scale

Correlation coefficient	r	p
1st week	0.72	p=0.0001
1st month	0.82	p=0.0001
3rd month	0.70	p=0.0001
6th month	0.87	p=0.0001
9th month	0.79	p=0.0001
12th month	0.78	p=0.0001

Table 4. The most frequently employed post-radical prostatectomy questionnaires

1. The UCLA Prostate Cancer Index (PCI):
The questionnaire consisting of 20 questions specific to prostate.
2. The Expanded Prostate Cancer Index-Composite:
Extended version of the UCLA PCI questionnaire including 30 additional questions regarding prostate cancer treatment.
3. The European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire with its prostate cancer-specific module:
25 additional questions specific to prostate regarding incontinence, sexual life and intestinal functioning, questioning the cancer treatment-related quality of life.
4. The Functional Assessment of Cancer Therapy-Prostate:
The questionnaire consisting of 38 questions particularly aimed at assessing the quality of life of males with metastatic disorder, of which 26 are general, 12 are specific to the disease.

UCLA: The University of California-Los Angeles

asking incontinence, impotence and intestinal problems in patients who underwent RP, radiotherapy or brachytherapy for PC (8). This form was shortened as EPIC 26 and EPIC-CP and, re-validations were performed (17,18). UCLA-PCI and EPIC have been shown to be valuable and correlated with each other with regard to their questioning of incontinence and impotence as for QoL (19). The European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire with its PC-specific module (EORTC QLQ-C30-PR25) has 25 additional prostate-specific questions related to incontinence, sexual life and intestinal functioning, questioning cancer treatment-related QoL (9). And the Functional Assessment of Cancer Therapy-Prostate (FACT-P) consists of 38 questions particularly aimed at assessing QoL of males with metastatic disorder, of which 26 are general, 12 are specific to the disease (10). These questionnaires do not specifically question incontinence, but assess negative post-prostatectomy effects in general while the M-PPISS questionnaire specifically questions incontinence and analyses its effect on the QoL of the patient. The M-PPISS is a short and dedicated questionnaire for the evaluation of incontinence after RP with an internal consistency and reliability.

Study Limitations

In the study design, test-retest validity and reliability assessed by 1st week, 1st month and every 3 months forms. However, the patient's symptoms might relieve after RP and the patient's score may change according to convalescence. Performing test-retest reliability in a stable health condition rather than the patient population is lacking.

Conclusion

The M-PPISS was found to be a reliable and valid instrument in the evaluation of urinary incontinence after RP. The M-PPISS is specifically questioning incontinence and its effect on the QoL and is a brief and easy-to-administer questionnaire for post-RP incontinence.

Ethics

Ethics Committee Approval: Retrospective study, Informed Consent: Retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: Tufan Tarcan, Levent Türkeri, İlker Tinay, Murat Akgül, Design: Tufan Tarcan, Levent Türkeri, İlker Tinay, Murat Akgül, Data Collection or Processing: Murat Akgül, Muhammed Sulukaya, Ahmet Şahan, Analysis or Interpretation: Nural Bekiroğlu, Literature Search: Murat Akgül, Tufan Tarcan, İlker Tinay, Writing: Murat Akgül, Muhammed Sulukaya.

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

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Ek 1: M-PPİKSS sorgulama formu

1. Bir günde kaç ara bezi değiştiriyorsunuz?

Hiç (0)	(1)	(2)	(3)	4 ve daha çok

2. Kullandığınız pet büyüklüğü nedir?

(0)	Pet kullanmıyorum
(1)	Küçük pet (Avuç içi büyüklüğünde)
(2)	Çocuk bezi
(3)	Büyük hasta bezi
(4)	Prezervatif sonda kullanıyorum

3. Değiştirdiğiniz pet ne kadar ıslanıyor?

(0)	Hiç ıslanmıyor
(1)	Çok az ıslaklık oluyor
(2)	Yarısından azı ıslanıyor
(3)	Yarısından fazlası ıslanıyor
(4)	Tümüyle sırılsıklam oluyor

4. Ne zaman idrar kaçırıyorsunuz?

(0)	Hiçbir zaman
(1)	Ayağa kalkarken, yürürken
(2)	Gülmekle, ıkınmakla, öksürmekle
(3)	En ufak bir hareketle
(4)	Sürekli

5. İdrar kaçırmanız günlük işlerinizi ne derecede etkiliyor?

(0)	Hiç etkilemiyor, günlük işlerimi yapabiliyorum
(1)	Az miktarda etkiliyor, günlük işlerimi çoğunlukla yapabiliyorum
(2)	Orta derecede etkiliyor, günlük işlerimin bazılarını yapabiliyorum
(3)	Ciddi derecede etkiliyor, günlük işlerimin çoğunu yapamıyorum

6. İdrar kaçırmanız arkadaşlarınızla olan ilişkileriniz ne derecede etkiliyor?

(0)	Hiç etkilemiyor, ilişkilerimde değişiklik yok
(1)	Az miktarda etkiliyor
(2)	Orta derecede etkiliyor
(3)	Ciddi derecede etkiliyor

7. İdrar kaçırmanız psikolojik durmunuzu etkiliyor mu?

(0)	Hiç etkilemiyor
(1)	Az miktarda etkiliyor, hafif derecede sinirli ve gergin olmaktayım
(2)	Orta derecede etkiliyor ve gergin oluyorum
(3)	Ciddi derecede sinirli ve gergin oluyorum

8. İdrarınızı nasıl yapıyorsunuz?

(0)	Rahat idrar yapmaktayım
(1)	İdrar yapmada biraz zorlanıyorum
(2)	İdrar yaparken çok zorlanıyorum ve kesik kesik idrar yapıyorum
(3)	Hiç idrar yapamıyorum

Toplam Skor : _____

Hayatınızın bundan sonraki bölümünde idrar durumunuz aynen devam ederse nasıl hissederdiniz ?	**Mutlu olurum**	**Memnun olurum**	**İyi**	**Bazen iyi bazen kötü**	**Çoğunlukla kötü**	**Mutsuz**	**Berbat**
	0	1	2	3	4	5	6

ORIGINAL RESEARCH
Pediatric Urology

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Utility of Voiding Dysfunction Symptom Score in Diagnosis and Treatment of Enuresis Nocturna

Enürezis Nokturnanın Tanı ve Tedavisinde İşeme Bozuklukları Semptom Skorunun Etkinliği

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

Urotherapy, alarm therapy and medications are options to treat monosymptomatic enuresis nocturna. However, there is no specific tool to identify which children might benefit from each individual treatment. Voiding dysfunction symptom score (VDSS) can identify monosymptomatic and non-monosymptomatic enuresis nocturna, where specific individual treatments like anticholinergics can be offered. Interestingly, current study also elucidate another role for VDSS in differentiating treatment success in monosymptomatic enuresis nocturna.

Abstract

Objective: The aim of this study was to determine the effectiveness of the voiding dysfunction symptom score (VDSS) in evaluation of children with nocturnal enuresis.

Materials and Methods: Four hundred children with nocturnal enuresis were included in the study. They were evaluated with VDSS, physical examination, urinalysis and 2-day voiding diary. All children with nocturnal enuresis symptoms were treated with desmopressin and/or urotherapy. However, children with overactive bladder symptoms were also treated with anticholinergics. Treatment success and change in VDSS were compared and assessed between different treatment methods.

Results: Two hundred forty-five children (61.25%) were male and 155 (38.75%) were female. The mean age was 7.6±3.0 years (range: 5-18). The mean VDSS was 9.2±6.3. 35% of children with nocturnal enuresis had concomitant daytime symptoms. 126 children (31.5%) had a VDSS of nine or above and majority of these children were treated with anticholinergic therapy. VDSS questionnaire could not help determine treatment success in children with non-monosymptomatic nocturnal enuresis. However, children treated with urotherapy and desmopressine showed significant difference in VDSSs according to their treatment response.

Conclusion: VDSS has shown to decrease after treatment in children with mono-symptomatic nocturnal enuresis. The treatment strategies should be checked and modified if VDSS does not decrease after proper therapy as this would increase the success of treatment.

Keywords: Symptom score, voiding dysfunction, urotherapy, enuresis nocturna, desmopressin

Öz

Amaç: Enürezis nokturnası olan çocukların değerlendirilmesinde işeme bozuklukları semptom skorunun (İBSS) etkinliğinin araştırılmasıdır.

Gereç ve Yöntem: Enürezis nokturna nedeniyle başvuran 400 çocuk çalışmaya dahil edildi. Çocukların hepsi fizik inceleme, İBSS, idrar analizi ve işeme günlüğü ile değerlendirildi. İnceleme sonrası enürezis nokturnası olan çocuklar üroterapi ve/veya desmopressin ile tedavi edilirken eşlik eden aşırı aktif mesanesi olanlar ise antikolinerjikler ile tedavi edildi. Uygulanan tedavilerin başarısı ve İBSS değerleri arasındaki ilişki karşılaştırıldı.

Bulgular: Çalışmaya katılan çocukların iki yüz kırk beşi erkek (%61,25), yüz elli beşi kız (%8,75) ve ortalama yaşları 7,6±3,0 (aralık: 5-18) olarak saptandı. Ortalama İBSS skoru 9,2±6,3 olarak saptandı. Çocukların %35'inde enürezis nokturnaya eşlik eden gündüz semptomları vardı. İBSS değeri dokuz ve üzeri olan yüz yirmi altı çocuk (%31,5) antikolinerjik ilaçlar ile tedavi edildi. İBSS monosemptomatik olmayan enürezis nokturnası olan çocuklarda tedavi başarısının ayırt edilmesinde anlamlı bir fark göstermedi. Ancak üroterapi ve desmopressin ile tedavi edilen çocuklarda tedavi yanıtına göre İBSS değerlerinde anlamlı fark saptandı.

Sonuç: Çalışmamızda monosemptomatik enürezis nokturnası olan çocukların tedavi sonrası İBSS değerinin düştüğü gösterildi. Uygun tedavi sonrası İBSS değerinde düzelme olmayan çocukların tedavisinin gözden geçirilmesi tedavi başarısını artırabilir.

Anahtar Kelimeler: Semptom skoru, işeme bozukluğu, üroterapi, enürezis nokturna, desmopressin

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Introduction

Lower urinary tract symptoms constitute one of the major health issues encountered in childhood, and account for 20% of cases presenting to pediatric urology outpatient clinics (1). The rate of children who have completed toilet training by ages 2, 2.5 and 3 years are 25%, 85% and 98%, respectively (2). Voiding dysfunction occurs when a neurologically normal child exhibits abnormal bladder emptying due to mislearned toileting habits during toilet training. This occurs due to overactivity or inadequate relaxation of the pelvic floor muscles, which are striated muscles and are under voluntary control.

Enuresis nocturna is defined as nocturnal incontinence in neurologically normal children at appropriate age to remain dry (3). Fifteen percent of children with nocturnal enuresis have daytime symptoms (4); combined (day and night) wetting has been reported in 3.3% of 7-year-olds (5) and in 4% of children aged 5-12 years (6). Enuresis nocturna is the second most frequently encountered chronic problem in childhood (7). This condition reportedly occurs in 15%, 10% and 5% of pediatric patients aged 5, 7 and 10 years, respectively, and spontaneous remission generally takes place around 15 years of age (8).

Apart from the psychological effects on children and their parents, inability to gain voiding control by required ages (i.e. day care or school age) and/or the persistence of pathological voiding habits causes frequent recurrent urinary tract infections (UTIs) (3). The voiding dysfunction symptom score (VDSS) is a validated, non-invasive method for assessing children who present with nocturnal enuresis (9). The aim of this study was to evaluate this diagnostic tool in two ways: (1) as a method of detecting lower urinary tract dysfunction (LUTD) in patients with nocturnal enuresis; and (2) as a means of guiding therapy and improving treatment outcomes.

Materials and Methods

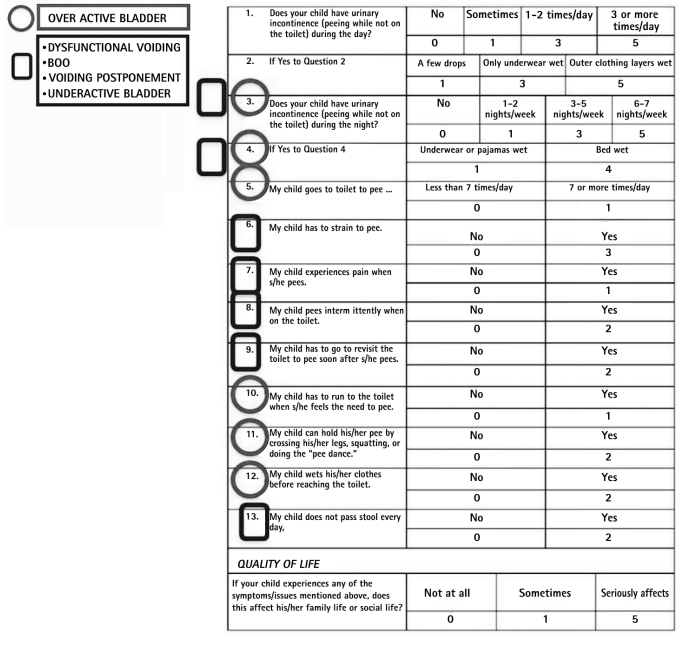
A total of 400 children aged between 5 and 18 years, who presented with the complaint of nocturnal bed-wetting between November 2012 and January 2015, were included in the study. Data from the patient medical records were evaluated retrospectively. A standard evaluation included detailed urological history regarding the status of voiding habits, daytime and nocturnal symptoms, urinary incontinence, holding maneuvers, constipation and medications taken, a 2-day voiding diary, urinalysis results, and validated VDSS questionnaire (see details below) (9). Patients with recurrent UTI, vesicoureteral reflux, neurogenic bladder and dysfunctional voiding that require biofeedback and/or α-blocker therapy were excluded from the study.

Patients with monosymptomatic nocturnal bed-wetting received urotherapy as a first-line treatment. Urotherapy involves motivation of the children and families with educational materials, self assessment with voiding diary, restriction of fluid intake, the last void before sleep, and waking for night time void. Children refractive to urotherapy either received desmopressin and/or enuretic alarm therapy. Children with concomitant daytime symptoms due to overactive bladder (OAB) also received oxybutynin as a first-line treatment.

Diagnosis and Treatment of Overactive Bladder: Patients who met the following three criteria were classified as suffering from OAB and were selected as the study group: (1) sudden, imperative urinary urgency with or without urge incontinence; (2) need for holding maneuvers; (3) a minimum of seven small-volume urinations per day. Findings supporting the diagnosis of OAB were normal or low bladder capacity and a post-void residual urine volume of <20 mL (10). Each patient completed a 2-day bladder diary with entries as per the International Children's Continence Society recommendations (10). Patients with OAB were treated with oxybutynin (0.1-0.3 mg/kg) for minimum 6 months.

Definition of Treatment Success: Treatment success is defined as absolute dryness throughout the night time within a consecutive 3-month period.

Voiding Dysfunction Symptom Score: The VDSS questionnaire, which was validated by Akbal et al. (9) in 2005, generates scores between 0 and 35. The instrument consists of 13 questions that focus on daytime and nighttime symptoms, voiding and bowel habits, and quality of life



OVER ACTIVE BLADDER

- DYSFUNCTIONAL VOIDING
- BOO
- VOIDING POSTPONEMENT
- UNDERACTIVE BLADDER

1.	Does your child have urinary incontinence (peeing while not on the toilet) during the day?	No	Sometimes	1-2 times/day	3 or more times/day
		0	1	3	5
2.	If Yes to Question 2	A few drops	Only underwear wet	Outer clothing layers wet	
		1	3	5	
3.	Does your child have urinary incontinence (peeing while not on the toilet) during the night?	No	1-2 nights/week	3-5 nights/week	6-7 nights/week
		0	1	3	5
4.	If Yes to Question 4	Underwear or pajamas wet		Bed wet	
		1		4	
5.	My child goes to toilet to pee ...	Less than 7 times/day		7 or more times/day	
		0		1	
6.	My child has to strain to pee.	No		Yes	
		0		3	
7.	My child experiences pain when s/he pees.	No		Yes	
		0		1	
8.	My child pees interm ittently when on the toilet.	No		Yes	
		0		2	
9.	My child has to go to revisit the toilet to pee soon after s/he pees.	No		Yes	
		0		2	
10.	My child has to run to the toilet when s/he feels the need to pee.	No		Yes	
		0		1	
11.	My child can hold his/her pee by crossing his/her legs, squatting, or doing the "pee dance."	No		Yes	
		0		2	
12.	My child wets his/her clothes before reaching the toilet.	No		Yes	
		0		2	
13.	My child does not pass stool every day.	No		Yes	
		0		2	
QUALITY OF LIFE					
	If your child experiences any of the symptoms/issues mentioned above, does this affect his/her family life or social life?	Not at all	Sometimes	Seriously affects	
		0	1	5	

Figure 1. Voiding dysfunction symptom score (9)

(Figure 1). Specifically, questions 1 and 2 inquire about daytime incontinence and questions 3 and 4 about nocturnal enuresis. Four questions (5, 10, 11, and 12) gather data on filling-phase symptoms and five questions (6-9 and 13) gather data on voiding symptoms. Question 14 is about quality of life (9). According to the research by Akbal et al. (9), scores above 8.5 have 90% sensitivity and specificity for detecting voiding dysfunction, and results are unaffected by gender differences. This instrument has been widely used for clinical assessment of LUTD and has also been applied in research studies (11,12). Similar tools have also been reported to be used to assess children with lower urinary tract symptoms (13). The VDSS was administered to each child and to his/her parents at initial clinical evaluation in pre-treatment period and repeated thereafter in post-treatment period. Pre- and post-treatment VDSS were compared for determining treatment success and failure.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) Software v. 20.0 (SPSS Inc, Chicago, IL). The variables were examined for the normality of their distribution using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The student's t-test and chi-squared (Fisher's exact test) test were used to assess statistical significance for continuous and categorical variables, respectively. Mean and standard deviation were used to describe continuous variables, frequency, and percentages to depict categorical data. Paired sample t-test was used to assess differences between pre- and post-treatment VDSS of children. Independent sample t-test and paired sample t-test were used to assess the difference in VDSSs between and within the treatment success and failure groups in pre- and post-treatment periods, respectively. An alpha level of 0.05 was defined as statistically significant for all the tests.

Results

Of the 400 children, 245 (61.3%) were boys and 155 (38.8%) were girls. The mean age was 7.6±3.0 years (range: 5-18). The mean VDSS was 9.2±6.3 (range: 2-26). 260 patients (65%) had monosymptomatic enuresis, while 140 (35%) had daytime symptoms. The mean follow-up period was 9 months (range: 3-12 months).

One hundred and twenty-six children (31.5%) were found to have a VDSS of nine and above, which suggested a problem of voiding dysfunction. Of these 126 children, 69 (54.8%) showed symptomatic improvement after appropriate treatment with oxybutynin alone (n=33), desmopressine alone (n=18), urotherapy alone (n=12) and a combination of these three (n=6) (Table 1).

Two hundred and seventy four children (68.5%) were found to have a VDSS of eight and below. None of these children were treated with oxybutynin. Of these 270 children, 173 (63.1%) showed symptomatic improvement after appropriate treatment with desmopressine alone (n=76), urotherapy alone (n=82) and a combination of these two (n=15) (Table 2).

Detailed Analysis of VDSS Results: Of all questions, these three were most frequently answered as "Yes"; "My child goes to toilet to pee less than 7 times/day" (n=100), "My child wets his/her clothes before reaching the toilet" (n=118), "My child has to run to the toilet when she/he feels the need to pee" (n=174). The mean score of patients responsive to treatment (n=69) and refractive to treatment (n=57) were found to be 15.8±6.44 and 17.83±6.7, respectively (p=0.8). Among all patients treated with desmopressine, the mean score of children responsive to treatment and refractive to treatment were found to be 3.4±3.2 and 8.2±2.5, respectively (p=0.001). VDSS questionnaire could not help us in determining treatment success in children with non-monosymptomatic nocturnal enuresis. However, children treated with urotherapy and desmopressine showed significant difference in VDSS according to their treatment response.

Table 1. Children with voiding dysfunction symptom score 9 and above

Treatment success	Oxybutynin n, (%)	Desmopressine n, (%)	Urotherapy n, (%)	Combination n, (%)	Total n, (%)
Yes	33 (26.2)	18 (14.3)	12 (9.5)	6 (4.8)	69 (54.8)
No	14 (11.1)	11 (8.7)	30 (23.8)	2 (1.6)	57 (45.2)
Total	47 (37.3)	29 (23.0)	42 (33.3)	8 (6.3)	126 (100.0)

Table 2. Children with voiding dysfunction symptom score eight under

Treatment success	Desmopressine n, (%)	Urotherapy n, (%)	Combination n, (%)	Total n, (%)
Yes	76 (27.7)	82 (29.9)	15 (5.5)	173 (63.1)
No	17 (6.2)	71 (25.9)	13 (4.7)	101 (36.9)
Total	93 (33.9)	153 (55.8)	28 (10.2)	274 (100.0)

Results for treatment success relative to VDSS are summarized in Tables 3, 4.

Discussion

Enuresis nocturna is predominant pathology in male patients (14,15). Present study involved a male predominant cohort (61% male vs. 39% female). 36% of patients had urgency, 28% had urge incontinence and 23% had frequency symptoms. Similarly, in the literature, there are studies showing that 17.8% of children with nocturnal euresis have urgency, incontinence and frequency (16). There are many studies on the behavioral therapy for nocturnal enuresis with different results. Sixty percent of children with nocturnal enuresis had complete remission with behavioral therapy in a follow-up of 3 years, also it has been suggested that behavioral therapy might be as successful as desmopressin and alarm therapy but patient compliance is mandatory (17). In another study of 23 patients where 83% of children had severe enuresis symptoms, 70% had reduction in symptoms and 22% had complete resolution with behavioral therapy (18). In their study including 74 patients, Mark and Frank (19) reported that 16 patients had complete resolution, 43 had improvement in symptoms and 15 had no change in symptoms with a 4-week behavioral therapy. In our study, 42 patients with a VDSS above 9 were treated with behavioral therapy only and 12 (28%) had improvement in symptoms. In 153 patients with a VDSS below 9 and treated with behavioral therapy, 82 (53%) had improvement in symptoms. Response to each treatment was defined as >50% reduction in symptoms based on VDSS results.

This difference between these 2 groups was due to the polysymptomatic nature of these children and was due to additional voiding symptoms. Desmopressin, chemically modified form of vasopressin, is one of the pharmacological treatment options for enuresis nocturna. Desmopressin is a more potent antidiuretic than vasopressin with no vasopressor effect. Its efficacy in enuresis nocturna is due to decrease in nocturnal urine output (20). In published studies, the success rate of desmopressin changes between 60% and 70% (21). The major problem with desmopressin use is the high recurrence rates after cessation of treatment (22). In a published study with 114 monosymptomatic children with nocturnal enuresis with a mean age 9.8 years, 21 (18%) patients had complete resolution and 29 (25%) had partial resolution of nocturnal symptoms (23). Lottmann et al. (24) reported that with a 1-week treatment with desmopressin, 77.8% of 744 children aged 5 years and older had positive results and 50% relapsed after cessation of treatment. In the current study, among 93 patients with a VDSS below 9, 76 (82%) had positive response to treatment. In patients with a VDSS above 9, 18 (62%) of 29 patients treated with desmopressin, 33 (70%) of 47 treated with oxybutynin had improvement in symptoms. These results can show us that treatment success with desmopressin is low in patients with voiding dysfunction diagnosed by VDSS questionnaire and that oxybutynin should be considered in such cases.

Study Limitations

Our study has some limitations. This is a retrospective study and there is not any data on long-term results.

Table 3. Treatment modalities according to voiding dysfunction symptom score 9

Treatment modality	Voiding dysfunction	Treatment success		p
		Yes n, (%)	No n, (%)	Significance
Desmopressine	≥9	18 (19.1)	11 (39.2)	0.0417
	<9	76 (80.9)	17 (60.7)	
Urotherapy	≥9	12 (12.7)	30 (29.7)	0.005
	<9	82 (87.2)	71 (70.2)	

Fisher's exact test

Table 4. Treatment success according to voiding dysfunction symptom score

Treatment	n	VDSS score (before treatment)	Standard deviation	VDSS score (after treatment)	Standard deviation	p
Desmopressine	122	9.23	3.09	2.96	3.72	0.001
Oxybutynin	47	14.27	5.78	5.54	3.23	0.003
Combination	36	14.41	4.18	3.58	3.08	0.223
Urotherapy	195	5.46	5.31	3.88	3.18	0.005
Total	400	8.87	3.87	3.41	3.89	0.001

Student t-test, VDSS: Voiding dysfunction symptom score

Conclusion

Concomitant voiding problems can be detected in children presenting with nocturnal enuresis by using VDSS questionnaire. Treatment strategies should be decided accordingly. The VDSS questionnaire is a useful non-invasive method in detecting voiding dysfunction and following the response to treatment. This study addresses the importance of diagnosis of the concomitant lower urinary tract symptoms in patients with nocturnal enuresis. However, further studies more thoroughly investigating the clinical use of VDSS are warranted.

Ethics

Ethics Committee Approval: Retrospective study, Informed Consent: Retrospective study.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Çağrı Akın Şekerci, Cem Akbal, Ferruh Şimşek, Concept: Yılören Tanıdır, Çağrı Akın Şekerci, Cem Akbal, Design: Yılören Tanıdır, Çağrı Akın Şekerci, Cem Akbal, Data Collection or Processing: Çağrı Akın Şekerci, Tuncay Top, Farhad Talibzade, Ahmet Şahan, Tarık Emre Şener, Analysis or Interpretation: Yılören Tanıdır, Ahmet Şahan, Literature Search: Yılören Tanıdır, Çağrı Akın Şekerci, Tuncay Top, Farhad Talibzade, Ahmet Şahan, Tarık Emre Şener, Supervision: Cem Akbal, Tufan Tarcan, Ferruh Şimşek, Writing: Yılören Tanıdır, Çağrı Akın Şekerci, Cem Akbal.

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Knowledge Attitude and Behavior in the Domain of Organ Transplantation Among Healthcare Professionals Working in a Tertiary Care Hospital and Patients Admitted to the Urology Clinic

Üçüncü Basamak Hastanesine Başvuran Hastaların ve Çalışan Sağlık Personelimizin Organ-Doku Bağışı Konusunda Bilgi ve Görüşleri

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

Public education about organ donation and transplantation and a positive attitude on this issue are very important to increase the number of organ donations.

Abstract

Objective: To measure the knowledge level about organ and tissue donation and to determine the attitudes and behaviors of patients admitted to our hospital as well as healthcare professionals working in our hospital.
Materials and Methods: A questionnaire designed to document knowledge attitude and behavior in the domain of organ transplantation and donation was prepared by the researchers. This survey was conducted among 298 participants including patients who were admitted to the urology clinic in our hospital between March 2015 and June their relatives as well as healthcare professionals working in our hospital.
Results: 90.3% of the participants did not donate any organ previously. Only 50% of respondents knew that brain death and vegetative state were different concepts. 69.1% the participants had knowledge about organ donation.
Conclusion: Public education about organ donation and transplantation and a positive attitude on this issue are very important to increase the number of organ donations.
Keywords: Organ donation, organ transplantation, brain death

Öz

Amaç: Hastanemize başvuran hastaların ve çalışan sağlık personelinin organ-doku bağışı konusundaki bilgi düzeylerini ölçmek, tutum ve davranışlarını belirlemektir.
Gereç ve Yöntem: Araştırmacılar tarafından organ-doku bağışı ile ilgili anket hazırlandı. Bu anket üroloji servisine Mart 2015-Haziran 2015 tarihleri arasında yatarak tedavi gören hasta ve hasta yakınları ile hastanemizde çalışan hemşire ve doktorlardan oluşan 298 katılımcı tarafından dolduruldu.
Bulgular: Katılımcıların %90,3'ü daha önce organ bağışı yapmamıştır. Bitkisel hayat ile beyin ölümünün farklı kavramlar olduğunu katılımcıların sadece yarısının bildiği bulunmuştur. Katılımcıların sadece %69,1'inin organ-doku bağışı konusunda bilgisi olduğu ortaya konmuştur.
Sonuç: Organ bağışı ve nakli konusunda toplumun eğitimi ve bu konuda olumlu tutum içinde bulunmaları organ bağışı sayısının artmasında çok önemlidir.
Anahtar Kelimeler: Organ bağışı, organ nakli, beyin ölümü

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Introduction

Transplantation is a procedure whereby an intact tissue or organ is transferred from a live donor or a dead person in place of an organ that proves to be dysfunctional in the body (1). Organ donation is the procedure in which a person allows on free will while he is alive and thus certifies that his tissues and organs be used for the treatment of other patients after he is medically dead (2).

Currently, many vital organs such as heart, lung, liver, kidney, pancreas, small intestine, bone marrow, blood, skin and cornea can be transplanted (3).

Transplantation is an effective medical approach with well-known long-term results. Similar to other parts of the world, the most important barrier for transplantation in Turkiye is the scarcity of organs. This scarcity results from lack of information and awareness on organ-tissue donation and transplantation within the society (4,5). Studies show that attitude towards organ donation is affected by education level, socio-economic status, age and gender (6). There are some studies indicating that ethnic origin and religious assumptions also affect social attitude and awareness (7). In order to increase organ donations, it is necessary to eliminate lack of information and negative attitudes within the society on this subject and overcome social obstacles to this end (4,5). The aim of this study was to measure the knowledge level on organ-tissue donation and identify the attitudes and behaviors of not only the patients admitted to our hospital but also the healthcare professionals working in our hospital.

Materials and Methods

Our study was a descriptive study conducted between March 2015 and June 2015 with a total of 298 participants including patients admitted to the urology clinic of İzmir Tepecik Training and Research Hospital for inpatient treatment, the relatives of such patients and the healthcare professionals working in the hospital. Our hospital provides services to patients from various educational backgrounds, age groups, cultural and socio-economic levels and ethnic origin from any part of İzmir. A survey form which was prepared by the researchers and takes 15 minutes to complete was employed to collect data. The survey is composed of questions that concerns socio-demographic aspects (6 questions) and measures attitudes, behaviors and knowledge levels on organ-tissue donation (7 questions). As a result of this survey, participants were grouped depending on their level of knowledge about organ donation, and the factors affecting the level of knowledge about organ donation were evaluated. This study is a descriptive study.

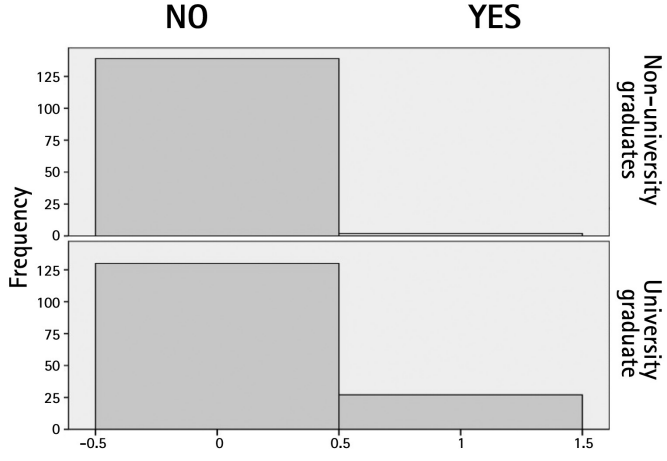
Statistical Analysis

Windows SPSS 17 software was used for statistical evaluation. Factors affecting the knowledge level of participants about transplantation were evaluated using Pearson's and Spearman's correlation coefficients. A p value less than 0.05 was considered statistically significant. Informed consent was received from every patient. The study was conducted in line with the Declaration of Helsinki.

Results

While 90.3% of the participants did not donate any organ previously, 9.7% of them donated organs. It was found out that 68.8% of the participants were married, 24.8% of them were single and 6.4% of them were divorced. 24.2% of the participants were physicians, 15.4% were nurses and 60.4% were from other professional groups (Table 1). Only 69.1% of the participants had knowledge about organ donation. 30.9% of the participants did not have any previous knowledge on organ donation.

It was found out that 28.5% of the participants were aged between 20 and 30 years, 27.9% between 30 and 40, 15.4% between 40 and 50, and 28.2% of participants aged over 50 years. It was shown that the knowledge level on organ donation increased gradually with the increasing age of participants. Given the education level of the participants, almost half of them were university graduates while one fourth of them were high school graduates, a few of them were primary school graduates and only a limited number of them were illiterate. As the education level increased, knowledge level about organ donation increased accordingly (Graphic 1). When we grouped the participants by their place of birth, participants from the Aegean Region proved to have more knowledge on transplantation while this rate decreased as one moved towards the Eastern Anatolian Region (Graphic 2).



Graphic 1. Evaluation of organ donation by education level

As for the question "Are vegetative state and brain death the same?", 49.3% of the participants answered "no" while 31.2% of them answered "yes". 19.5% of the participants stated they had no idea about the question. As for the question "If brain death took place, would you donate the organs of your child or relatives?", almost half of the participants answered "yes" while the other half answered "I would hesitate". Determinant factors for the knowledge level on transplantation among participants were young age, a high level of education, being a healthcare professional and being from the Aegean, Marmara and Mediterranean Regions. The group that had knowledge on organ donation were composed of participants from the younger population (p=0.01). The level of education and organ donation were positively correlated (p=0.001). The level of knowledge on organ donation was higher in the group composed of the participants who were healthcare professionals (p=0.001). The knowledge level on organ donation gradually decreased as one moved from Aegean Region towards the Eastern Anatolian Region in terms of the place of birth (p=0.001) (Table 1).

48% of those who had knowledge on organ donation obtained this knowledge from health institutions while 37.4% received

Table 1. Statistical comparison of both groups

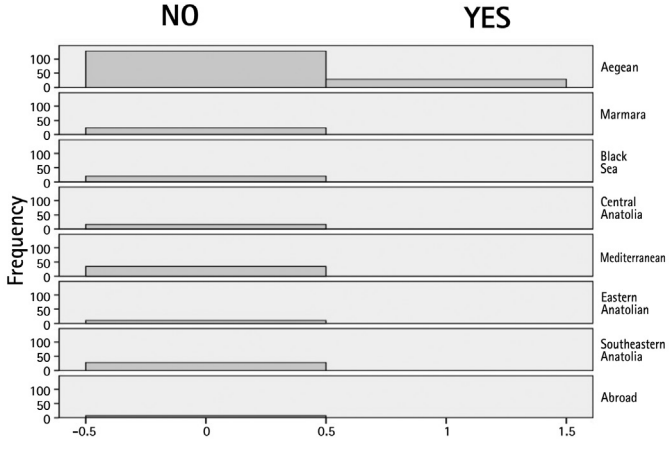
	Knowledgeable on organ donation (n=205)	Not knowledgeable on organ donation (n=93)	p
Marital status			0.29
Married (%)	150 (73.1)	55 (59.1)	
Single (%)	44 (21.4)	30 (32.2)	
Divorced (%)	11 (5.3)	7 (7.5)	
Age group			0.001
20-30 (%)	73 (35.6)	12 (12.9)	
31-40 (%)	72 (35.1)	12 (12.9)	
41-50 (%)	20 (9.7)	26 (27.9)	
51 and older (%)	40 (19.5)	44 (47.3)	
Education			0.001
Illiterate (%)	1 (0.4)	9 (9.6)	
Primary school (%)	10 (4)	20 (21.5)	
Secondary school (%)	10 (4)	14 (15)	
High school (%)	57 (27.8)	20 (21.5)	
University (%)	127 (61.9)	30 (32.2)	
Profession			0.001
Nurse (%)	44 (21.4)	2 (2.1)	
Physician (%)	71 (34.6)	1 (1)	
Other (%)	90 (43.9)	90 (96.7)	
Gender			0.078
Female (%)	96 (46.8)	43 (46.2)	
Male (%)	109 (53.2)	50 (53.8)	
Place of birth			0.001
Aegean Region (%)	79 (38.5)	22 (23.6)	
Marmara Region (%)	16 (7.8)	6 (6.4)	
Central Anatolia (%)	10 (4.8)	8 (8.6)	
Black Sea Region (%)	13 (6.3)	7 (7.5)	
Mediterranean Region (%)	50 (24.3)	10 (10.7)	
Eastern Anatolian Region (%)	10 (4.8)	11 (11.8)	
Southeastern Anatolia Region (%)	27 (13.1)	34 (36.5)	

information from newspapers and 14.6% from other sources (radio, television, Internet).

Discussion

Just like any place in the world, scarcity of organ donation is one of the most significant barriers for transplantation in Turkiye. In 2010, total number of brain deaths in Turkiye amounted to 1,036 while the number of donors was 246. The number of patients in the waiting lists for kidney, heart, liver, pancreas and lung transplantation exceeds 60,000 and nearly 7,000-8,000 patients are annually added to this list. Thousands of people lost their lives due to lack of a sufficient number of donors while waiting for organs. The number of transplantations from cadavers was only 743 in 2010 (7). In this study, only 9.7% of the participants considered donating organs previously while almost half of them considered donating the organs of their deceased relatives. Different rates were obtained in studies conducted with different groups. Rates of those who consider donating their organs vary between 30% and 70% in various studies (8,9,10,11,12). It is necessary to identify which factors have affected the thoughts of those who are indecisive and do not accept organ donation and to plan studies relevant to this factor.

It was found out that 69.1% of the participants in our study had knowledge about organ donation. It was seen that the participants who had knowledge on the subject obtained their knowledge mainly from health institutions and newspapers and occasionally from media such as radio, television and the Internet. Given the fact that most of the participants are from professional groups such as nurses and physicians, it was seen that the rate of the participants who had sufficient knowledge and were educated on the subject was not at the desired level yet. It was found out through many studies conducted with different student groups that university students did not have sufficient knowledge about organ donation and transplantation and that most of the relevant knowledge was obtained from mass media such as television, the internet, newspapers and magazines (13,14,15).



Graphic 2. Evaluation of organ donation by the region of birth

Awareness of organ donation may be associated with the level of education and socio-economic status. It was seen through many studies that individuals who graduated from university and higher-level institutions and had a high level of income displayed a more positive attitude towards organ donation (16,17,18). Similarly, it was observed in this study that the participants who were university graduates had a higher level of knowledge about organ donation.

Geographical characteristics constitute an important factor shaping the family structure of a person, his attitude towards health and diseases and his cultural characteristics. A study found out that participants from the Aegean Region had a more positive attitude while participants from the Southeastern Anatolian Region had a rather negative approach (19). In this study, the participants from the Aegean Region had more knowledge about transplantation while this rate decreased as one went towards the Eastern Anatolian Region.

In terms of conveying knowledge to the society concerning organ donation and transplantation, the easiest way of having access to larger groups is the media. If some videos concerning organ donation and transplantation are broadcast on TV, which is the most effective tool for informing and mobilizing the society, awareness on this subject may be raised. The Ministry of Health should prepare instructional programs for broadcast on TV channels and such programs should be broadcast on a continuous basis. Interviews in newspapers and magazines with the patients who have been waiting for organs and to whom organs have been transplanted may raise awareness within the society. The use of social networks over the Internet has become a common means of communication in our country as it is the case around the world. Websites such as Facebook and Twitter have millions of users in all parts of the world. Social networks have become the easiest, most economic and direct way of informing people and communicating with them on organ donation and transplantation as they allow for direct and instant sharing. The use of a single motto in the campaigns organized in cooperation with the press and visual media and on the internet may raise social awareness on the subject (19).

Study Limitations

As this study was limited to the patients admitted to our hospital and the healthcare professionals working in our hospital, conclusions can only be generalized to this group. No question was included in the survey as to why the participants did not want to donate their organs. Running a survey with a larger group of patients may ensure better results in further studies.

Conclusion

It was found out that the participants did not have sufficient knowledge about organ donation. Considering the gradual increase in the need for organ donation, the education level of the society should be improved while changing the opinions of those who are indecisive about organ donation and do not want to donate their organs should be the primary aim. Education programs for eliminating reservations of the society on organ donation should be prepared. Specifically, the middle-aged and over-the-middle-age population should be identified as a target group for such education activities. Moreover, these programs must be extended and spread to the eastern part of the country.

Ethics

Ethics Committee Approval: It is a descriptive study, Informed Consent: Consent form was filled out by all participants.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: İlker Oruç, Selin Özdoğan, Hakan Türk, Concept: Mustafa Karabıçak, Hakan Türk, Design: Hakan Türk, İlker Oruç, Data Collection or Processing: İlker Oruç, Selin Özdoğan, Cezmi Karaca, Hakan Türk, Analysis or Interpretation: Ahmet Çinkaya, Ferruh Zorlu, Literature Search: Mustafa Karabıçak, Hakan Türk, Writing: Mustafa Karabıçak.

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

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Results of Multiplex Polymerase Chain Reaction Assay to Identify Urethritis Pathogens

Üretrit Patojenlerinin Saptanmasında Multipleks Polimeraz Zincir Reaksiyonu Yöntemi

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

We assume that using a multiplex polymerase chain reaction test, enabling results in a rapid and reliable way and performing the procedure with only one swap sample from the patient, provides the clinician with a big advantage as to identifying the pathogens within the ethiology of urethritis, which is a common sexually transmitted disease in males.

Abstract

Objective: The purpose of this study was to evaluate the results of multiplex polymerase chain reaction (PCR) test applied to identify the pathogens in male patients who attended our urology clinic with a pre-diagnosis of urethritis related with sexual intercourse.

Materials and Methods: In this study, we included a total of 91 male patients, who sought medical advice in our clinic between August 2015 and October 2016 due to complaints of urethral discharge, dysuria and urethral itching, having a visible urethral discharge during the physical examination or a positive leukocyte esterase test (Combur-Test®-Roche) in the first urine sample. In the urethral swab samples of these patients, urethritis pathogens were searched with a multiplex PCR test. The multiplex PCR kit, which is able to identify nine pathogens and produced by PathoFinder® (Holland), was used in the process. The pathogens that could be detected by the kit were *Chlamydia trachomatis, Neisseria gonorrhoeae, Mycoplasma hominis, Mycoplasma genitalium, Ureaplasma urealyticum, Gardnerella vaginalis, Trichomonas vaginalis, Treponema pallidum,* and *Candida albicans.*

Results: The average age of the subjects was 35.1 (19-57) years. Sixty one out of 91 patients (67%) were found to have a pathogen in the urethral swab sample. In 45 patients (49.4%), only one pathogen, in 12 (13.1%) - two different pathogens and in 4 (4.3%) patients, 3 different pathogens were detected. The pathogens found were as follows: *Ureaplasma urealyticum* in 22 patients (27.1%), *Gardnerella vaginalis* in 15 (18.6%), *Neisseria gonorrhoeae* in 13 (16.1%), *Mycoplasma genitalium* (10 patients; 12.3%), *Mycoplasma hominis* (8 patients; 9.9%), *Chlamydia trachomatis* (8 patients; 9.9%), *Trichomonas vaginalis* (3 patients; 3.8%), and *Candida albicans* (2 patients; 2.4%). None of the patients were identified with *Treponema pallidum.* None of the pathogens were identified in 30 patients (32.9%) whose samples were examined by PCR method.

Conclusion: Sexually transmitted pathogens that are quite difficult to identify and that cause urethritis are possibly defined with only one swab sample in a short time using multiplex PCR method providing new possibilities and scopes for the diagnosis.

Keywords: Polymerase chain reaction, urethritis, mycoplasma, ureaplasma, *Gardnerella vaginalis*, sexual transmitted disease

Öz

Amaç: Bu çalışmanın amacı; cinsel ilişkiye bağlı üretrit ön tanısı ile kliniğimize başvuran erkek hastalarda, patojenin tespiti için uygulanan multipleks polimeraz zincir reaksiyon (PCR) testinin sonuçlarının değerlendirilmesidir.

Gereç ve Yöntem: Kliniğimize Ağustos 2015-Ekim 2016 tarihleri arasında cinsel ilişki sonrası üretral akıntı, disüri, üretral kaşıntı şikayetleri ile başvuran, fizik muayenesinde görünür üretral akıntısı olan veya ilk idrar örneğinde lökosit esteraz testi (Combur-Test®-Roche) pozitif olan 91 erkek

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hasta çalışmaya dahil edildi. Bu hastaların üretral swap örneğinde multipleks PCR testi ile üretrit patojenleri araştırıldı. Bu amaçla PathoFinder® (Hollanda) firmasının 9 patojeni tespit eden multipleks PCR kiti kullanıldı. Kitin saptadığı etkenler; *Chlamydia trachomatis, Neisseria gonorrhoeae, Mycoplasma hominis, Mycoplasma genitalium, Ureaplasma urealyticum, Gardnerella vaginalis, Trichomonas vaginalis, Treponema pallidum* ve *Candida albicans*'tı.

Bulgular: İnceleme yapılan 91 hastanın ortalama yaşı 35,1 idi (19-57). Doksan bir hastanın 61'inde (%67) üretral sürüntü örneğinde patojen saptandı. Bunlardan 45 (%49,4) hastada tek patojen, 12'sinde (%13,1) 2 farklı patojen ve 4'ünde (%4,3) ise 3 farklı patojen saptandı. Hastalarda saptanan patojenler sırasıyla, 22'si (%27,1) *Ureaplasma urealyticum*, 15'i (%18,6) *Gardnerella vaginalis*, 13'ü (%16,1) *Neisseria gonorrhoeae*, 10'u (%12,3) *Mycoplasma genitalium*, 8'i (%9,9) *Mycoplasma hominis*, 8'i (%9,9) *Chlamydia trachomatis*, 2'si (%2,4) *Candida albicans* ve 3'ü (%3,8) de *Trichomonas vaginalis*'ti. Hastaların hiçbirinde *Treponema pallidum* tespit edilmedi. Örnek alınan hastaların 30'unda (%32,9) PCR yöntemi ile hiçbir patojen saptanmadı.

Sonuç: Multipleks PCR yöntemi ile, saptanması oldukça zor olan cinsel yolla geçen ve üretrit nedeni patojenlerin tek bir üretral sürüntü örneğiyle, kısa sürede saptanır hale gelmesi, tanıya yeni olanaklar ve fırsatlar sağladığı görülmektedir.

Anahtar Kelimeler: Polimeraz zincir reaksiyonu, üretrit, mikoplazma, üreaplasma, *Gardnerella vaginalis*, cinsel yolla bulaşan hastalıklar

Introduction

Sexually transmitted diseases (STDs) are significant cause of morbidity in sexually active individuals and still remain to be a major medical, social and economic burden all over the world. Urethritis, characterized by dysuria and urethral discharge, is the most common clinical picture and, globally annual incidence is estimated to be ~150 million cases (1). As a part of STDs, urethritis is widely classified as non-gonococcal urethritis (NGU) and gonococcal (2). STDs are highly varied and often involve more than one pathogen (3). The growing burden of STDs and ever-increasing costs have created a need for rapid and reliable laboratory techniques in order to detect the cause pathogens. There are continuing researches investigating methods that may detect more than one pathogen simultaneously in a single clinical patient. Polymerase chain reaction (PCR) assay has been found to be highly sensitive method detecting these STD pathogens (4). A multiplex assay has an additional advantage in screening since it involves simultaneous detection of multiple pathogens (5). The purpose of this study was to evaluate the results of multiplex PCR (MPCR) test performed to identify the pathogens in patients having complaints such as urethral discharge and dysuria after sexual intercourse.

Materials and Methods

We included 91 male patients who were admitted to our clinic between August 2015 and October 2016 due to complaints of urethral discharge, dysuria, and urethral itching, having a visible urethral discharge during the physical examination and those with a positive leukocyte esterase test (Combur-Test®-Roche) in the first urine sample studied on urethritis pathogens using MPCR. The study was approved by Medical Park Hospital Ethics Committee (approval number: 189). Written informed consent was obtained from all patients before MPCR test and the study was performed in accordance with the principles of the Helsinki Declaration. To identify the pathogens in the swab samples, a MPCR kit which is able to identify nine pathogens and produced by PathoFinder® (Holland) was used. The pathogens that could be detected by the kit were *Chlamydia trachomatis, Neisseria gonorrhoeae, Mycoplasma hominis, Mycoplasma genitalium, Ureaplasma urealyticum, Gardnerella vaginalis, Trichomonas vaginalis, Treponema pallidum* and *Candida albicans*. The first nucleic acids (DNA and RNA) were extracted in accordance with the kit protocol. Afterwards, amplification, detection and data analysis processes were carried out using Rotor-Gene Real Time PCR System® (Qiagen, Germany) in compliance with the manufacturer's instructions. The results were examined retrospectively.

Results

The average age of the patients was 35.1 (19-57) years. A total of 81 pathogens were identified in the urethral swab samples of 61 out of 91 patients (67%). Only one pathogen in 45 samples (49.4%), two different pathogens in 12 (13.1%), and 3 different pathogens in 4 (4.3%) samples were detected. The pathogens found were respectively as follows: *Ureaplasma urealyticum* in 22 patients (27.1%), *Gardnerella vaginalis* in 15 (18.6%), *Neisseria gonorrhoeae* in 13 (16.1%), *Mycoplasma genitalium* in 10 patients (12.3%), *Mycoplasma hominis* in 8 (9.9%), *Chlamydia trachomatis* in 8 (9.9%), *Trichomonas vaginalis* in 3 patients (3.8%) and *Candida albicans* in 2 (2.4%) (Figure 1). None of the patients were identified with *Treponema pallidum*. No pathogen was detected in 30 patients (32.9%) whose samples were examined using the PCR method.

Discussion

Urethritis or inflammation of the urethra is a multifactorial condition which is sexually acquired in the majority cases. It is characterized by discharge, dysuria and/or urethral discomfort but may also be asymptomatic. The diagnosis of urethritis is confirmed by demonstrating an excess of polymorphonuclear leukocytes (PMNLs) in the anterior urethra. This is generally assessed by using a urethral swab. Urethritis is defined as

gonococcal when *Neisseria gonorrhoeae* is detected and as NGU when it is not detected. There exist many uncertainties in the event of NGU. Especially in cases having a low-grade inflammation, there are significant intra- and inter-observer mistakes in applying and reading the urethral slides and also in counting the PMNL (6). In many men with urethritis, a known pathogen is not detected (7). The high sensitivity levels of nucleic acid amplification tests like PCR enable the use of less invasive sampling, use of initial flow urine samples or swabs taken by one's own, which are not suitable for less sensitive tests like culture and antigen tests (8). MPCR, uses the advantage of the amplification of various target series under one single reaction condition set of more than one primer sets (9). Samples taken from patients having STDs (including symptomatic and asymptomatic cases) may frequently contain more than one pathogens (10). Therefore, in order to detect low levels of multiple (nine different) pathogens in one analysis, tests like MPCR having sufficient sensitivity and high specificity, have a significant potential in diagnosing STDs rapidly and reliably. MPCR also does not exhibit cross reaction with other relevant target species or many other common urogenital organisms.

Today, for patients diagnosed with urethritis, starting an antibiotic treatment is recommended before the results of culture tests (2). The results of culture tests take 3-7 days. During this period, it is within the bounds of possibility that the patient could contaminate others through new sexual intercourses. However, only the PCR method allows obtaining a result in less than 24 hours. This gives rise to the thought that it allows starting the correct treatment without delay. Identifying the pathogen in the early period will also make the sexual partner available for a correct treatment. Thus, the control of the infection will be easier. Here comes the cost as a significant issue. The cost of a PCR kit to the hospital is 280 TL (77$). Though this appears to be a high amount for a single test, being able to identify 9 different pathogens in one single sample shows that the test could be considered in terms of cost and profit. Apart from this, in resistive cases in which the patient has not recovered after empirical antibiotic treatment, or in urethritis cases where the pathogen cannot be identified through conventional methods, MPCR analysis could be considered.

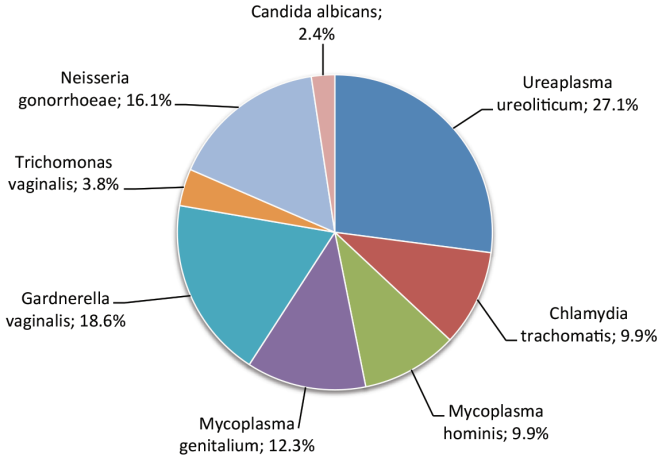

Figure 1. The disturbution of urethritis pathogens

Neisseria are gram-negative cocci that require nutritional supplement to be cultured in laboratory environment and their reproduction in culture is not easy. It is estimated that gonococcal urethritis accounts for approximately 5-20% of cases (11). 10% of males infected by gonorrhoeae are asymptomatic (12). *Chlamydia trachomatis* is generally defined as a required intracellular pathogen in the literature and it is responsible for 30-40% of NGU (13). PCR analysis has a high sensitivity and specificity in the diagnosis of *Neisseria gonorrhoeae* and *Chlamydia trachomatis*.

Studies of the role of ureaplasma in the pathogenesis of urethritis have revealed inconsistent results. Ureaplasms can be isolated from culture in 30-40% of asymptomatic males (14). In the literature, the prevalence of *Ureaplasma urealyticum* has been reported to be between 5% and 26% (2). *Ureaplasma* and *Mycoplasma species*, due to having no cell walls, are required intracellular parasites (15). Among the 9 pathogens detected by MPCR assay within this study, the most frequently identified ones are Ureaplasma and *Mycoplasma hominis* and *genitalium* (with a rate of 46.9 % within all urethritis pathogens) which indicates that intracellular parasitery infections occur much more frequently in the ethiopathogenesis of urethritis. It is rather difficult to isolate and identify these pathogens using conventional methods (16). MPCR assay is remarkably efficient in terms of making these pathogens detectable.

There is a lack of evidence for sexual transmission of genitourinary *Candida* infection. Transmission of *Candida* infection between partners in heterosexual intercourse is seen and genital *Candida albicans* isolates were alleged to transmit sexually in the studies where genotypes were used (17). However in the literature there is a limited number of publications about incidence of *Candida* infection in urethritis ethiology. In a study carried out by Obisesan et al., (18) the incidence of candida species in males was found to be 4.9% (18). In our study, however, the incidence of candida species was 2.4%.

There is increasing evidence that bacteria associated with bacterial vaginosis may cause NGU (19). However, there is no enough data on the association between *Gardnerella vaginalis*, and NGU in males. In a study including 80 heterosexual males and 79 controls carried out by Iser et al. (20), based on the microscobic criteria, the prevalence of *Gardnerella vaginalis* was found to be 14% (20) among heterosexual men with non-gonococcal urethral symptoms. In our study, the prevalence of *Gardnerella*

vaginalis was found to be 18.6%. *Gardnerella vaginalis* can be seen as commensal organisms in the genitourinary system. Since MPCR kits have been used in this study, a quantitative assessment could not be done for *Gardnerella vaginalis* as a microbial load. This could pose a handicap as to false positive result for such bacteria as *Gardnerella vaginalis* that can be commensal. With the method of quantitative PCR, we assume that the position of *Gardnerella vaginalis* in urethritis will be much more clearly understood.

In the literature, it has been reported that the pathogen associated with urethritis could not be identified in 20-30% of males (21). In a recent study by Wetmore et al. (7), the rate of patients in whom the pathogen could not be identified and who were considered as having idiopathic urethritis was 45.8% among all patients with urethritis. Whereas in our study, the rate of patients, so called idiopatic urethritis group in whom no pathogen could be detected, was found as 32.9%. The condition of idiopathic urethritis may not have an infectious etiology, or different from the ones infected by traditional STD pathogens, but this condition might result from unidentified infection agents in circulation in subgroups of population.

As explained before, identification of most pathogens causing STDs is not easy using routine microbiological diagnose methods. However, PCR assay is useful for identification of microorganisms that are difficult to cultivate and those grow slowly (22). In MPCR, more than one target sequence can be amplified by including more than one pair of primers in the reaction. MPCR has the potential of producing considerable savings in time and effort in the laboratory without compromising test utility. Furthermore, when the amount of the clinical sample is limited, multiplexing allows more targets to be analysed by using a single aliquot of sample material (23). When compared to uniplex PCR test, MPCR test has a general sensitivity of 96% and a specificity of 100% (24).

Conclusion

Identifying pathogens causing sexually transmitted infections and urethritis in males and, are quite difficult to detect with one urethral swab sample in a short time using MPCR method shows that this method can provide new possibilities for the diagnosis.

Ethics

Ethics Committee Approval: The study was approved by Medical Park Hospital Local Ethics Committee (Approval number: 189), Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Mehmet Sarıer, Concept: Mehmet Sarıer, Design: Erdal Kukul, Data Collection or Processing: Şafak Göktaş, Analysis or Interpretation: Meltem Demir, Literature Search: İbrahim Duman, Writing: Mehmet Sarıer.

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

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CASE REPORT
Reconstructive Urology

Doi: 10.4274/jus.483
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Management of Rectourethral Fistula following a Gunshot Injury with Gracilis Flap: A Case Report

Ateşli Silah Yaralanması Sonrası Gelişen Rektoüretral Fistülün Grasilis Flep ile Onarımı: Olgu Sunumu

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Abstract

Rectourethral fistulas are uncommon and can be classified as congenital or acquired. We present a case of rectourethral fistula following a shotgun injury and describe a surgical method of closing poorly healing defects between the urethra and rectum by means of a muscular flap of the gracilis muscle (GM). A 20-year-old man underwent laparotomy and colostomy for gunshot trauma. In postoperative first week, the patient began complaining of urine coming from the rectum. Retrograde urethrography revealed a fistulous opening connecting the prostatic urethra and the rectum. The transperineal approach with a GM flap interposition is currently the most commonly used method and one of the effective procedures for treating complex fistulae. Morbidity after a GM flap interposition is known to be low. GM transposition is a useful and effective method for the treatment of rectourethral fistula.
Keywords: Gunshot injury, rectourethral fistula, gracilis flap

Öz

Rektoüretral fistüller nadiren görülmektedir ve konjenital veya edinilmiş olarak sınıflandırılabilir. Biz, ateşli silah yaralanması sonrası gelişen rektoüretral fistüllü olguyu ve zor iyileşen üretra ve rektum arasındaki defekt için grasilis flep kullanılarak yapılan cerrahi tekniği sunmaktayız. Yirmi yaşında erkek hastaya ateşli silah yaralanması sonrası laparotomi ve kolostomi açılması uygulanmıştı. Postoperatif ilk haftada, hasta makattan idrar geldiğini tarifledi. Bunun üzerine çekilen retrograd üretrografide prostatik üretra ve rektum arasında fistül olduğu gösterildi. Hastaya transperineal yaklaşımla grasilis flep interpozisyonu kullanılarak rektoüretral fistül onarımı uygulandı. Grasilis kas flep interpozisyonuyla transperineal yaklaşım halen en çok kullanılan yöntemdir ve kompleks fistüllerin tedavisinde tercih edilen prosedürlerden biridir. Grasilis kas flep interpozisyonu sonrası morbidite az görülür. Bu yöntem rektoüretral fistüllü olguların tedavisinde kullanılabilir ve etkili bir yöntemdir.
Anahtar Kelimeler: Ateşli silah yaralanması, rektoüretral fistül, grasilis flep

Introduction

Rectourethral fistulas (RUFs) are uncommon and can be classified as congenital or acquired. Acquired RUFs are the result of surgical complications, pelvic irradiation or ablative treatments, trauma, chronic infection, or malignancy (1). Spontaneous closure of such fistulas is rare and reconstructive procedures are usually performed. Many surgical approaches have been described: transabdominal, abdominoperineal, transperineal, transanal, transsphincteric (i.e., York-Mason), and transsacral (2).

We present a case of rectourethral fistula following a gunshot injury treated by the use of gracilis musculocutaneous flap.

Case Presentation

A 20-year-old man underwent laparotomy and colostomy for gunshot trauma. In the postoperative first week, the patient began complaining of urine coming from the rectum after Foley catheter was removed. The patient was followed up with suprapubic cystostomy catheter for three months.

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Retrograde urethrography (RUG) revealed a fistulous opening connecting the prostatic urethra to the rectum and computed tomography showed a fistula tract. A urethroscopy was done to demonstrate the fistula and at prostatic urethra a 3 cm fistulous communication with the rectum. The bladder was grossly normal. As definitive treatment for the fistula we performed rectourethral fistula repair with gracilis flap (Figure 1). He had an indwelling urethral catheter for 2 weeks. After catheter removal, he voided well. Post-operative RUG revealed well-healed prostatic urethral anastomosis. Colostomy was closed after surgery.

Technique

The gracilis is a superficial muscle on the medial side of the thigh. The technique of gracilis muscle (GM) transposition for repairing rectourethral fistula has been previously reported (3). The patient is placed in the modified lithotomy position with the thigh abducted. The skin incision is made right along with the inner part of the thigh. GM always located over proximal 10 cm of a line between pubic tubercle and the medial upper surface of the tibia. GM is mobilized and released from its insertion that near the tibial plateau. By protecting dominant vessels which can alone nourish entire muscle, segmental arteries are cauterized. In the process the main neurovascular bundle, 8-10 cm below the pubic tubercle, is described and preserved. A subcutaneous tunnel is then made towards the perineum. By protecting of the little muscle cuff, an island flap is released from the proximal part of muscle origin. So the pedicle of the muscle is saved from shearing and stretching. The flap rotate into a subcutaneous tunnel towards to perineum without kinking. The incision are closed with suction drain. A perineal λ-shaped skin incision was applied between the anus and scrotum and is deepened in the space between the urethra and the rectum for the correction of the fistula. The remainder of the urethra not involved in the fistula is identified and protected by the help of a large urinary bladder catheter. The dissection is made to divide the fistula tract and reach cephalad to non-inflamed tissue. Primarily the rectal defect is closed in two layers then urethral defect is closed with interrupted absorbable sutures over the indwelling catheter. The GM is moved to the area between the rectum and the urethra by the subcutaneous tunnel between the perineum and thigh is done through the perineal side (Figure 2). Four to six polydioxane sutures are applied at the apex of the incision to hold the muscle in place. Before skin closure, a small suction drain is placed in the perineal wound.

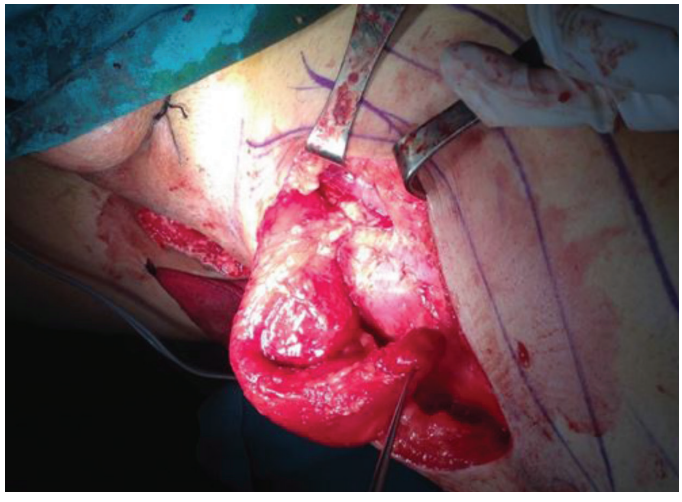

Figure 1. Transposition of gracilis muscle

Discussion

RUF is seen rarely and has varied etiologic factors: including iatrogenic, neoplastic or traumatic. Traumatic RUFs are frequently observable in wartime injuries (4) and continue with extensive urethral injury that leads to extensive stricture. Traumatic RUF can cause forcing matters in surgical reconstruction. As this condition is very rare, no single procedure has been proven most effective and become the technique of choice (4).

Diagnosis is based on history, physical examination, and radiologic tests. Symptoms may include fecaluria, pneumaturia, hematuria, urinary tract infection, nausea, vomiting, and fever. Digital rectal examination often permits palpation of the fistula tract along the anterior rectal wall. Voiding cystourethrography or RUG usually provide a definitive diagnosis of RUF. Cystoscopy and sigmoidoscopy visualize the fistula tract and provide a mechanism for biopsy. Biopsies should be done if there is concern for malignancy.

In general, conservative management can be attempted by using fecal diversion and/or urinary diversion (ie, urethral catheter and/or suprapubic catheter) for small (<2 cm), nonirradiated RUFs in patients who do not have sepsis. However, most RUFs do not respond to conservative treatment and require surgical repair (5).

Many surgical approaches have been described: transabdominal, abdominoperineal, transperineal, transanal, transsphincteric, and transsacral (2). The transperineal approach with a GM flap interposition is recently the most commonly applied method

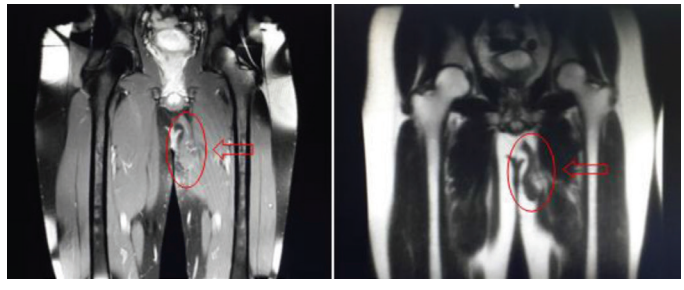

Figure 2. Postoperative magnetic resonance and gracilis muscle

and the efficient procedures for treating complex fistulae. The GM has been applied as a rotation flap or for different purposes without a significant effect on lower limb strength and range of motion. Ryan et al. (3) described the use of the gracilis transposition for the treatment of rectourethral fistula in 1979. By depending on three cases which lasted over a period of 15 years and had a 100% success rate, Nyam and Pemberton (6) reported that GM transposition had better success rate than did other types of repair of rectourethral fistula. The largest series of 53 rectovaginal fistulas and RUFs with GM interposition was suggested by Wexner et al. (7) and the overall initial 70% success rate was obtained then the final success rate of seven repeated GM transpositions was 87%.

Due to fact that it supplies good exposure of the rectum, urethra and the neck of the bladder, urethral pathologies can be operated on at the same time through the transperineal route thereby allowing distal urethral mobilization associated in this method (8). However, morbidity of a GM flap interposition is known to be rare, urethral stricture and urinary incontinence can appear as complications.

GM transposition is a useful and effective method for the treatment of rectourethral fistula causing by gunshot. This procedure is associated with low morbidity and high success.

Ethics

Informed Consent: It was taken.

Peer-review: External and internal peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Zühtü Tansuğ, Erkan Demir, Mutlu Değer, Eyüphan Gencel, Concept: Mutlu Değer, Fatih Gökalp, Design: Mutlu Değer, Fatih Gökalp, Data Collection or Processing: Mutlu Değer, Fatih Gökalp, Analysis or Interpretation: Eyüphan Gencel, Literature Search: Mutlu Değer, Fatih Gökalp, Writing: Mutlu Değer, Fatih Gökalp.

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CASE REPORT
Urooncology

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Journal of Urological Surgery, 2017;4:26-28

Paratesticular Metastasis of High Grade Prostate Cancer Clinically Mimicking Hemato/Pyo-hydrocele

Paratestiküler Metastazla Presente Olan Yüksek Dereceli Prostat Adenokarsinomu

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Abstract

Secondary metastatic lesions of the testicles are very rare and they originate mainly from prostate adenocarcinoma. They are generally diagnosed incidentally, however, they very rarely manifest as a palpable testicular mass. In this paper, we present, a case of paratesticular metastasis from high-grade prostate cancer clinically mimicking pyo-/hemato-/hydrocele. A 75-year-old man, who had been followed up elsewhere for a huge hydrocele based on scrotal Doppler ultrasonography and scrotal magnetic resonance imaging reporting no suspicion for malignancy, but a pyo-/hemato-/hydrocele was determined to have testicular metastasis originating from prostate adenocarcinoma.
Keywords: Hydrocele, testis, neoplasm metastasis, prostate, adenocarcinoma

Öz

Testisin metastatik lezyonları oldukça nadirdir ve çoğunlukla prostat kanserinden köken almaktadırlar. Genellikle rastlantısal olarak tanı alırlar; ancak çok nadir testiste palpe edilebilen kitle ile belirti verirler. Bu olgu bildirisinde klinik olarak pyo-/hemato-/hidrosel olarak izlenen olguda yüksek dereceli prostat kanseri metastazı bildirilmektedir. Yetmiş beş yaşındaki hasta yapılan skrotal Doppler ultrasonografi ve manyetik rezonans görüntüleme incelemeleri ile pyo-/hemato-/hidrosel tanısı ile izlenmekte iken hidroselin yüksek dereceli prostat kanserinin paratestiküler metastazına bağlı olduğu tespit edilmiştir.
Anahtar Kelimeler: Hidrosel, testis, metastaz, prostat, adenokanser

Introduction

Being a very rare situation with the incidence of 3.3% in all testicular tumors, testicular metastases originate mainly (up to 42-60%) from prostate adenocarcinoma and they are generally diagnosed incidentally with surgical castration for prostate cancer (1,2).

However, it very rarely manifests with a palpable testicular mass in men admitted to urology clinics for lower urinary tract symptoms or predetermined high prostate specific antigen (PSA) values (1,3). Likewise, paratesticular metastases also have been reported to be mainly originating from prostate cancer and, with lesser frequency, from gastrointestinal malignancies (4).

In this paper, we present a patient with huge hydrocele clinically mimicking pyo-/hemato-/hydrocele who was determined to have a malignant hydrocele secondary to paratesticular metastasis originating from prostate adenocarcinoma.

Case Presentation

A 75-year-old man was referred to our urology clinics for prostate biopsy because of his high and recently significantly increased PSA levels. His past medical history was uneventful other than transurethral resection of the prostate and synchronous ileus operation with appendectomy. He had been previously followed elsewhere with PSA levels which were 0.57 ng/mL in August 2007, 1.40 ng/mL in January 2010, 4.31 ng/mL in August 2014 and 15.34 ng/mL in April 2015. His physical examination revealed

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bilaterally firm and nodular prostate with digital examination and huge firm hydrocele not permitting evaluation of the left testicle, and minimally atrophic right testicle. The patient has been elsewhere prescribed antibiotics for pyo-/hemo-/hydrocele after clinical evaluation with scrotal Doppler ultrasonography, scrotal magnetic resonance imaging (MRI) and biochemical studies including α-FP, β-hCG and lactate dehydrogenase (LDH). Scrotal ultrasonography performed for scrotal pain nine months ago revealed that the left testicle was atrophic without any solid or cystic lesion within the scrotum. However, a recent scrotal ultrasonography performed for enlarged left scrotum suggested 5x7 cm wide pyo-/hemo-/hydrocele which included echogenic particles and was surrounded by thin rim of tissue having poor blood flow with Doppler examination. The left atrophic testicle was deviated to inferomedial aspect of the cystic lesion. Scrotal MRI revealed an atrophic left testicle measuring 24x24x10 mm in size with a 48x60x81 mm minimally heterogeneous contrast-enhanced lesion with medially large cystic cavity fulfilling the left hemiscrotum suggesting an infected epididymal cyst or intrascrotal abscess-related lesion (Figure 1). His biochemical studies including α-FP, β-hCG and LDH were within the normal limits.

Though not confirmed radiologically, the left hydrocele was suspected of being malignant hydrocele. Therefore, radical inguinal orchiectomy together with 12-core transrectal ultrasound-guided prostate biopsy was performed. Macroscopic examination of the radical orchiectomy revealed a cystic wide cavity with tumoral mass inferiorly deviating to the atrophic testicle (Figure 2).

Histopathological examination of the prostate biopsy specimens revealed Gleason pattern 5+4 prostate adenocarcinoma in all biopsy cores. Histopathological examination of the radical orchiectomy specimens demonstrated metastatic adenocarcinoma of the prostate showing reactivity with PSA and keratin without any positive reactivity with calretinin, CD117, CD30, vimentin, inhibin, octamer-binding transcription factor 3/4 or placental-like alkaline phosphatase (Figure 3). Thereafter, the patient was clinically staged as T2cN0M1c with thoraco-abdominal computed tomography (CT) and whole body bone scan. CT showed minimally increased ascites and suspicious omental thickening suggesting peritoneal carcinomatosis. The patient underwent an ultrasound-guided needle aspiration of ascites which was found to contain malignant epithelial cells. Then, right scrotal orchiectomy was performed to provide surgical castration for metastatic prostate cancer and the patient was referred to the medical oncology department

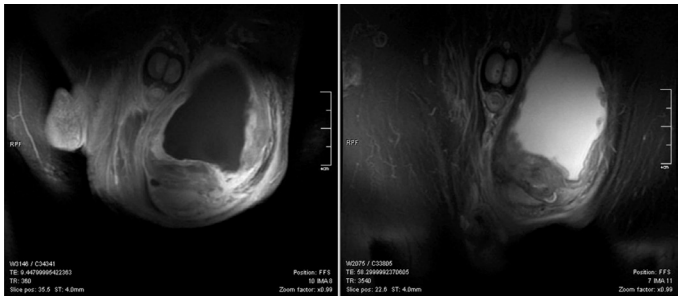

Figure 1. Magnetic resonance imaging coronal section views of scrotum showing 48x60x81 mm minimally heterogeneous contrast enhanced lesion with medially large cystic cavity fulfilling the left hemiscrotum suggesting infected epididymal cyst or intrascrotal abscess related lesion (on the left side) T1 weighted image; (on the right side) T2 weighted image

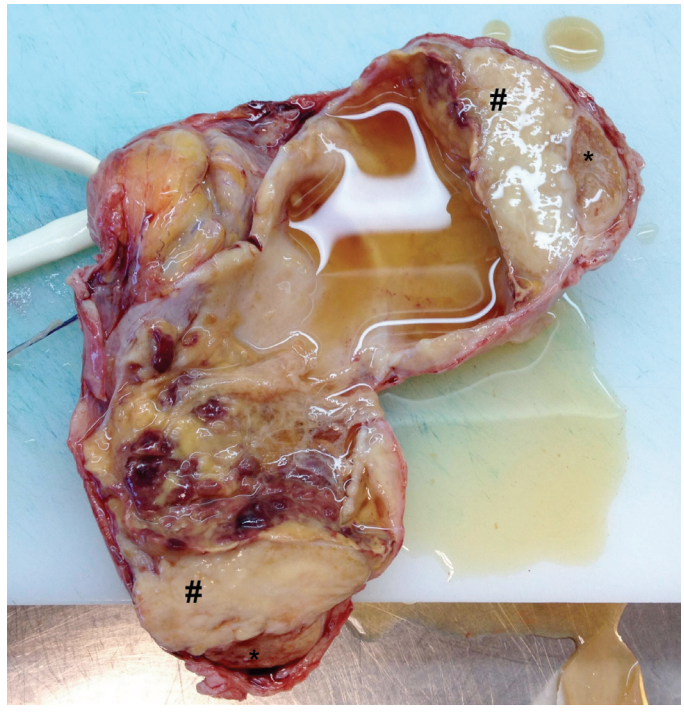

Figure 2. Macroscopic view of inguinal left orchiectomy specimen: a cystic wide cavity with tumoral mass (designated with #) inferiorly deviating atrophic testicle (designated with *) more inferiorly

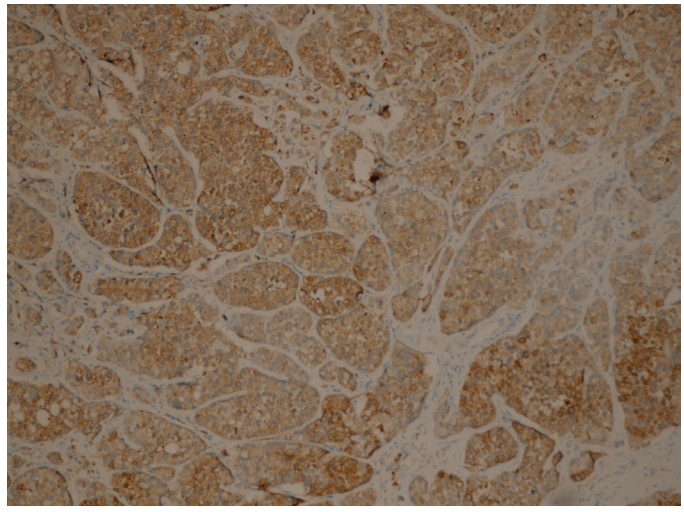

Figure 3. Histological view of neoplastic cells showing diffuse and high level of prostate-specific antigen positivity (magnification x200)

for earlier chemotherapy. The patient gave written informed consent for publication of the clinical and surgical images.

Discussion

Testicular and paratesticular metastases have been shown to originate mainly from prostate adenocarcinoma (1,2,4). In addition, they are generally diagnosed incidentally during surgical castration for prostate cancer. Very rarely, they manifest with a palpable testicular mass and these cases are usually solitary, unilateral tumors simulating primary neoplasms (1,3). Our case was interesting in that recently developed, firm huge hydrocele simulating pyo-/hemato-/hydrocele, radiologically raised clinical suspicion of malignant hydrocele resulting from primary testicular neoplasm or paratesticular primary neoplasms in the setting of atrophic testis. Therefore, we performed left inguinal radical orchiectomy. Histopathological examination revealed metastasis from poorly differentiated prostate cancer. Our case was with unilateral metastasis as generally encountered in such cases (1). However, in the literature, bilateral testicular metastases originating from prostate adenocarcinoma have also been reported (5,6). These metastases, either as incidental or palpable mass, may be synchronous or metachronous in accordance with timing related to the diagnosis of the primary tumor (1,2,3,5,6,7,8,9,10).

In this case presentation, once again it is confirmed that clinical suspicion and thorough physical examination is a must in the management of the condition. Although rare, in case of suspicious hydrocele formations, any testicular or paratesticular metastases should be ruled out in the follow-up of prostate cancer patients.

Ethics

Informed Consent: It was taken.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Hikmet Köseoğlu, Concept: Hikmet Köseoğlu, Design: Hikmet Köseoğlu, Data Collection or Processing: Hikmet Köseoğlu, Şemsi Altaner, Analysis or Interpretation: Hikmet Köseoğlu, Şemsi Altaner, Literature Search: Hikmet Köseoğlu, Writing: Hikmet Köseoğlu, Şemsi Altaner.

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CASE REPORT
Reconstructive Urology

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Journal of Urological Surgery, 2017;4:29-31

Spontaneous Vesicouterine Fistula: A Case Report

Spontan Vezikoüterin Fistül: Olgu Sunumu

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Abstract

Vesicouterine fistulae (VUFs) are the least common type of urogenital fistulae and they are usually associated with lower segment caesarean section. The classic triad of VUF has been defined as urinary incontinence, amenorrhea, and cyclic hematuria. In the literature, spontaneous VUF without a history of previous surgery or radiotherapy has not been reported before. In this report, we present a female patient who presented with continuous urinary incontinence and was diagnosed with VUF. The patient was managed with cystectomy and hysterectomy and ileal conduit diversion. To our knowledge, this is the only reported case of spontaneous VUF.
Keywords: Cystectomy, hysterectomy, urinary incontinence, urogenital fistula, vesicouterine fistula

Öz

Vezikoüterin fistül (VUF) ürogenital fistüllerin en az karşılaşılanıdır ve genellikle alt segment sezaryen ile ilişkilidir. VUF klasik triadı üriner inkontinans, amenore ve siklik hematüri olarak tanımlanmıştır. Literatürde geçmişinde cerrahi ya da radyoterapi öyküsü olmayan spontan VUF daha önce rapor edilmemiştir. Bu yazıda, tarafımıza sürekli idrar kaçırma ile başvuran ve VUF saptanan bir kadın hasta sunuldu. Hasta sistektomi, histerektomi ve ileal konduit ile tedavi edildi. Bildiğimiz kadarıyla, bu spontan VUF bildirilmiş tek olgudur.
Anahtar Kelimeler: Sistektomi, histerektomi, üriner inkontinans, ürogenital fistül, vezikoüterin fistül

Introduction

Vesicouterine fistula (VUF) is an abnormal connection between the bladder and the uterus and it is the least common fistula among urogenital fistulae with an incidence of 2-4% (1). It has been reported that VUFs were generally seen after obstetric operations and 83% of the VUFs were observed after caesarean section (2).

The classic triad of VUF is amenorrhea, cyclic hematuria (menouria) and discrete leakage of urine from the vagina (1). Observation of methylene blue at os cervix which is given during cystoscopy or with a urethral catheter or detecting opaque passage to the bladder or uterus during either hysterography or cystography are the main diagnostic methods used for detecting VUF. Although conservative treatment methods such as observation, fulguration or hormonal therapy can be used in the management of VUF, definitive treatment is appropriate surgery (3,4).

Spontaneous VUF without a history of previous surgery or radiotherapy has not been reported before. We present a female patient who was admitted with the complaints of continuous urinary incontinence and was diagnosed with VUF. The patient was managed with cystectomy and hysterectomy and ileal conduit diversion. To our knowledge, this is the only reported case of spontaneous VUF.

Case Presentation

A 49-year-old female patient admitted to our department with the complaint of continuous urinary incontinence that started one month ago. During vaginal examination, continuous

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Presented in: 2nd National Urological Surgery Congress as a poster.

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leakage of urine from the vagina was detected and there was no cystocele or rectocele. Ultrasonography showed bilateral renal dilatation; the bladder was empty and the bladder wall thickness was increased. Her medical history revealed that she had diabetes mellitus for 5 years and she went through menopause 4 years ago. Her obstetric history included 3 normal spontaneous vaginal deliveries without any prolonged or difficult labour. Her physical examination showed a diabetic ulcer of the left foot. Laboratory examinations were as follows: creatinine: 2.01 mg/dL, K: 6.1 mmol/L, and Hb: 7.7 g/dL. The patient was hospitalized after placement of a urethral catheter.

Gynecological examination and transvaginal ultrasonography were performed and the adnexa and uterus were found to be normal without any pathology. Endocrinology consultation was requested for her HbA1c level being 9.5% and insulin treatment was started. Then, the patient underwent cystoscopy which showed that right (Figure 1a) and left (Figure 1b) ureteral orifices were lateralized and widened that the cystoscope was negotiated easily into the orifice. Under general anesthesia, the bladder capacity was found to be 50 cc. A 0.5 cm fistula with edematous and hyperemic mucosal borders was observed between the posterior wall of the bladder and dome of the bladder (Figure 1c). Simultaneous cystography showed the passage of iodine solution to uterine cavity (Figure 1d). Biopsies with transurethral resection were taken from hyperemic areas around the fistula. Bilateral hydronephrosis was detected during retrograde urography (Figure 1e), therefore, bilateral nephrostomies were inserted. Pathological examination of the biopsy specimens showed chronic inflammation and necrosis. Purified protein derivative skin test, acidoresistant bacilli microscopy and urine culture for tuberculosis were negative.

Treatment options were explained to the patient. Since she had a low bladder capacity, diabetes mellitus and renal failure, cystectomy, total abdominal hysterectomy and bilateral salpingo-oophorectomy and ileal conduit diversion were performed. Final pathological examination of the cystectomy and fistula track specimen showed chronic inflammation. Final pathological examination of the total abdominal hysterectomy and bilateral salpingo-oophorectomy showed chronic cervicitis with squamous metaplasia. During the operation and postoperative period, no complications were observed. After the procedure, the patient's creatinine level decreased to 1.27 mg/dL on the postoperative 1st week.

Discussion

Vesicouterine fistulae are the least common type of urogynecological fistulae. Caesarean section is the most common cause of these fistulae. Foreign bodies such as intrauterine devices, uterine rupture, placental anomalies, uterine artery embolization, traumatic bladder cauterization, pelvic surgery, pelvic cancer, brachytherapy, pelvic external irradiation, and infectious and inflammatory diseases are the etiological factors that can cause VUF (3). In the present case, none of the above mentioned etiological factors were present. The only concomitant disease during her admission was diabetes mellitus, nephropathy, and contracted bladder probably related to diabetes. To our knowledge, this is the only reported case of VUF without any etiological factors and occurring spontaneously.

Cystography or hysterosalpingography can be considered as the gold standard in the diagnosis of VUF. Computed tomography can provide important information about the topography of the fistula tract. Magnetic resonance imaging (MRI) is a non-invasive method that produces detailed anatomical images without the use of contrast media causing allergic reactions or nephrotoxicity. MRI is able to identify the exact location and anatomy of the fistula and the presence of endometriosis within the bladder. In addition to these, transvaginal ultrasonography can also be used in the diagnosis of VUF (4). In our case, we performed cystography during cystoscopic examination under general anesthesia. This examination also enabled us to evaluate the bladder capacity and upper urinary tract dilatation.

Various kinds of approaches have been proposed for the treatment of VUF. Spontaneous closure of VUF with conservative approach has been reported (5). Surgical approach depends on the patient's desire for fertility as well as other surgical factors. If the patient does not desire to have further children, closure

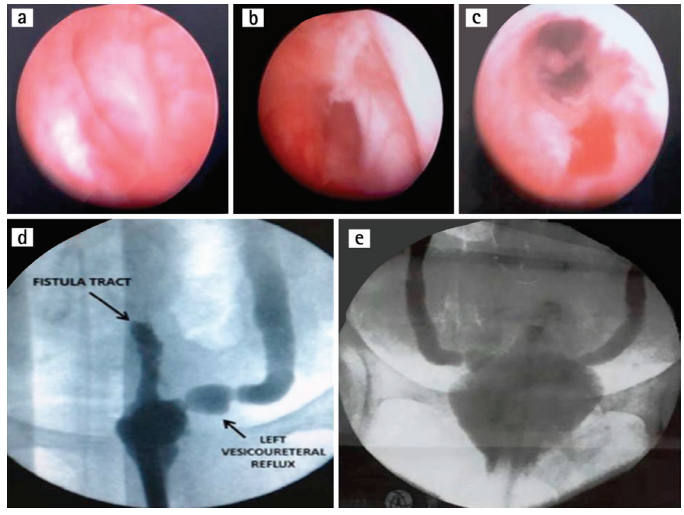

Figure 1. a, b) Right and left ureteral orifices lateralized and widened that a cystoscope was negotiated easily into the orifice, c) Fistula tract with edematous and hyperemic mucosal borders between posterior wall and bladder dome, d) Simultaneous cystography showed the passage of iodine solution to uterine cavity, e) Decreased bladder capacity and bilateral hydronephrosis was detected during cystography and retrograde urography

of the bladder site of the fistula tract can be performed with hysterectomy. If fertility is a major concern, uterine-sparing approaches are implemented. Laparoscopic and robotic surgery can also be used in VUF repair (4). Uterus-preserving approaches were not considered in our case because our patient was in menopausal age.

Cystectomy is widely used for invasive bladder cancer, however, patients with debilitating non-malignant bladder diseases, in whom conservative or minimally invasive treatment options have failed, may also undergo various forms of cystectomy and urinary diversion (6). There are mainly three alternatives for urinary diversion: abdominal and urethral diversions with either continent or incontinent forms and rectosigmoid diversions. Although augmentation cystoplasty and continent urethral diversions are preferred for the quality of life in these patients, there are contraindications for these complex forms of diversions such as debilitating neurologic and psychiatric illnesses, limited life expectancy and impaired liver or renal function (7). Augmentation surgery or continent diversion was not considered because our patient had nephropathy. Therefore, total abdominal hysterectomy and bilateral salpingo-oophorectomy and ileal conduit diversion were performed after taking the patient's informed consent. After the procedure, renal function recovered and hydronephrosis was resolved in both kidneys. Pathological examination revealed chronic inflammation in the bladder and vesicouterine fistula track which ruled out any malignancy or an etiology which was not diagnosed preoperatively.

Although an etiological factor exists in most of the cases, VUF can be found in women with urinary incontinence and continuous urinary leakage per vagina, as well as other urogenital fistulae. Treatment options are based on the closure of the fistula tract, however, the optimal surgical method should be decided individually for each patient.

Ethics

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

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Aykut Başer, Zafer Aybek, Concept: Aykut Başer, Hülya Yılmaz Başer, Design: Aykut Başer, Hülya Yılmaz Başer, Data Collection or Processing: Ali Ersin Zümrütbaş, Cihan Toktaş, Analysis or Interpretation: Aykut Başer, Hülya Yılmaz Başer, Literature Search: Aykut Başer, Yusuf Özlülerden, Writing: Aykut Başer, Hülya Yılmaz Başer.

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

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

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CASE REPORT
General Urology

Doi: 10.4274/jus.627
Journal of Urological Surgery, 2017;4:32-34

A Rare Urologic Emergency of Penile Strangulation with a Metallic Ring

Metalik Halkanın Neden Olduğu Penil Strangülasyona Bağlı Nadir Bir Ürolojik Acil

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Abstract

A 31-year-old man was presented to our emergency room in a distressed state with a heavy metallic ring 4 cm wide and 0.6 cm thick placed at the root of the penis for attempting masturbation. The ring was placed approximately 6 hours previously and the patient had tried several maneuvers using different tools to remove it. The patient suffered proximal penile strangulation with painful priapism. Under general anesthesia, multiple punctures to the glans penis and circumcision scar were made in order to aspirate entrapped blood and edema. After minimal regression of distal penile edema, we tried to cut the ring with metal cutters that orthopedicians use, but it was not successful. With a quite amount of lubricant, surgery string to keep the distal penis compressed, and the application of steady force to the ring, we were able to remove the metallic ring. The operation time was 2 hours without any complications. At 36 hours after the operation, the penis looked quite normal and the patient was discharged after 48 hours. The urethral catheter was removed at the first week after the operation. At the end of 12 months, there were no findings of urethral stricture and erectile dysfunction.
Keywords: Emergency, metalic ring, penile strangulation

Öz

Otuz bir yaşında erkek acil servise penis proksimalinde 4 cm uzunluk 0,6 cm kalınlıkta metal halkaya bağlı peniste şişme ile başvurdu. Metal halka 6 saat önce mastürbasyon amacıyla hasta tarafından yerleştirilmiş olup değişik aletlerle denemesine rağmen gelişen şişliğe bağlı çıkarılamamış. Hastanın fizik muayenesinde metal halkaya bağlı ciddi düzeyde penis distalinde şişmeye sekonder ağrılı priapizm mevcuttu. Bu bulgularla hastaya genel anestezi altında glans penis ve sünnet insizyon hattına çok kez iğne ile delikler açıldı. Manüel kompresyon ile beraber şişlik ve ödemin dereceli olarak azaldığı gözlenince halkayı kaydırarak çıkarmaya karar verdik. Cerrahi monofilament bir iplik ile halkanın distaline helikal biçimde kompresyon uygulandı; halka altına kayganlaştırıcı jel sıkılması sonrası sürekli bir güç ile halka distale doğru çekildi ve metal halka bu sayede çıkarıldı. Operasyon sonrası 1. haftada hastanın foleyi çekildi. Operasyon sonrası 1. yılda üretra darlığı veya erektil disfonksiyona ait bir bulgu saptanmadı.
Anahtar Kelimeler: Acil, metalik halka, penil strangülasyon

Introduction

Penile strangulation by an encircling metallic object is an emergency in urologic practice. Enforcement of foreign metallic or nonmetallic objects around the penis is used by adults as sexual gratification and is also seen in children as a childish play (1). In children, these objects are usually nonmetallic, while in adults metallic objects are used for having longer sexual intercourse (1,2).

In this report we present our experience in managing penile strangulation by a hard metallic ring.

Case Presentation

A 31-year-old man presented to our emergency room in a distressed state with a heavy metal ring 4 cm wide and 0.6 cm thick around the base of the penis. The ring was placed approximately 6 hours previously and the patient had tried

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Received: 12.11.2015 **Accepted:** 21.12.2015

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several maneuvers with different tools to remove it in this time period. He had applied this encircling automotive industry ring around his penis for the first time in order to masturbate and he had no urinary complaints at the time of admission. Upon physical examination, the ring was noticed around the base of his penis and he had proximal penile strangulation with painful priapism (Figure 1).

We did ureteral catheterization to prevent any possible intraoperative urethral damage. Under general anesthesia, multiple punctures to the glans penis and circumcision scar were made in order to aspirate entrapped blood. After minimal regression of distal penile edema, we tried to cut the ring with metal cutters that orthopedicians use, but it was not successful. With further manual decompression of the glans penis, edema was gradually decreased, and we decided to pull out the ring over the glans penis (Figure 2). With a quite amount of lubricant, surgery string to keep the distal penis compressed, and the application of steady force to the ring, we were able to remove the metal ring.

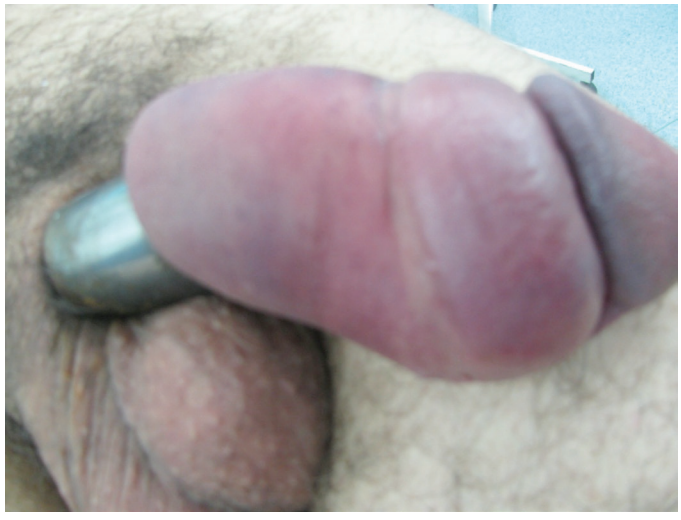

Figure 1. Metal ring around the penile base

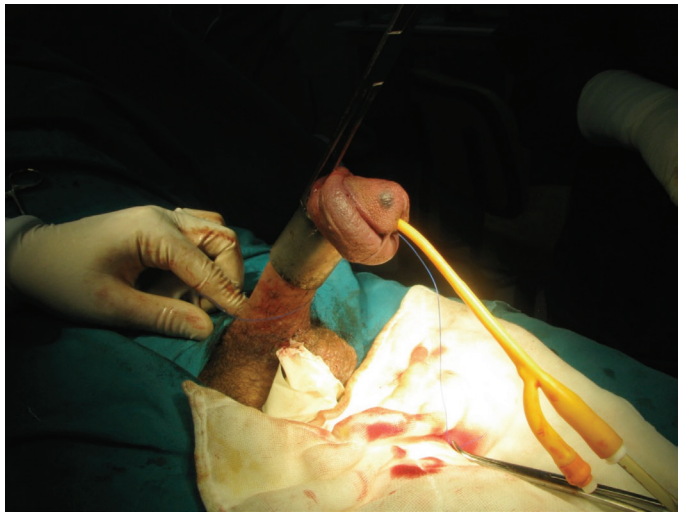

Figure 2. After reduction of edema and pulling out the ring during operation

At 36 hours after the operation, the penis looked quite normal and the patient was discharged after 48 hours. The urethral catheter was removed at the first week after the operation. In the first month after the procedure, the patient did not report any voiding difficulties or erectile dysfunction. The patient was informed about the possible urethral stricture and the need for follow-up visits. At the end of 12 months, there were no findings of urethral stricture (Figure 3).

Discussion

Foreign bodies around the penis causing strangulation present as a urologic emergency. Many different foreign bodies and therapeutic options have been reported (3,4). Donate Moreno et al. (5) reported a case of a steel ring at the medial part of the penis that was placed for 16 hours, causing necrosis involving a small area and hypoesthesia of the glans penis. Our patient had no complaint of hypoesthesia, but he had serious penile pain and edema. Donate Moreno et al. (5) were able to cut the steel with a strong cutting tool. We also tried to cut the metal ring with metal cutters that are used by orthopedicians, but we did not succeed because we could not get enough space to apply cutters' jaws along the ring. With these cutter tools, the surgeon must be very careful as there is a great risk of damage to the penile skin and vessels.

Joshi et al. (3) recommended applying lubricant underneath the ring and distal penile skin to make slippery after reducing the venous priapism, and then applying steady persistent forward force to dislodge the ring off the penis. Talib et al. (6) reported that they performed penile aspiration with 4 needles which were introduced from the glans penis. Then they also performed

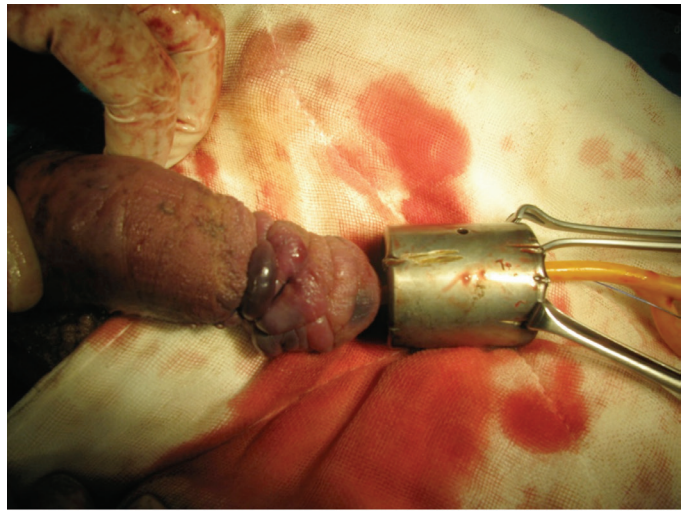

Figure 3. Removed metallic ring, string compressing distal penile edema

multiple needle pricks to the skin to relieve skin edema and using the lubricants they were able to remove the ring. However, in our case, this was impossible at the beginning because there was a prominent amount of subcutaneous penile edema. So we used surgical string to compress the distal penis to make it elongated and narrow as Browning and Reed (7) described.

Some authors reported degloving of the distal penis to the level of cavernous tissue before foreign body could be removed (4,8). Wasadikar (4) reported a patient who had the ring for a month. Penile degloving and subsequent skin grafting from the medial side of the right thigh was applied in this case and the result was excellent according to the author. In our case, there was no need to deglove the distal penis.

Santucci et al. (9) reported removal of a metal iron and steel items incarcerating the penis with a heavy-duty air-driven grinder provided by the fire department. They also recommended cooling the metal item with ice to prevent tissue heating, protecting the patient from sparks, and protecting the penis from the cutting blade (9). Kyei et al. (10) reported a case in which they used an electrical circular grinder to cut a ring around the penis. Unfortunately, their cooling was non-effective, and thus this resulted in circumferential denudation of penile skin, a urethro-cutaneous fistula at the penoscrotal junction, and a mid-bulbar urethral stricture. The patient underwent later surgeries including urethroplasty. We had already called the hospital atelier for a motor cutting tool, and while they were getting the tools, we succeeded in removing the ring without non-medical aids. Sometimes, Santucci's and Kyei's approach may be an option to an unsuccessful medical procedure, but we must keep in mind the complications of unexpected thermal effects.

Joshi et al. (3) reported urethral stricture in two of three patients who were treated with end-to-end urethroplasty procedures at a later period following emergency procedures. Patients must be informed about the risk of ischaemic urethral stricture at a later date and follow-up visits must be scheduled.

Penile strangulation by a metallic ring is an unusual urologic emergency and unusual therapeutic approaches and tools may be needed to remove such an object.

Ethics

Informed Consent: It was taken.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Hasan Hüseyin Tavukçu, İbrahim Halil Bozkurt, Concept: Hasan Hüseyin Tavukçu, Design: Hasan Hüseyin Tavukçu, Data Collection or Processing: Hasan Hüseyin Tavukçu, Analysis or Interpretation: İbrahim Halil Bozkurt, Literature Search: İlker Tinay, Writing: Hasan Hüseyin Tavukçu, Cem Akbal.

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.

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Basic Research

Doi: 10.4274/jus.2017.04.001

Re: Duration of Urination does not Change with Body Size

Yang PJ[1], Pham J[1], Choo J[1], Hu DL[2]

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[2]Georgia Institute of Technology, Division of Mechanical Engineering and Biology, Atlanta, USA

Proc Natl Acad Sci USA 2014;111:11932-11937. doi: 10.1073/pnas.1402289111.

EDITORIAL COMMENT

In mammals, the bladder acts as a water-proof reservoir to be emptied at a time of convenience. Urinary flow is driven by a combination of both gravity and bladder pressure. Urination physiology has not been clearly described yet. Urination may be simply described mathematically. In this study, the authors want to elucidate the hydrodynamics of urination in 5 different animals by using high-speed videography and flow-rate measurement. They found that all mammals above 3 kg in weight empty their bladders over nearly constant duration of 21±13s. This finding can be explained with larger animals have longer urethras and thus, higher gravitational force and higher flow speed. Smaller mammals are challenged during urination by high viscous and capillary forces that limit their urine to single drops. Their findings reveal that the urethra is a flow-enhancing device and this study may help to diagnose urinary problems in human as well as hydrodynamic system. Pressures are effective on bladder emptying. This equality can be described as $P_{bladder} + P_{gravity} = P_{inertia} + P_{viscosity} + P_{capillary}$ formulation. According to this research, the urethra is critical to the bladder's ability to empty quickly, moreover the modeling of the bladder and urethra can be useful especially for neobladder operations. Additional mathematical techniques as well as accurate urethral measurements are needed to increase correspondence with experiments in the future.

Fehmi Narter, MD

Basic Research

Doi: 10.4274/jus.2017.04.002

Re: The Search for Human Pheromones: The Lost Decades and the Necessity of Returning to First Principles

Wyatt TD

University of Oxford Faculty of Medicine, Department of Zoology, Oxford, UK

Proc Biol Sci 2015;282:20142994. doi: 10.1098/rspb.2014.2994.

EDITORIAL COMMENT

Pheromones are chemical signals that have evolved for communication with other members of the same species. We do not know yet if humans have pheromones. Over the last 45 years, some scientists have claimed that a number of molecules are human pheromones, but these claims have little scientific validity. The first chemical identification of a pheromone, the silk moth's female sex pheromone (bombykol), achieved by the German chemist Adolf Butenandt and after this finding, four steroid molecules have been described as human pheromones: androstenone, androstenol, androstadienone and estratetraenol. The possibility of human pheromones has been downplayed in part because in the past, it has been assumed erroneously that we have a poor sense of smell. Humans have a "main olfactory system" but they do not have a functional vomeronasal organ (or "second nose"; Jacobson's organ, is an auxiliary olfactory sense organ that is found in many animals. It lies close to the vomer and nasal bones).

In the near future, researches will be focused on identification and synthesis of these bioactive molecule(s), followed by bioassay techniques, again. Especially, comparison of secretions from adult and pre-pubertal humans may highlight potential molecules involved in sexual behaviour. Further search will benefit from the techniques developed by olfactory researchers including those who have worked on the steroids previously.

Fehmi Narter, MD

Transplant Survey

Doi: 10.4274/jus.2017.04.003

Re: Should Asymptomatic Bacteriuria be Systematically Treated in Kidney Transplant Recipients? Results from a Randomized Controlled Trial

Origüen J[1], López-Medrano F[1], Fernández-Ruiz M[1], Polanco N[2], Gutiérrez E[2], González E[2], Mérida E[2], Ruiz-Merlo T[1], Morales-Cartagena A[1], Pérez-Jacoiste Asín MA[1], García-Reyne A[1], San Juan R[1], Orellana MÁ[3], Andrés A[2], Aguado JM[1]

[1]Universidad Complutense Faculty of Medicine, Hospital Universitario "12 de Octubre", Instituto de Investigación Hospital "12 de Octubre" (i+12), Clinic of Infectious Diseases, Madrid, Spain
[2]Universidad Complutense Faculty of Medicine, Hospital Universitario "12 de Octubre", Instituto de Investigación Hospital "12 de Octubre" (i+12), Clinic of Nephrology, Madrid, Spain
[3]Universidad Complutense Faculty of Medicine, Hospital Universitario "12 de Octubre", Instituto de Investigación Hospital "12 de Octubre" (i+12), Clinic of Microbiology, Madrid, Spain

Am J Transplant 2016;16:2943-2953. doi: 10.1111/ajt.13829.

EDITORIAL COMMENT

In this well conducted randomized, controlled trial the authors have examined the necessity of treatment in case of asymptomatic bacteriuria (AB) beyond 2 months post-transplant in kidney transplant recipients without stents. No significant difference was observed in the development of either acute pyelonephritis, which is the primary end point (7.5% vs. 8.4% respectively), or in a variety of secondary end points in the treatment and control arm. Main conclusion of the study is possibly not to offer treatment for AB in kidney transplant recipients after the stents were removed. However, there are some points that need to be mentioned. Almost half of the patients in the treatment arm were incompliant to treatment and the sample size was lower due to an assumption error as acknowledged by the authors also. During follow-up, an average of 18 urine cultures was obtained from each patient and 39% of patients have experienced at least one AB attack. In the light of this information, one can easily assume that screening cultures can be unnecessary in the follow-up of a kidney transplant recipient since the number of acute pyelonephritis attacks is lower than expected and one third of the acute pyelonephritis attacks were not preceded by AB. Of interest 33% of untreated AB attacks were spontaneously cleared. However *Klebsiella pneumonia* showed difficult clearance rates either with or without treatment (42% vs. 24%). The study provides some evidence for not treating AB in kidney transplant recipients without stents, however, clinicians still need to be very cautious when interpreting this type of data.

Yarkın Kamil Yakupoğlu, MD

Transplant Survey

Doi: 10.4274/jus.2017.04.004

Re: Does Pre-emptive Transplantation versus Post Start of Dialysis Transplantation with a Kidney from a Living Donor Improve Outcomes After Transplantation? A Systematic Literature Review and Position Statement by the Descartes Working Group and ERBP

Abramowicz D[1], Hazzan M[2], Maggiore U[3], Peruzzi L[4], Cochat P[5], Oberbauer R[6], Haller MC[7], Van Biesen W[8]; Descartes Working Group and the European Renal Best Practice (ERBP) Advisory Board

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Nephrol Dial Transplant 2016;31:691-697. doi: 10.1093/ndt/gfv378

EDITORIAL COMMENT

In case of end stage kidney disease, living donation by expanding the donor pool might give a chance for pre-emptive kidney transplantation, which is defined as having a kidney transplant before initiation of chronic dialysis. In this guideline, Descartes Working Group conducted a systematic review of the literature which included observational data of 29 studies, mainly coming from single center or regional registries, performed after 1990 providing data on aspects of pre-emptive living donation. They found that around half of studies showed improvements in patient and graft survival or reductions in the risk of acute rejection. However, relating to pre-transplant glomerular filtration rate no differences were found between the graft and patient survivals. In the light of the data, the group recommends pre-emptive transplantation where possible, with the timing designed to avoid dialysis in patients who have kidney disease that is indefinitely irreversible and clearly progressive. There is also a selection bias. The characteristics of population who receive a pre-emptive kidney transplantation is very different from those receiving a transplant on the waiting list in the mentioned studies, which is well recognized by the authors.

Yarkın Kamil Yakupoğlu, MD

Andrology

Doi: 10.4274/jus.2017.04.005

Re: Predictive Factors for Sperm Recovery After Varicocelectomy in Men with Nonobstructive Azoospermia

Shiraishi K, Oka S, Matsuyama H

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J Urol 2017;197:485-490. doi: 10.1016/j.juro.2016.08.085.

EDITORIAL COMMENT

There is a growing body of data in the literature that patients with nonobstructive azoospermia (NOA) may benefit from varicocele repair in terms of sperm recovery at testicular sperm extraction or presence of sperm in the ejaculate. In this study, sperm recovery was confirmed in 20 out of 83 men with NOA (24%) within 12 months after varicocelectomy, including 10 of 27 patients 37% with maturation arrest (MA) and 9 of 13 (69%) with hypospermatogenesis. Similarly, in a meta-analysis by Weedin et al. (1), men with hypospermatogenesis with favorable testicular histopathology on testis biopsy done at the time of varicocele repair had the best chances of having motile sperm in the ejaculate compared to Sertoli-cell only syndrome or MA. As expected, the more tubules with mature sperm the better the chances will be of sperm recovery after varicocele repair. Furthermore, it should be noted that a significant proportion of men with NOA can be found to have cryptozoospermia on extended sperm preparations rather than azoospermia prior to surgical sperm retrieval (2). Therefore, the length of follow-up before varicocele surgery (the authors reported post-operative sperm analysis with 3-month intervals for 1 year) is also very important data for azoospermia definition.

Taking it a step further, Shiraishi et al. performed genome-wide mRNA expression analysis in patients with MA to determine which genes were differentially up or down regulated in those who responded to varicocelectomy. However, in this study, transcriptome analysis was performed after varicocelectomy and only in patients with MA. Identifying mutations or differential expression in specific genes using blood transcriptome or whole exome sequencing may help us determine who would benefit from varicocele repair.

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Emre Bakırcıoğlu, MD

Andrology

Doi: 10.4274/jus.2017.04.006

Re: Undergoing Varicocele Repair Before Assisted Reproduction Improves Pregnancy Rate and Live Birth Rate in Azoospermic and Oligospermic Men with a Varicocele: A Systematic Review and Meta-analysis

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Fertil Steril 2016;106:1338-1343. doi: 10.1016/j.fertnstert.2016.07.1093.

EDITORIAL COMMENT

This study evaluated 72 studies to answer the question how varicocele repair (VR) impacts pregnancy rates and live birth rates in infertile couples undergoing assisted reproduction wherein the male partner has oligospermia or azoospermia and 7 studies were found to be eligible for inclusion. The meta-analysis showed that VR improved live birth rates and pregnancy rates in oligospermic and combined oligospermic and azoospermic groups. Live birth rates were higher for patients undergoing intra uterine insemination after VR. Sperm recovery rates were higher in persistently azoospermic men after VR. According to this meta-analysis, in couples with male factor infertility-oligozospermia or nonobstructive azoospermia and presence of a varicocele, VR may result in improved pregnancy rates and live birth rates. VR may also increase sperm retrieval rates in men with nonobstructive azoospermia with varicocele. However, in almost half of the patients with nonobstructive azoospermia the etiology is still unclear and there is tremendous effort in male reproductive genetics to explain underlying genetic problems. Therefore, before considering VR, genetic evaluation including peripheral karyotype and Y chromosome microdeletion analysis should be performed.

Emre Bakırcıoğlu, MD

Urooncology

Doi: 10.4274/jus.2017.04.007

Re: Prognostic Significance of Digital Rectal Examination and Prostate Specific Antigen in the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Arm

Halpern JA[1], Shoag JE[1], Mittal S[1], Oromendia C[2], Ballman KV[2], Hershman DL[3], Wright JD[3], Shih YT[4], Nguyen PL[5], Hu JC[1]

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J Urol 2017;197:363-368. doi: 10.1016/j.juro.2016.08.092.

EDITORIAL COMMENT

The Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial is a large population-based randomized trial designed and sponsored by the National Cancer Institute to determine the effects of screening on cancer-related mortality and secondary endpoints in men and women aged 55 to 74 years. The prostate component of the PLCO trial was undertaken to determine whether there is a reduction in prostate cancer mortality with screening using serum prostate-specific antigen (PSA) testing and digital rectal examination (DRE). The absence of benefit of population-based screening influenced the subsequent U.S. Preventive Services Task Force (USPSTF) recommendation against routine PSA screening. The USPSTF did not address DRE. Therefore, the authors have evaluated the prognostic value of abnormal DRE and PSA following the widespread use of PSA testing. They assessed the association of suspicious DRE and abnormal PSA with the detection of clinically significant prostate cancer, prostate cancer mortality and overall mortality. The data showed that suspicious DRE and abnormal PSA were significantly associated with clinically significant prostate cancer. There was only moderate agreement between PSA and DRM in each screening encounter. The authors emphasized the continued role of DRE and PSA and need for additional research to optimize screening protocols.

Özgür Yaycıoğlu, MD

Functional Urology

Doi: 10.4274/jus.2017.04.008

Re: Urinary Retention in Female OAB After Intravesical Botox Injection: Who is Really at Risk?

Miotla P[1], Cartwright R[2], Skorupska K[1], Bogusiewicz M[1], Markut-Miotla E[3], Futyma K1, Rechberger T[1]

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Int Urogynecol J 2016. doi: 10.1007/s00192-016-3212-4.

EDITORIAL COMMENT

The prevalence of overactive bladder (OAB) in the general population is nearly 16% and it increases with age. In non-responders who are managed with oral therapies, there is a need for the intradetrusor injections of onabotulinumtoxinA (Botox). Adverse effects, including the potential risk of urinary retention requiring catheterization are among the greatest concerns for OAB patients considering Botox injections. The efficacy of Botox (100 U) in the treatment of refractory OAB has been proven in several clinical trials, however, the risk factors for the occurrence of urinary retention after Botox injections are still not well recognized. Studies do not describe the factors for the prediction of urine retention after Botox (100 U) injections in patients with refractory OAB. As the dose of Botox increases, urinary retention risk increases, but recurrent injections decreases the risk. In this study, the risk factors for urinary retention was observed in 208 women who were treated with 100 IU Botox injections for refractory OAB. The study revealed the risk factors for urinary retention as 3 or more vaginal deliveries and advanced age. No need for clean intermittent self-catheterization (CISC) was seen for more than 12 weeks. The minimum duration of CISC was 20 days and a maximum of 83 days with a mean of 45.5 days. No potential risk factors for the duration of CISC were observed. Although all patients should be warned before receiving Botox injections about the potential risk of urine retention, elderly women and multiparous women are at an increased risk.

İlker Şen, MD

Functional Urology

Doi: 10.4274/jus.2017.04..009

Re: Nocturia Improvement with Surgical Correction of Sleep Apnea

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Int Neurourol J 2016;20:329-334. doi: 10.5213/inj.1632624.312.

EDITORIAL COMMENT

As a common lower urinary tract symptom (LUTS), nocturia also reduces the quality of life (QoL) and is associated with sleep disruption and daytime fatigue. In an epidemiological study, the prevalence of nocturia was 49% in men and 55% in women. Nocturia has usually been managed as an isolated symptom, with therapy based on LUTS, including alpha blockers and anticholinergic drugs. Recent research suggests, however, that the etiology of nocturia differs from that of other LUTSs, and that nocturia should be evaluated as a separate condition, as well as a component of a systemic disease, such as obstructive sleep apnea (OSA) syndrome. Increased atrial natriuretic peptide secretion, increased urinary production, and increased alpha sympathetic nervous activity in patients with OSA can also be responsible for LUTS, especially nocturia. In this study, the authors speculated that correction of OSA would be expected to reduce the severity of nocturia. Of 256 patients diagnosed with OSA, 66 patients planned to undergo uvulopalatopharyngoplasty surgery for correction of OSA were included in this study. The number of nocturia episodes was evaluated by the International Prostate Symptom Score (IPSS). As a result, overall voiding and storage parameters including nocturia were improved after OSA correction surgery and the nocturia episodes were significantly decreased from 1.8 ± 1.1 to 0.8 ± 1.2 ($p<0.001$). Total mean IPSS was decreased from 9.3 ± 6.9 to 5.9 ± 5.9 ($p<0.001$). The authors concluded that OSA correction surgery improved LUTS, QoL, and nocturia episodes. Patients with nocturia should be questioned about signs and symptoms of snoring and apnea and referred for surgical correction if indicated.

Metin Onaran, MD

Journal of Urological Surgery, 2017;4:35-44

Radiology

Doi: 10.4274/jus.2017.04.010

Re: MRI Evaluation of Complex Renal Cysts Using the Bosniak Classification: A Comparison to CT

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Abdom Radiol (NY) 2016;41:2011-2019. doi: 10.1007/s00261-016-0797-5.

EDITORIAL COMMENT

The Bosniak classification was first published in 1986 and it was a grading system to evaluate cystic renal lesions as benign or probably malign. Cystic renal lesions were categorized into four groups according to computed tomography (CT) findings. Then, a fifth category called 2F was introduced to evaluate indeterminate cystic lesions. In 2004, Israel et al. (1) published a study on the use of magnetic resonance imaging (MRI) in evaluating cystic renal lesions. They concluded that MRI had some advantages over CT due to high contrast resolution and it had ability to define internal structures of cystic lesions but it had a risk for overestimation of cystic renal lesions. A few cases have been reported in which MRI changed the management of the patients. Kim et al. (2) described some lesions classified as II or II-F on CT, however, later, they were confirmed to be category IV on MRI and were proven to be malignant pathologically. In this retrospective study, the authors aimed to compare the ability of MRI and CT to differentiate malignant from benign cystic renal lesions based on the Bosniak classification. A total of 37 patients with 42 cystic lesions were included in this study and all the lesions were scanned both by CT and MRI during a 6-month follow-up. All CT and MRI images were reviewed by two abdominal radiologists working independently. They were blinded to clinical and pathological information and outcomes. First, both readers evaluated the first modality performed for that patient, CT or MRI, and two months later, the other modality. In 25 of 42 cystic renal lesions, the Bosniak category was the same on both CT and MRI. In 2 lesions, CT category was higher than MRI category because MRI did not show calcifications in those lesions. In the remaining 15 lesions, MRI category was higher than CT. The management of the lesion was changed in 7 of those 15 lesions. Since the Bosniak classification was described in 1986, CT findings have been accepted reliable technique to manage cystic renal lesions. This study showed that MRI was better to show internal structures in complex cystic renal lesions. In that series, the classification of 3 lesions was determined as III or IV while they were classified as lower grade according to the CT findings, however, no malignancy was found in these masses. The interobserver agreement of MRI and CT was excellent. The authors concluded that when CT and MRI were compared for the Bosniak classification to evaluate cystic renal masses, MRI lead to change in Bosniak category and to manage the lesions in significant proportion of the patients. MRI has superior contrast and soft tissue resolution compared to CT. This study has some limitations and further studies are needed to evaluate the use of MRI in the evaluations of complex renal cystic lesions.

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Murat Danacı, MD

Doi: 10.4274/jus.1376
Journal of Urological Surgery, 2017;4:45-47

Multilocular Cystic Renal Neoplasm of Low Malignant Potential: Alterations in the 2016 Renal Tumor Classification of World Health Organization

Düşük Malignite Potansiyelli Multiloküler Kistik Renal Neoplazi: Dünya Sağlık Örgütü'nün 2016 Renal Tümör Sınıflandırmasındaki Değişiklikler

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Introduction

Multilocular cystic renal neoplasm of low malignant potential (MCRN-LMP) is a rare cystic tumor of the kidney with an excellent outcome and is composed of multiple cysts separated by thick septa covered with clear cells (1,2). It was defined as "a tumour composed entirely of numerous cysts, the septa of which contain small groups of clear cells indistinguishable from grade 1 clear cell carcinoma" by Eble et al. (3), in the 2004 World Health Organization (WHO) histological classification of tumours of the kidney.

MCRN-LMP has been classified as a neoplasm with an intrinsically cystic growth pattern, and no, or at most little, malignant potential by Eble and Bonsib (4). They have suggested the following 3 criteria to be associated with this low-grade malignant potential; 1- an expansile mass surrounded by a fibrous wall, 2- the interior of the tumor entirely composed of cysts and septa with no expansile solid nodules, and 3- the septa containing aggregates of epithelial cells with clear cytoplasm (4).

The largest published series of MCRN-LMP by Li et al. (5) included 76 subjects. 66 patients were followed up for median of 52 months. No recurrence was observed. A patient died due to rectal cancer, but no metastasis or recurrence of renal tumor was detected (5). Nassir et al. (6) has defined MCRN-LMP as a cystic lesion with neoplastic clear cells, an uncommon subtype of conventional clear cell renal cell carcinoma (ccRCC), and as having a benign clinical course. Murad et al. (7) has reported their ten-year experience of 6 cases of MCRN-LMP that were followed for a minimum of 2 years. Neither recurrence nor metastasis was observed. They have concluded that the tumor was a low-grade variant of renal cell carcinoma (7).

In 2016, WHO published a new classification of renal tumors as new data were collected (8). Due to its excellent prognosis from multiple publications (1,9,10), these tumors are now termed as "MCRN-LMP" (11).

A 70-year-old male presented to the Urology Department of Medical Faculty of Marmara University with the complaints involving lower urinary system. Magnetic resonance imaging demonstrated a solid mass of 58 mm on the lower pole of the left kidney and a multilocular cyst of 20 mm about 40 mm away from it. Left partial nephrectomy was performed. On pathological examination the partial nephrectomy material measured 60x60x50 mm. A yellow-gray solid tumor with well defined borders and of 5 cm in diameter was present in the nephrectomy material. A second material measuring 25x15x15 mm from the kidney was examined and a multilocular cyst with a diameter of 15 mm was observed. The tissue specimens were fixed in 10% buffered formaldehyde solution and embedded in paraffin. Tissue sections were stained with haematoxylin and eosin. Grade 2 cells with clear cytoplasm

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were observed in the solid tumor. Immunohistochemically, the cells demonstrated positive staining for CD10 and vimentin. The cystic lesion was composed of multiple cysts separated by thin septa and the inner surface of the cysts was lined by cells with clear cytoplasm. There were a few cell clusters in the septa (Figure 1, 2). These cells were grade 1 and demonstrated positive staining for cytokeratin 7, PAX-8 and epithelial membrane antigen but negative staining for CD10 (Figure 3, 4). The solid mass was diagnosed as ccRCC and the cystic lesion as the multilocular cystic renal neoplasm of low malignant potential.

Suzigan et al. (11) has proposed that MCRN-LMP should be renamed and reclassified to draw attention to its benign nature. They have suggested the term "multilocular cystic renal cell neoplasm of low malignant potential" for this lesion in 2006. They have believed that this new terminology might help the urologists approach the patients conservatively (11).

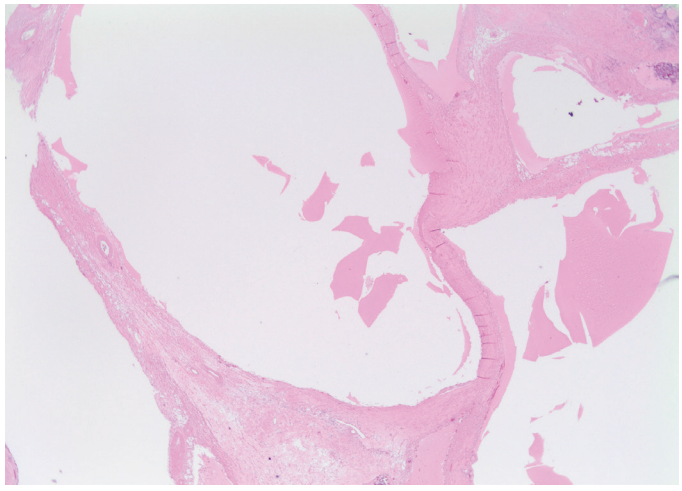

Figure 1. Multiple cysts separated by thin septa (haematoxylin and eosin, x20)

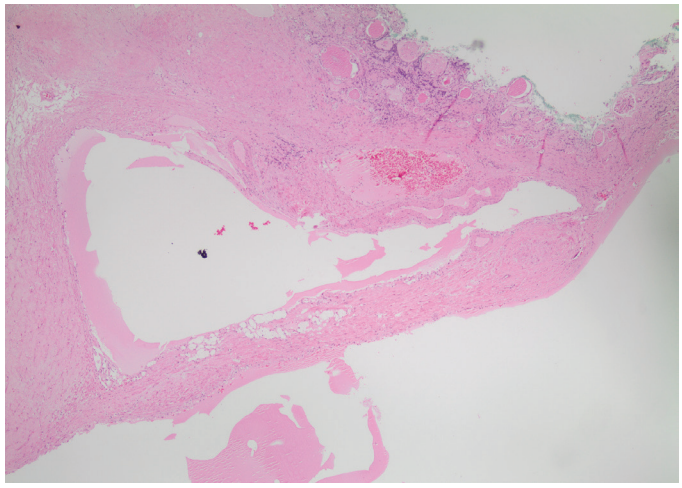

Figure 2. Cysts are lined by clear cells. Cell clusters in septa are seen (haematoxylin and eosin, x40)

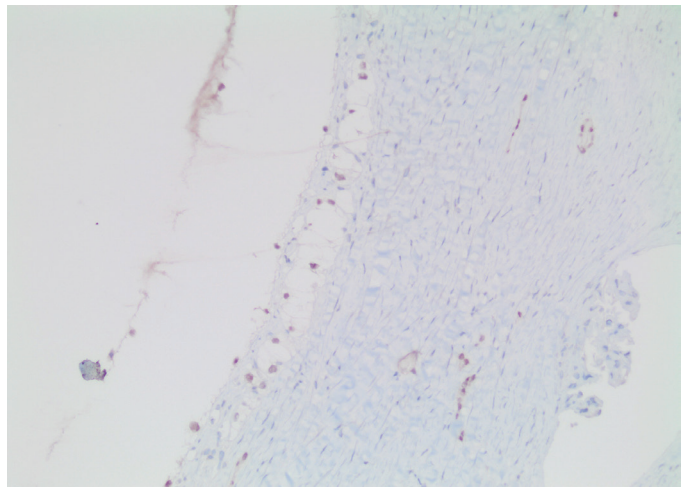

Figure 3. Tumor cells are positive for PAX-8 (immunohistochemistry, x200)

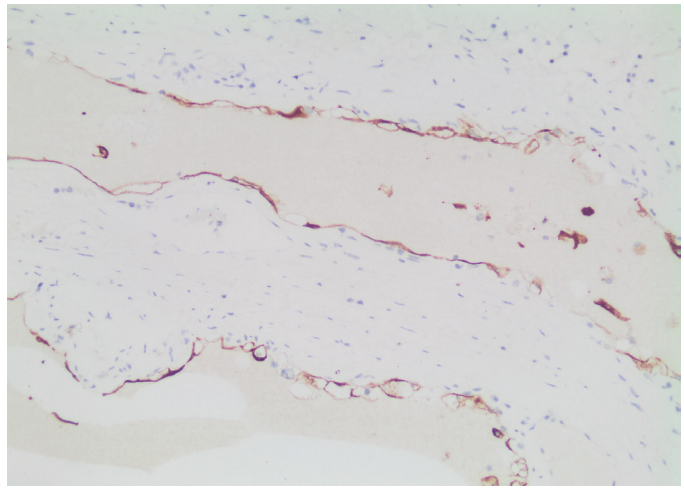

Figure 4. Immunoreactivity for cytokeratin 7 (immunohistochemistry, x200)

The International Society of Uropathology, has separated ccRCC from MCRN-LMP, according to the current data, and clearly defined MCRN-LMP as a least aggressive neoplasm with no recurrence and no metastatic potential after surgical treatment (12).

The terminology has changed and so called "multilocular cystic renal cell carcinoma" is currently named as multilocular cystic renal neoplasm of low malignant potential in the International Society of Urological Pathology Vancouver Classification of Renal Neoplasia and the 2016 World Health Organization Classification of Tumors of the Urinary System and Male Genital Organs (13).

Keywords: Multilocular, neoplasia, renal tumor

Anahtar Kelimeler: Multiloküler, neoplazi, renal tümör

Ethics

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Deniz Filinte, İlker Tinay, Concept: Deniz Filinte, Design: Deniz Filinte, Data Collection or Processing: Deniz Filinte, Analysis or Interpretation: Deniz Filinte, Literature Search: Deniz Filinte, Writing: Deniz Filinte.

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

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