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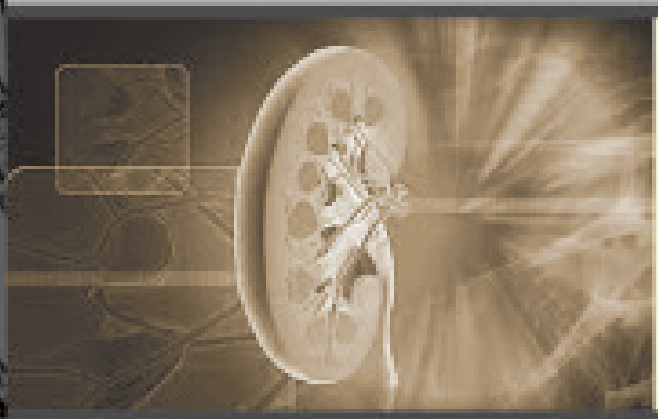

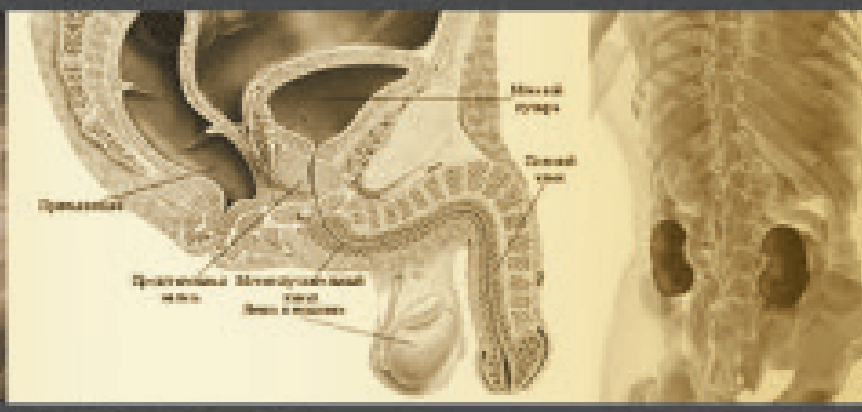

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2. Organization as Author

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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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REVIEW
Urooncology

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Journal of Urological Surgery, 2018;5(1):1-3

An Overview of Image-Guided Percutaneous Microwave Ablation of Renal Cell Carcinoma

Renal Hücreli Karsinomda Görüntüleme Eşliğinde Perkütan Mikrodalga Ablasyon: Genel Bakış

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Abstract

Renal cell carcinoma (RCC) accounts for approximately 3% of malignancies and 80-90% of malignant neoplasms of the kidney in adults. The incidence of RCC continues to increase. Due to widespread use of cross-sectional imaging modalities, small and localized tumors are now being detected at an early stage. Percutaneous image-guided thermal ablation for early stage RCC is a minimally invasive technique that has rapidly gained acceptance as an alternative to surgery. This technique provides a low incidence of complications, shorter operative-time, protection of renal function, lack of inherent surgery risks, and shorter hospital stay while remaining an effective method of adequate destruction of tumor tissue. The current ablation techniques include cryoablation, radiofrequency ablation (RFA), high-intensity focused ultrasound and microwave ablation (MWA). Image-guided percutaneous MWA has been effectively and safely applied to treat renal tumors in select patients. In contrast to RFA, percutaneous MWA has the advantage of providing higher temperatures in a shorter time. Thus, MWA allows a more uniform tumor necrosis than RFA. The indications for renal MWA include T1a or T1b tumors (≤4 cm or 4-7 cm), patients with multiple comorbidities who are poor candidates for resection, a tumor in a solitary kidney, bilateral renal tumors, hereditary renal tumors, renal insufficiency, von Hippel-Lindau syndrome, and palliative treatment of hematuria. In conclusion, percutaneous MWA appears to be a safe and effective treatment option for T1a and T1b tumors and for patients who are poor surgical candidates.
Keywords: Microwave ablation, Percutaneous, Renal cell carcinoma

Öz

Renal hücreli karsinom (RHK) yetişkin malignitelerinin yaklaşık %3'ünü, renal malignitelerin ise %80-90'ını oluşturmaktadır. RHK insidansı artmaya devam etmektedir. Kesitsel görüntüleme yöntemlerinin yaygın kullanımı ile küçük ve lokalize tümörler günümüzde erken dönemde saptanabilmektedir. Görüntüleme eşliğinde perkütan termal ablasyon, erken evre RHK'nin tedavisinde cerrahi tedaviye bir alternatif olarak kabul görmüştür. Bu teknik düşük komplikasyon riski, azalmış operasyon zamanı, renal fonksiyonların korunması, cerrahiye bağlı risklerin önüne geçmesi ve kısa hastanede kalış süresi gibi avantajlar sağlamaktadır. Termoablasyon teknikleri kriyoablasyon, radyofrekans ablasyon (RFA), yüksek intensiteli odaklı ultrason, mikrodalga ablasyon (MWA) gibi yöntemleri içerir. Görüntüleme eşliğinde perkütan MWA seçilmiş hastalarda renal tümörlerin tedavisinde güvenli ve etkili bir yöntem olarak uygulanabilir. RFA'ya kıyasla MWA ile daha kısa sürelerde daha yüksek sıcaklık değerlerine ulaşılabilir. Böylelikle MWA, RFA'ya kıyasla daha üniform bir tümör nekrozu sağlar. Renal MWA endikasyonları; T1a ve T1b tümörler (≤4 cm or 4-7 cm), komorbid hastalığı olan cerrahi rezeksiyon için uygun olmayan hastalar, soliter böbrekte tümör, bilateral renal tümörler, kalıtsal renal tümörler, renal yetmezlik, von Hippel Lindau hastalığı ve hematüri palyasyonunu içerir. Sonuç olarak, perkütan MWA T1a ve T1b tümörlerin tedavisinde ve cerrahi tedavinin uygun olmadığı hastalarda güvenli ve etkili bir tedavi yöntemidir.
Anahtar Kelimeler: Mikrodalga ablasyon, Perkütan, Renal hücreli karsinom

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Introduction

Renal cell carcinoma (RCC) accounts for approximately 3% of all malignancies and 80-90% of malignant kidney neoplasms in adults (1). The incidence of RCC continues to increase. With the increasing use of cross-sectional imaging, small and localized tumors are being detected earlier. Radical nephrectomy had long been the only curative treatment for early stage RCC. Later, nephron-sparing surgery or partial nephrectomy has gained popularity and it has been used in the treatment of selected patients. Although a partial nephrectomy is less invasive than radical nephrectomy, it is technically more challenging and the incidence of serious complications remains high (2).

Percutaneous image-guided thermal ablation for early stage RCC is a minimally invasive technique that has rapidly gained acceptance as an alternative to surgery. This technique provides a low incidence of complications, shorter operative time, protection of renal function, lack of inherent surgery risks, and shorter hospital stay while remaining an effective method of adequate destruction of tumor tissue (2). Currently, thermal ablation of RCC is an alternative treatment option for patients who are poor candidates for surgery, such as the elderly patients, patients with comorbidities and patients with a prior history of surgery for RCC (3).

The current ablation techniques include cryoablation, radiofrequency ablation (RFA), high-intensity focused ultrasound and microwave ablation (MWA). Image-guided percutaneous MWA has been effectively and safely used to treat renal tumors in selected patients (1).

In contrast to RFA, percutaneous MWA has the advantage of providing higher temperatures in a shorter time. Thus, MWA allows a more uniform tumor necrosis than RFA. Also, MWA is less affected by the heat sink problem that occurs when the tumors are located in close proximity to large vessels (4).

The ablative treatment of tumors larger than 3-4 cm can be challenging due to incomplete ablation. In such cases, ablation of larger tumor volumes may be achieved with MWA. Regarding the follow-up of RCC patients treated with MWA treatment, a recent study has shown promising results with outcomes up to 3 years and a technical effectiveness rate of 98% (5).

The indications for renal MWA include T1a or T1b tumors (≤4 cm or 4-7 cm), presence of multiple comorbidities, tumor in a solitary kidney, bilateral tumors, hereditary renal tumors, renal insufficiency, von Hippel-Lindau syndrome, and palliative treatment of hematuria.

The contraindications for RFA include an uncorrectable coagulopathy, infection/sepsis, poor life expectancy and extensive metastatic disease (3,6).

Patient Preparation and Ablation Procedures

Before the treatment, all patients are evaluated with contrast-enhanced computed tomography (CT) and ultrasound, and an optimal access route is determined on ultrasound. After administration of 1% lidocaine for local anesthesia, an ultrasound-guided biopsy is performed by an automatic biopsy gun with an 18-gauge cutting needle. If the tumor is located in close proximity to important structures, a spinal needle is situated between the tumor and adjacent structures and, a small volume of 5% dextrose in sterile water is injected into the potential space between the tumor and the surrounding structures (hydrodissection). Since renal tumors are mostly located in close proximity to the bowel, ureter or pancreas; hydrodissection is more important in renal ablations than in hepatic ablations. For a safe ablation, more than 50% of procedures require hydrodissection. An ureteral stent placement or pyeloperfusion may be beneficial when the tumor is located adjacent to the ureter.

Using ultrasound guidance, microwave (MW) antenna is then inserted into the tumor. To achieve a larger ablation volume, two antennae can be used simultaneously in ablation of the tumors ≥2 cm. For anesthesia, propofol and ketamine are generally administered in combination, intravenously. Generally, a power output of 50 W for 500 seconds is used during MWA. MW emission may be prolonged if the generated water vapor does not entirely include the tumor and the temperature does not reach 60 °C or remain above 54 °C for a minimum of 3 minutes. To prevent tumor seeding, the needle track is coagulated during the withdrawal of the antenna.

Postprocedural Observation and Imaging Follow-up

After MWA procedure, patients are closely monitored for possible side effects and complications, such as fever, pain, pleural effusion, hematuria, urinoma and skin burns. A urinalysis is performed, and serum urea nitrogen and creatinine are tested periodically after treatment (2). A contrast-enhanced CT is performed immediately after the ablation to evaluate technical success of the ablation and to assess possible complications. Follow-up imaging with contrast-enhanced CT or magnetic resonance imaging at 3, 6, 12, 18, and 24 months after ablation and yearly thereafter is recommended (3).

The management of RCC has notably changed in the last decade. Currently, a more conservative treatment for localized renal tumors is favored. Of these treatment alternatives, image-guided thermal ablation is the least invasive approach that avoids the mortality and morbidity of surgery in selected patients. Of the percutaneous thermal ablation techniques, RFA is more commonly used. For small RCCs, short-term and intermediate-term results of RFA is reported to be comparable to those of surgical resection (2).

MW energy enables cell death by agitation of water molecules with the resultant frictional heat. For this purpose, a probe that generates an oscillating electromagnetic field of 900- to 2.450-MHz frequency range is inserted into the tumor with image guidance. Within an induced electromagnetic field, dipolar water molecules try to align with the field. As the field starts to oscillate, water molecules try to get back into alignment and create frictional kinetic energy. This kinetic energy is then transformed to heat causing coagulative necrosis and subsequent cell death (7).

MWA offers some advantages over RFA. MWA has a larger zone of active heating than RFA and its transmission in tissues is not limited by desiccation and charring. The higher intratumoral temperatures that can be achieved with MWA allow ablation of larger tumor volumes in shorter durations. MWA is less affected by the heat sink effect and this feature may be useful in ablation of well-perfused tumors. Also, MWA allows the use of multiple antennae simultaneously in ablation of large-sized tumors (2).

Disadvantages of MWA include the risk of thermal injury to surrounding structures. Currently, the clinical data are less robust for MWA than for RFA (6).

In a prospective randomized trial of 102 RCC patients, MWA treatment (laparoscopic or percutaneous) was compared to partial nephrectomy (open or laparoscopic). Blood loss, complications and postoperative renal function decline were significantly better in MWA group than in the partial nephrectomy group. In this study, 3-year recurrence-free survival was not statistically significantly different (90.4% for MWA group and 96.6% for partial nephrectomy group) (8). As for today, there is no other study comparing MWA and other modalities, including nephrectomy, RFA, cryoablation in the treatment of RCC (9).

After MWA procedure, follow-up imaging with contrast-enhanced CT or MR at 3, 6, 12, 18, and 24 months after ablation and yearly thereafter is recommended (3). Biopsy can be used to confirm a suspected residual tumor in equivocal cases. Small foci of residual or recurrent tumor can be retreated with MWA (10).

Conclusion

Ablative treatments are increasingly being used for the treatment of early stage renal tumors. Currently, American Urological Association guidelines suggest the use of ablative treatments in patients with significant comorbidities who are poor surgical candidates and in patients with a solitary kidney who are at high risk for total loss of renal function after nephron-sparing surgery (4). Percutaneous MWA appears to be a safe and effective treatment option for T1a and T1b RCC. More experience with this technique should be gained before its widespread application (2).

Ethics

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: B.A., M.A.K., Concept: B.A., M.A.K., Design: B.A., Data Collection or Processing: M.A.K., Ç.Ö., Analysis or Interpretation: B.A., M.A.K., Literature Search: B.A., Ç.Ö., Writing: B.A., Ç.Ö., M.A.K.

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Evaluation of Social Reflex Resulting from Observation of Blood in the Urine

İdrarda Kan Görülmesi ile Oluşan Toplumsal Refleksin Değerlendirilmesi

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

The way to reduce health expenditures is to educate the society. It is evident that this education is still needed today.

Abstract

Objective: In this study, we aimed to evaluate the level of public awareness of hematuria.
Materials and Methods: In September 2017, a survey of randomly selected 400 patients who presented to our outpatient clinic in a period of 1 month was conducted. The survey focused on patients' background and knowledge of urology and hematuria.
Results: A hundred and sixteen (29%) females and 284 (71%) male patients participated in our survey. Two hundred and seven (51.7%) patients were under age 50 and 193 (48.3%) were over 50 years of age. 155 (38.8%) patients were primary school graduates, 59 (14.8%) - secondary school, 98 (24.5%) - high school, and 88 (22%) were university graduates. Three hundred and thirty-two (83%) patients described that they have previously seen blood in their urine and, 68 (17%) patients did not. There was no statistically significant difference in patients who went immediately to the urology outpatient clinic in the case of hematuria, but those who thought that they may have tumor were older in age. No significant difference was observed in the answers to the questionnaires between gender and between hematuria experience. Those who immediately went to the urology clinic in the presence of hematuria were in the smoking group.
Conclusion: Public awareness of health is of utmost importance. However, it was seen that even patients who may be at risk for malignant diseases were not able to lead the way in public awareness.
Keywords: Social awareness, Hematuria, Urology

Öz

Amaç: Bu çalışmada, hematürinin önemi konusunda sosyal farkındalık düzeyini değerlendirmeyi amaçladık.
Gereç ve Yöntem: Eylül 2017'de, bir ay içinde poliklinik başvurusunda bulunan rastgele seçilmiş 400 hasta üzerinde yapılan bir anket gerçekleştirildi. Ankette hastaların üroloji ve hematüri geçmişleri ile bilgi düzeyleri üzerinde duruldu.
Bulgular: Anketimize 116 (%29) kadın ve 284 (%71) erkek hasta katıldı. Bu hastaların 207'si (%51,7) 50 yaşın altında ve 193'ü (%48,3) 50 yaşın üzerindeydi. Hastaların 155'i (%38,8) ilkokul mezunu, 59'u (%14,8) ortaokul, 98'i (%24,5) lise ve 88'i de (%22) üniversite mezunuydu. Üç yüz otuz iki (%83) hasta idrarda daha önce kan görmüş olduklarını açıkladı; 68 (%17) hasta daha önce kan görmedi. Hematüri olgularında hemen üroloji polikliniklerine başvuran hastalar arasında istatistiksel olarak anlamlı bir fark bulunmadı, bununla beraber tümör olabileceğini düşünenlerin yaş ortalamaları daha yüksekti. Cinsiyet ve hematüri deneyimi bakımından anketlere verilen yanıtlarda anlamlı farklılık izlenmedi. Hematüri varlığında hemen üroloji kliniğine başvuranların sigara içenler grubunda olduğu görülmüştür.
Sonuç: Sağlık ile ilgili toplumsal farkındalık son derece önemlidir. Bununla birlikte, bu çalışmada ürolojik malign hastalık riski altında olabilecek hastaların bile toplumsal farkındalık konusunda öncülük edemediği görülmüştür.
Anahtar Kelimeler: Toplumsal farkındalık, Hematüri, Üroloji

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Introduction

Hematuria is a clinical finding that can originate from anywhere in the urinary tract and can be the first sign of many diseases, including malignant diseases, of which prevalence may range from 4% to 19.3% (1,2). In clinical practice, hematuria comes out in two ways. Macroscopic hematuria, defined as blood in the urine that can be visible by the patient, allowing the patient to seek medical care in a faster manner and microscopic hematuria defined as more than 3 red blood cells at 2 out of 3 urine analyzes at 2-3 week intervals as indicated in the American Urological Association (AUA) guidelines (2,3).

It should not be forgotten that the urine sample should be fresh, properly taken, and the mid-stream urine for the detection of hematuria. The detection and grade of hematuria can be quantitatively determined by counting red blood cells per 1 mL of urine (chamber count), or by direct examination of the sediment of the centrifuged urine (sediment count) or indirectly by dipstick (4). Dipstick test is the simplest test for the detection of hematuria and is considered a color change due to oxidation on the test strip. However, the presence of erythrocytes is not definitive and the result of the dipstick test must be confirmed by microscopy before starting further studies (4,5). It is necessary to exclude cases where the urine color is red, which is called pseudohematuria, and without erythrocyte.

Macroscopic hematuria usually signifies an important underlying pathology. At least half of the macroscopic hematuria patients have an important urogenital system disease (5,6). For this reason, there is no debate about the need for further evaluation to determine the underlying cause of macroscopic hematuria (4).

Clinical significance is particularly variable in microscopic hematuria, therefore, it is recommended to use risk factors to evaluate patients and to ignore clinically insignificant hematuria. In a study conducted in a group of patients with microscopic hematuria among the general population, the incidence of urological or nephrological disease was 13-50% and the prevalence of cancer diagnosis was 1-2% (7). The AUA guidelines suggest evaluation of patients with asymptomatic microscopic hematuria if there is a risk of having urological or nephrological disease (4). On the other hand, the British guidelines recommend urgent referral to an urologist in the presence of microscopic hematuria in an age over 50 years and non-urgent under the age of 50 years (8).

Materials and Methods

In September 2017, a survey of randomly selected 400 patients; about one-third of the patients who applied to our clinic in a month, with any complaint were conducted in the urology outpatient clinic at Bülent Ecevit University Hospital. After approval of the Bülent Ecevit University Ethics Committee (approval number: 2017-84-09/08), a questionnaire was administered to all patients who participated in the study and provided written informed consent.

The survey focuses on patients' background and knowledge of urology and hematuria. The exclusion criteria of this study were being illiterate and refusing to participate.

The patients were divided into various groups according to their age, level of education, smoking habit and hematuria experience (Table 1).

Statistical Analysis

Statistical analysis were performed with SPSS 19.0 software (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics were calculated in terms of frequency and percent distribution. The chi-square test or Fisher's exact test was used to determine differences between the groups. A p value of less than 0.05 was considered statistically significant.

Results

A hundred and sixteen (29%) female and 284 (71%) male patients participated in our survey. Two hundred and seven (51.7%) patients were under the age of 50 and 193 (48.3%) were over the age of 50. One hundred fifty-five (38.8%) patients were primary school graduates, 59 (14.8%) - secondary school, 98 (24.5%) - high school, and 88 (22%) participants were university graduates. Three hundred and thirty-two (83%) patients described that they have previously seen blood in their urine and 68 (17%) patients did not. The demographic characteristics of the patients as well as the answers given to the questionnaire are shown in Table 2.

When we separated the patients into two groups according to their age, it was seen that who had full opinion on urology were younger in age. There was no statistically significant difference in age between patients who went immediately to the urology outpatient clinic in case of hematuria, but those who thought that they had tumors were older in age (Table 3).

When we divided the patients into two groups according to their gender, it was seen that the majority of patients were male in older age. No significant difference was observed in the answers to the questions in terms of gender (Table 4).

When we separated the patients into two groups according to their smoking habit, the majority of smokers appeared to be males of younger age group. It was seen that those, who immediately went to the urology clinic in the presence of hematuria, were in the smoking group (Table 5).

Table 1. Questionnaire form

Survey questions						
Your age						
20-30	30-40	40-50	50-60	60-70	70-80	80-90
Gender						
Female			Male			
Educational status						
Primary school	Secondary school		High school	University		
Do you smoke?						
Yes			No			
Urology deals with diseases of certain organs?						
Kidney	Bladder	Prostate	All	No idea		
Have you seen blood in your urine?						
Yes			No			
What do you do if you see blood in your urine?						
Go to emergency service						
Go to the urologist						
Go to general surgery						
Go to family doctor						
Go to doctor if once again						
What would you think first if you have micro hematuria?						
No idea	Urinary tract infection	Sand in the urine	Tumor	Fatigue	Cold	
What is used to diagnose microhematuria?						
Cystoscopy	CT	MRI	Urinalysis	USG	No idea	

CT: Computed tomography, MRI: Magnetic resonance imaging, USG: Ultrasonography

When we divided the patients into two groups according to their hematuria experience, the majority of patients were found to be in the older age group. There was no statistically significant difference in the answers given to the questions between the two groups (Table 6).

Discussion

Urology is a medical science dealing with human urinary and male reproductive system. Every year a significant number of patients are presenting to the urology clinics. Early diagnosis means catching diseases in their earlier stages and enabling earlier treatment. The importance of preventive health care is understood when the economic burden of health expenditures in the country is considered. It was estimated that the amount to be spent for cancer patients in the USA in 2010 was about 126 billion dollars. The size of the economic burden will be better understood when the other benign causes are considered as well (9). It is recommended to perform annual urine examination and prostate-specific antigen measurement and simple blood tests especially for patients over 50 years of age (10,11).

In case of macroscopic hematuria, patients will immediately seek medical help, but the identification of microscopic hematuria and the patients' care on its importance need some degree of awareness. There are various factors contributing to the etiology of hematuria. Although malignant causes may be considered as the most frightening one, early detection of stone in the urinary system and benign kidney diseases and diseases of lower urinary tract that may require close follow-up are also important for early diagnosis and reduction of treatment costs.

Although there is little debate about immediate further examination when the hematuria is visible, there is still no consensus on the right approach towards microscopic hematuria (12,13).

There are studies showing different outcomes of bladder cancer seen in young patients compared to bladder cancer detected over 40 years of age (14,15,16,17). In a study by Parkin (18), bladder cancer has been shown to be lower in grade and stage

Table 2. The answers given to the questionnaire

Gender				
Female 116 (29%)		Male 284 (71%)		
Age				
50>207 (51.7%)		50≤193 (48.3%)		
Educational status				
Primary school 155 (38.8%)	Secondary school 59 (14.8%)		High school 98 (24.5%)	University 88 (22%)
Smoking habit				
Yes 117 (29.25%)		No 283 (70.75%)		
Urology deals with diseases of certain organs?				
All 239 (59.8%)	Prostate 60 (15%)	Kidney 47 (11.8%)	No idea 33 (8.3%)	Bladder 21 (5.3%)
Blood in your urine				
Yes 68 (17%)		No 332 (83%)		
What do you do if you see blood in your urine?				
Urologist 261 (65.3%)	Emergency department 86 (21.5%)	If once again 41 (10.3%)	Family doctor 6 (1.5%)	General surgery 6 (1.5%)
What would you think first if you have micro hematuria?				
No idea 146 (36.5%)	Urinary tract infection 128 (32%)	Sand in the urine 76 (19%)	Tumor 25 (6.3%)	Cold 19 (4.8%)	Fatigue 6 (1.5%)
What is used to diagnose microhematuria?				
Urinalysis 211 (52.8%)	USG 23 (5.8%)	MRI 12 (3%)	CT 10 (2.5%)	Cystoscopy 21 (5.3%)	No idea 24 (6%)
Urinalysis + USG 52 (13%)	Urinalysis + CT 10 (2.5%)	Urinalysis + cystoscopy 9 (2.3%)		Urinalysis + cystoscopy + USG + MRI + CT 4 (1%)

CT: Computed tomography, MRI: Magnetic resonance imaging, USG: Ultrasonography

Table 3. The relation of answers with patient's age

		Age		p
		Under 50 years	**Over 50**	
Gender	Male	126 (60.9%)	158 (81.9%)	**<0.001**
	Female	81 (39.1%)	35 (18.1%)	
Smoking habit	No	130 (62.8%)	153 (79.3%)	**<0.001**
	Yes	77 (37.2%)	40 (20.7%)	
Educational status	University	68 (32.9%)	20 (10.4%)	**<0.001**
	Other	139 (67.1%)	173 (89.6%)	
Going to urology immediately	No	72 (34.8%)	67 (34.7%)	0.989
	Yes	135 (65.2%)	126 (65.3%)	
Tumor thinking	No	201 (97.1%)	174 (90.2%)	**0.008**
	Yes	6 (2.9%)	19 (9.8%)	
Having full idea about urology	No	57 (27.5%)	104 (53.9%)	**<0.001**
	Yes	150 (72.5%)	89 (46.1%)	
Urinalysis	No	94 (45.4%)	96 (49.7%)	0.386
	Yes	113 (54.6%)	97 (50.3%)	

p<0.05 statistically significant

Table 4. The relation of answers with patient's gender

		Gender		p
		Male	Female	
Age	<50	126 (44.4%)	81 (69.8%)	**<0.001**
	≥50	158 (55.6%)	35 (30.2%)	
Smoking habit	No	189 (66.5%)	94 (81.0%)	**0.004**
	Yes	95 (33.5%)	22 (19.0%)	
Hematuria experience	No	233 (82.0%)	99 (85.3%)	0.515
	Yes	51 (18.0%)	17 (14.7%)	
Educational status	University	58 (20.4%)	30 (25.9%)	0.233
	Other	226 (79.6%)	86 (74.1%)	
Going to urology immediately	No	95 (33.5%)	44 (37.9%)	0.393
	Yes	189 (66.5%)	72 (62.1%)	
Tumor thinking	No	266 (93.7%)	109 (94.0%)	1.000
	Yes	18 (6.3%)	7 (6.0%)	
Having full idea about urology	No	115 (40.5%)	46 (39.7%)	0.877
	Yes	169 (59.5%)	70 (60.3%)	
Urinalysis	No	136 (47.9%)	54 (46.6%)	0.808
	Yes	148 (52.1%)	62 (53.4%)	

p<0.05 statistically significant

Table 5. The relation of answers with patient's smoking habit

		Smoking habit		p
		No	Yes	
Age	<50	130 (45.9%)	77 (65.8%)	**<0.001**
	≥50	153 (54.1%)	40 (34.2%)	
Gender	Male	189 (66.8%)	95 (81.2%)	**0.004**
	Female	94 (33.2%)	22 (18.8%)	
Educational status	University	67 (23.7%)	21 (17.9%)	0.209
	Other	216 (76.3%)	96 (82.1%)	
Blood in urine	No	241 (85.2%)	91 (77.8%)	0.101
	Yes	42 (14.8%)	26 (22.2%)	
Going to urology immediately	No	107 (37.8%)	32 (27.4%)	**0.046**
	Yes	176 (62.2%)	85 (72.6%)	
Tumor thinking	No	262 (92.6%)	113 (96.6%)	0.202
	Yes	21 (7.4%)	4 (3.4%)	
Having full idea about urology	No	117 (41.3%)	44 (37.6%)	0.488
	Yes	166 (58.7%)	73 (62.4%)	
Urinalysis	No	131 (46.3%)	59 (50.4%)	0.451
	Yes	152 (53.7%)	58 (49.6%)	

p<0.05 statistically significant

Table 6. The relation of answers with patient's hematuria experience

		Hematuria experience		p
		No	Yes	
Age	<50	181 (54.5%)	26 (38.2%)	**0.014**
	≥50	151 (45.5%)	42 (61.8%)	
Gender	Male	233 (70.2%)	51 (75.0%)	0.515
	Female	99 (29.8%)	17 (25.0%)	
Educational status	University	78 (23.5%)	10 (14.7%)	0.152
	Other	254 (76.5%)	58 (85.3%)	
Going to urology immediately	No	116 (34.9%)	23 (33.8%)	0.971
	Yes	216 (65.1%)	45 (66.2%)	
Tumor thinking	No	311 (93.7%)	64 (94.1%)	1.000
	Yes	21 (6.3%)	4 (5.9%)	
Having full idea about urology	No	138 (41.6%)	23 (33.8%)	0.236
	Yes	194 (58.4%)	45 (66.2%)	
Urinalysis	No	157 (47.3%)	33 (48.5%)	0.852
	Yes	175 (52.7%)	35 (51.5%)	

p<0.05 statistically significant

Table 7. The relation of answers with patient's educational status

		Educational status		p
		Other	University	
Age	<50	139 (44.6%)	68 (77.3%)	**<0.001**
	≥50	173 (55.4%)	20 (22.7%)	
Gender	Male	226 (72.4%)	58 (65.9%)	0.233
	Female	86 (27.6%)	30 (34.1%)	
Smoking habit	No	216 (69.2%)	67 (76.1%)	0.209
	Yes	96 (30.8%)	21 (23.9%)	
Going to urology immediately	No	103 (33.0%)	36 (40.9%)	0.169
	Yes	209 (67.0%)	52 (59.1%)	
Tumor thinking	No	296 (94.9%)	79 (89.8%)	0.135
	Yes	16 (5.1%)	9 (10.2%)	
Having full idea about urology	No	146 (46.8%)	15 (17.0%)	**<0.001**
	Yes	166 (53.2%)	73 (83.0%)	
Urinalysis	No	148 (47.4%)	42 (47.7%)	0.961
	Yes	164 (52.6%)	46 (52.3%)	

p<0.05 statistically significant

in younger patients. A study conducted by Millan Rodriguez et al. (19) found that bladder cancer behaviors were similar in young and older group of patients. In our study, there was no significant difference in age between those who presented to the urology clinic immediately in case of hematuria. It was observed that those who had sufficient information about urology were in younger age group but those who considered tumors in the presence of hematuria were older in age.

In their study, Messing et al. (20) have shown that among screened males, less cases of invasive cancer were detected than in non-screened males (4.8-23.5%). The mortality rate of bladder cancer was lower in these patients and none of the screen-detected bladder cancer patients died of the disease (20). In our study, because 65.3% of patients consulted urologist in case of hematuria and 21.5% of patients presented to emergency department seems to be enough for consciousness

of being in quest of medical assistance. However, the fact that approximately 13.3% of patients do not feel the same excitement for seeking treatment may show that there is still a need for awareness.

A significant difference was found only in the level of knowledge about urology in comparison with the level of education (Table 7). This reveals the necessity of raising awareness of hematuria in every part of the society. 36.5% of patients had no idea of the causes of hematuria, only 6.3% of patients thought that it could be a tumor. About half of the patients thought that only urinalysis was sufficient for the diagnosis of microhematuria.

Similar to a study by Değer et al. (21), our study also showed the need for public awareness of hematuria.

Education or public health campaigns; which one? Hughes-Hallett et al. (22) have shown that the effectiveness of public health campaigns was temporary on the society and generally increased hospital admission rates, but not cancer diagnosis rates. If so, it would be wise to concentrate more on educating people to raise awareness, rather than making high-budget campaigns to reduce health spending.

Study Limitations

It can be assumed that questioning of patients in the outpatient conditions may reduce the transparency of the questionnaire, since some patients coming for examination purposes were already guided by a healthcare professional. While the patients were responding to the survey questions, it was another restriction that they were not alone. Up to 17% of outpatient admissions were in patients having previous experience of hematuria that may affect survey responses. However, the fact that seeing no statistically significant difference between people with and without history of hematuria, forms the purpose of our study.

Conclusion

Public awareness of health is of utmost importance. The importance of social education in the formation of this consciousness is already known. In our study, we focused especially on parameters such as education level, age, smoking habit, and gender. However, it was seen that even patients who were at risk for malignant diseases were not able to lead the way in public awareness.

Ethics

Ethics Committee Approval: This study was approved by the Bülent Ecevit University Ethics Committee (approval number: 2017-84-09/08).

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

Peer-review: Externally peer-reviewed.

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Publication Rates and Citation Analysis of Oral and Poster Presentations at the First Congress of the Society of Urological Surgery in Turkiye

Ürolojik Cerrahi Derneği Kongresi'ndeki Poster ve Sözlü Sunumların Yayına Dönüşme Oranı ve Atıf Analizi

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

Due to the strict and challenging process in peer review journals, only a limited number of publications with true scientific value find a place in these journals. As a result, the publication rates for poster and oral presentations have become an important parameter in evaluating the importance and prestige of a congress. This study, for the first time, investigated the quality of the presentations at the 1st Congress of the Society of Urological Surgery in Turkiye held in 2012.

Abstract

Objective: Publications of congress presentations (oral/poster) contribute to the literature by creating new information. In this study, we examined the publication rate of poster and oral presentations at the 1st Congress of the Society of Urological Surgery in Turkiye held in 2012.
Materials and Methods: We investigated the congress booklet belonging to the 1st Congress of the Society of Urological Surgery in Turkiye held in 3-7 October 2012. We investigated the publication rates of 176 poster and 103 oral presentations under the headings of uro-oncology, andrology, pediatric urology, endourology, transplantation, continence and other by searching the PubMed and Science Citation Index Expanded (SCI-E) databases.
Results: Of the 176 poster and 103 oral presentations, 79 (28.3%) were subsequently published. The publication rate in journals included in the SCI-E was 24.3%. While 33% of oral presentations were published, 25.5% of poster presentations became publications and this difference was not found to be statistically significant (p=0.48). The mean duration from presentation to publication was 21.1 months.
Conclusion: The publication rate of presentations at the 1st Congress of the Society of Urological Surgery in Turkiye was higher than in most national congresses in different disciplines, but lower than many international congresses in the field of urology. Future studies investigating congress data from several consecutive years will provide clearer results.
Keywords: Citation, Poster, Oral, Presentation, Publication

Öz

Amaç: Poster ve sözlü sunumlarının yayın haline dönüşmeleri, yeni bilgi oluşmasını sağlayarak literatüre de katkı sağlamaktadır. Biz bu çalışmamızda Ürolojik Cerrahi Derneği'nin 2012 yılında yaptığı ilk kongresindeki poster ve sözlü sunumların yayınlaşma oranlarına bakarak ülkemizdeki durumu incelemek istedik.
Gereç ve Yöntem: Ürolojik Cerrahi Derneği'nin 3-7 Ekim 2012 tarihinde gerçekleştirmiş olduğu 1. Ulusal Ürolojik Cerrahi Kongresi'nin kongre kitapçığı incelendi. Üroonkoloji, androloji, çocuk ürolojisi, endoüroloji, transplantasyon, kontinans ve diğer başlıkları altında yapılmış olan 176 poster sunumu ve 103 sözlü sunumun yayına dönüşme durumu internet üzerinden PubMed ve Science Citation Index Expanded (SCI-E) veri tabanları taranarak araştırıldı.

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Bulgular: İncelenen 176 poster sunumu ve 103 sözlü sunumun 79'u (%28,3) yayına dönüşmüştür. Sunumların SCI-E kapsamındaki dergilerde yayınlanma oranının ise %24,3 olduğu görülmüştür. Sözlü sunumların %33'ü yayına dönüşürken, poster sunumlarının %25,5'i yayına dönüşmüştür ve bu fark istatistiksel olarak anlamlı bulunmamıştır (p=0,48). Yayınlar sunumdan ortalama 21,1 ay sonra basılmıştır.
Sonuç: 1. Ürolojik Cerrahi Kongresi'ndeki sunumların yayınlaşma oranı farklı disiplinlerdeki ulusal kongrelerin çoğundan yüksek, üroloji alanındaki büyük uluslararası kongrelerden düşük bulunmuştur. İleride yapılacak, ardışık birkaç senelik kongrenin verilerini inceleyecek bir çalışma ile daha net sonuçlara ulaşılabilir.
Anahtar Kelimeler: Atıf, Poster, Sözlü, Sunum, Yayın

Introduction

Congresses organized by associations aim to communicate the latest developments in science to participants. Additionally, an aim of congresses is to contribute to the creation of new information by poster and oral presentations. While presentation of findings in poster and oral presentations to inform participants forms the first stage of information production, transforming these presentations into publications to contribute to the literature forms the second stage.

Due to the strict and challenging process in peer review journals, only a limited number of publications with true scientific value find a place in these journals (1). As a result, publication rates of poster and oral presentations have become an important parameter in evaluating the importance and prestige of a congress (2).

When the publication rates of presentations at international congresses in the field of urology are investigated, 47% of presentations at the European Society for Pediatric Urology (ESPU) from 2003-2010 (3), 29.8% of presentations at the Urological Society of Australia and New Zealand Annual Scientific Meeting from 2005-2009 (4), 44% of presentations at the American Urological Association Annual Meeting from 2002-2003 (5), 61.6% of presentations at the International Continence Society Meeting 2003 (6) and 47.3% of presentations at the European Association of Urology (EAU) in 2000 and 2001 (7) were subsequently published.

In this study, we investigated the publication rate of poster and oral presentations at the 1st Congress of the Society of Urological Surgery in Turkiye held in 2012 to investigate.

Materials and Methods

We analyzed the congress booklet belonging to the 1st Congress of the Society of Urological Surgery in Turkiye held in 3-7 October 2012. We investigated the publication rate of 176 poster and 103 oral presentations under the headings of uro-oncology, andrology, pediatric urology, endourology, transplantation, continence and other by searching the PubMed and Science Citation Index Expanded (SCI-E) databases. The presentations were classified as retrospective, prospective, laboratory studies and case reports. Presentations definitely transformed into publications were assessed. Institutions and the journal of publications, the impact factor of the journal and numbers of citations obtained were noted. Fourteen publications printed before the date of the congress were not evaluated. The date of publication of the presentations was noted and the time to publication was calculated. Publications in the PubMed database and in the SCI-E were assessed separately. The publication rates of presentations in each of the topic sub-headings were calculated. The publication rates of oral presentations and poster presentations and those of prospective, retrospective and laboratory studies were compared.

Our study was completed in accordance with the Declaration of Helsinki, with no ethics committee permission necessary for screening of publications.

Statistical Analysis

The Statistical Package for Social Sciences (SPSS Inc., Chicago, Illinois, USA) 16.0 program was used for analysis. Descriptive analysis was used to determine frequency and categorical variables were analyzed using the chi-square test. A p value of less than 0.05 was considered statistically significant.

Results

Of the 176 poster and 103 oral presentations investigated, 79 (28.3%) were subsequently published. The publication rate of all presentations in journals included in SCI-E was 24.3%. While 33% of oral presentations were published, 25.5% of poster presentations became publications and this difference was not found to be statistically significant (p=0.48). The distribution and publication rates according to topic are shown in Table 1.

The publication rates according to study type for presentations excluding case reports are shown in Table 2.

The mean length of time between presentation and publication was 21.1 months. Of 79 publications, 36 were multi-center studies, with 24 produced by centers in the 3 largest cities of Turkiye (Ankara, İstanbul, İzmir), while 19 publications were produced by centers outside the 3 largest cities. The mean impact factor of journals was 1.55 (0.05-14.97). Fifty-five publications were in urology journals, while 24 were in non-urology journals. The mean citation number per publication was 5.65 (0-29). Presentations were published in 40 different SCI-E

Table 1. Publication rates based on presentation topics

Topic	Number of poster presentations	Number of oral presentations	Number of publication in SCI-E journals	Total number of publications	Total publication rate
Uro-oncology	79	38	23	29	24.7%
Andrology	14	14	10	11	39.2%
Pediatric urology	31	16	12	13	27.6%
Endourology	32	16	14	16	33.3%
Transplantation	3	4	1	1	14.2%
Continence	14	12	6	7	26.9%
Other	3	3	2	2	33.3%

SCI-E: Science Citation Index Expanded

Table 2. Publication rates according to type of study

Study type	Number of presentations	Number of publications (%)	p*
Retrospective	155	38 (24.5%)	0.172
Prospective	76	24 (31.5%)	
Laboratory	30	12 (40%)	

*Chi-square test

Table 3. Science Citation Index Expanded indexed journals with most publications

Journal name	Number of publications	Impact factor
Urol Int	5	1.313
Int Braz J Urol	5	0.871
Urol J	5	0.737
J Urol	4	4.7
J Pediatr Urol	4	1.17
Urology	3	2.187
Actas Urol Esp	3	0.964

Urol Int: Urologia Internationalis, Int Braz Urol: International Brazilian Journal of Urology, Urol J: Urology Journal, J Urol: Journal of Urology, J Pediatr Urol: Journal of Pediatric Urology, Actas Urol Esp: Actas Urológicas Españolas

journals. 47 (59.4%) publications were published in journals with impact factor above 1. The SCI-E-indexed journals with the most publications are listed in Table 3.

Discussion

This study, for the first time, investigated the quality of presentations at the 1st Congress of the Society of Urological Surgery in Turkiye held in 2012. Previous studies have found publication rates of presentations in congresses in different disciplines, such as rheumatology, dermatology, general surgery, radiology, pediatric psychiatry, orthopedics, plastic surgery and urology, in Turkiye to be ranged between 5.7% and 29.5% (8,9,10,11,12,13,14). In this study, we identified that 28.3% of the presentations at the 1st Congress of the Society of Urological Surgery in Turkiye were later published in PubMed-indexed journals. This rate is higher than in most of the studies in Turkiye. For big international urology organizations, this rate appears to vary from 29.8% to 61.6% for current meetings (3,4,5,6,7). Though the publication rate of presentations at the 2012 Urological Surgery Congress is slightly lower compared to international meetings, the mean number of citations per publication of 5.65 is an important point. Publications originating from this congress received a total of 447 citations, forming a significant contribution to the literature.

Large differences may be encountered in presentation publication rates for congresses in different years held by the same urology organizations. For example, the publication rate of presentations at ESPU meetings from 2003 to 2010 varied from 36% to 63% (3). Similarly, the publication rate for the 2000 EAU meeting was 28.2%, while for 2001 this rate increased to 71.8% (7). Among the reasons for this, we believe that causes such as different reviewers within the peer review process in different years and variations in presentation numbers taken for assessment through the years play a role. Scherer et al. (15) showed that the majority of presentations became publications within 5 years. Moving from this information, we only included congress data for the year 2012 in this study based on the time necessary for publication.

Autorino et al. (16) investigated EAU meetings in 2000-2001 and identified that 75% of the published presentations were published in journals with impact factor above 1. The mean impact factor of these journals was 1.95. The authors considered that this relatively low impact factor was due to the generally low impact factor of urology journals in general (16). In our study, the majority of journals were urology journals (69.6%); the mean impact factor was 1.55 with 59.4% of journals with impact factor above 1.

While the number of presentations at meetings of organizations like the EAU reach 700 (7), the total number of presentations in our study was 279. The need for reviewers to make decisions about many abstracts in insufficient time is a serious obstacle to appropriate evaluation (17). We believe that it is necessary to consider this fact, as it is a parameter that may affect the publication rates.

Experimental/laboratory studies require careful study and planning and so are valuable scientifically for publications; thus, they have high publication rates. Within clinical studies, prospective studies have higher rates of later publication compared to retrospective studies (16). In our study, prospective (31.5%) and experimental/laboratory studies (40%) had higher publication rates than retrospective studies (24.5%), though this difference was not found to be statistically significant (p=0.172).

There are many reasons why studies do not get published. It has been shown that studies reporting positive results were more likely to be published (18). Another study observed that reasons such as having insufficient time to complete the manuscript, thoughts that journals would not be interested in the paper and problems experienced with co-authors were obstacles to publication (19).

There are differences between the peer review process applied for choosing presentations for scientific meetings and the peer review process for acceptance to an indexed journal. Some research valuable for presentation may be insufficient for journal publication (20). It is thought that travel incentives given to assistants to present at some congresses but not given to produce publications are an obstacle to production of publications (21). In spite of this, though the majority of presentations accepted at congresses are not published, the publication rates are higher than the number of rejected presentations (22).

Study Limitations

A limitation of our study is that we did not investigate the rejected presentations. Reaching authors of presentations that were not published for survey studies will make it easier to investigate factors affecting transformation of presentations to publications in more depth. Additionally, considering that screening of internet-based databases is insufficient to reach nationally indexed journals, we only investigated the PubMed database publications. Although we conducted a thorough work for searching publications, still we might had errors caused by changes in the title and author names. Our study only investigated publications from a single congress. We believe that future studies with longer duration of evaluation will provide more homogenous results.

Conclusion

The publication rate of presentations at the Congress of the 1st Society of Urological Surgery in Turkiye was higher than most national congresses in different disciplines, but lower than many international congresses in the field of urology. Future studies investigating congress data from several consecutive years will provide clearer results.

Ethics

Ethics Committe Approval: Our study was completed in accordance with the Declaration of Helsinki, with no ethics committee permission necessary for screening of publications.

Informed Consent: Not applicable.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: M.Y., T.İ., A.T., Design: M.Y., T.İ., A.T., Data Collection or Processing: M.Y., K.K., H.A., Analysis or Interpretation: M.Y., K.K., T.İ., Literature Search: M.Y., K.K., T.İ., A.T., H.A., Writing: M.Y., K.K., T.İ.

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

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Development of Antibiotic Resistance Against *Ureaplasma urealyticum* Strains Isolated from Urogenital Samples

Ürogenital Örneklerden İzole Edilen *Ureaplasma urealyticum* Suşlarına Karşı Antibiyotik Direnç Gelişimi

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

In this study, resistance of *Ureaplasma urealyticum* strains isolated from urogenital samples to antibiotics in 2001, 2008 and 2013 is evaluated. Sensitivity to tetracycline and doxycycline was found to be continued at high rates. High resistance to ofloxacin and ciprofloxacin were observed.

Abstract

Objective: To assess any change in the antibiotic sensitivity of *Ureaplasma urealyticum* strains isolated from urogenital samples in the course of time.
Materials and Methods: Hospital records were retrospectively examined and cases with growth of *U. urealyticum* in urogenital samples in the years 2008 and 2013 were identified. Furthermore, the change in the course of time was examined by taking into consideration the cases we reported in 2001.
Results: Higher rates of sensitivity against tetracycline and doxycycline were observed in 60 patients with isolated *U. urealyticum*. Higher rates of resistance against ofloxacin and ciprofloxacin were observed. A significant difference was found in resistance against antibiotics when the records of 2008 and 2013 were compared. A statistically significant increase was found in resistance against ofloxacin and ciprofloxacin when the records of 2001 were compared with the records of 2008 and 2013 ($p<0.0005$).
Conclusion: *U. urealyticum* strains demonstrated high levels of resistance to quinolones. Resistance development is increasing in the course of time. Sensitivity against tetracycline and doxycycline has continued at high rates. It would be beneficial to consider these results during empirical treatment to be applied in cases ineligible for culturing.
Keywords: *Ureaplasma urealyticum*, Resistance to quinolones, Urethritis

Öz

Amaç: Ürogenital örneklerden izole edilen *Ureaplasma urealyticum* suşlarının antibiyotiklere karşı duyarlılıklarının zaman içerisinde değişip değişmediğinin değerlendirilmesidir.
Gereç ve Yöntem: Hastane kayıtları retrospektif olarak incelenerek 2008 ve 2013 yılları içerisinde ürogenital örneklerde *U. urealyticum* üreyen olgular belirlenmiştir. Ayrıca 2001 yılında tebliğ ettiğimiz olgular göz önünde bulundurularak zaman içerisindeki değişim incelenmiştir.
Bulgular: *U. urealyticum* izole edilen 60 hastada tetrasiklin ve doksisikline karşı yüksek oranlarda duyarlılık gözlenmiştir. Ofloksasin ve siprofloksasine karşı direncin yüksek oranlarda olduğu gözlenmiştir. 2008 ve 2013 yılları karşılaştırıldığında antibiyotiklere karşı direnç oranlarında anlamlı bir farklılık gözlenmemiştir. 2001 yılı kayıtları 2008 ve 2013 yılları kayıtları ile karşılaştırıldığında ofloksasin ve siprofloksasine karşı direncin istatistiksel olarak anlamlı bir şekilde arttığı gözlenmiştir ($p<0,0005$).
Sonuç: *U. urealyticum* suşları kinolonlara karşı yüksek oranda direnç göstermektedirler. Zaman içerisinde direnç gelişimi artmaktadır. Tetrasiklin ve doksisikline karşı duyarlılık yüksek oranlarda devam etmektedir. Kültür yapılamayan olgularda uygulanacak olan ampirik tedavide bu durumun göz önünde bulundurulması yararlı olacaktır.
Anahtar Kelimeler: *Ureaplasma urealyticum*, Kinolonlara direnç, Üretrit

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Introduction

Ureaplasma urealyticum is a species belonging to the genus Ureaplasma and the family of *Mycoplasmataceae* in the order mycoplasmalates and class of *Mollicutes* of bacteria. Bacterial species *U. urealyticum* and *Ureaplasma parvum* under the Ureaplasma genus are found to be disease-causing agents in human beings (1).

This bacterium was initially recognized during the 1950's after being isolated in non-gonococcal urethritis cases (2). Later during the 1960's, it was renamed as T-*mycoplasmas* after its characteristics were better understood (3). Finally in 1974, the current name *U. urealyticum* was given on the basis of its impact on urea and other metabolic characteristics (4). Fourteen serotypes of *U. urealyticum* have been defined. Serotypes 1, 3, 6, and 14 were defined as *U. parvum* since they are responsible more likely from gynecological and neonatal infections. However, other serotypes are still named as *U. urealyticum* (5).

U. urealyticum causes upper respiratory tract and lower urinary tract infections in humans. Urethritis, cystitis, epididymo-orchitis, prostatitis, salpingitis and pelvic inflammatory disease are among the resulting diseases (6,7). It is also suggested to increase risk of stone formation due to its urea breakdown effect (8). It is also known to be a significant risk for adverse pregnancy outcomes and complications of preterm birth (9). It may rarely be present in intra-articular fluids.

U. urealyticum does not grow in routine bacterial culture media. Specific culture media are used to detect this bacterium and implement antibiotic sensitivity tests. Although techniques, such as polymerase chain reaction, are used for diagnostic purposes, such methods do not provide any information on antibiotic sensitivity.

Absence of cell wall is the main specific characteristic of this family of bacteria. Therefore, antibiotics acting by impairing cell wall synthesis are not efficacious on this group of bacteria. Tetracycline, fluoroquinolone and macrolides are among the efficacious antibiotics. Development of resistance in particular against fluoroquinolone is observed in the course of time.

This study aims at assessing antibiotic sensitivity of *U. urealyticum* and the antibiotic resistance developing in the course of time.

Materials and Methods

This is a retrospective study. We analyzed the records of our hospital and identified the results positive for bacterium *U. urealyticum* in the samples taken from patients attended our urology unit in 2008 and 2013. The test reports were documented and examined.

Mycoplasma IST 2 test kit (BioMérieux, Marcy- l'Etoile, France) is used in our hospital for the diagnosis of *Mycoplasma* infections. This kit allows for both isolation of bacteria and sensitivity test against nine antibiotics.

Resistance against antibiotics was assessed, by comparing the test results obtained in 2008 and 2013 with the use of chi-square test. By this way, it was investigated whether or not there occurred any difference in antibiotic resistance within a period of five years.

Statistical Analysis

The results of these two years were compared with the rate of antibiotic resistance of *U. urealyticum* strains isolated within the first six months of 2000, as presented in 2001, and thus, the difference in resistance within a period of 14 years was also investigated. Chi-square test was used for this assessment. Samples (10) obtained in 2001 were examined using the Mycoplasma IST kit (BioMérieux, Marcy-l'Etoile, France) and sensitivity to seven antibiotics was tested.

Results

Results of 60 patients were accessible from the hospital records. 26 of these patients were tested in 2008, whereas 34 in 2013. The mean age of the patients was 37.9 ± 11.4 years (21-74). Twenty-five patients were female and all samples taken were urine.

Thirty-five patients were male and *U. urealyticum* was isolated from the urine of 7 patients and ejaculate of 28 patients.

Antibiotic sensitivity of the *U. urealyticum* strains isolated in 2008 and 2013 is given is Table 1. Among the nine antibiotics tested, highest sensitivity rates were observed in tetracycline and doxycycline and highest resistance rates in ofloxacin and ciprofloxacin. Resistance to ofloxacin was found in 12%, whereas this rate was 62% for ciprofloxacin. No statistically significant difference was found in terms of the resistance rate against the nine tested antibiotics when data of 2008 and 2013 were compared ($p>0.5$).

When the antibiotic resistance rate of the strains isolated in 2001 was compared with that of the strains isolated in 2008 and 2013; the increase in resistance to ofloxacin and ciprofloxacin was observed to be statistically significant ($p<0.0005$). No statistical significant change was found in resistance against other antibiotics ($p>0.5$).

The rate of antibiotic resistance of *U. urealyticum* strains resulting from various studies are given in Table 2 (10,11,12,13,14,15,16). This table, in particular, underlines the high level of resistance to fluoroquinolones.

Table 1. Antibiotic sensitivity for *U. urealyticum* in 2008 and 2013 n (%)

	2008			2013	
Antibiotic	**S**	**I**	**R**	**S**	**I**
Tetracycline	26 (100)	0 (0)	0 (0)	34 (100)	0 (0)
Doxycycline	26 (100)	0 (0)	0 (0)	34 (100)	0 (0)
Erythromycin	22 (84)	3 (12)	1 (4)	31 (91)	0 (0)
Clarithromycin	22 (84)	2 (8)	2 (8)	30 (88)	1 (3)
Azithromycin	23 (88)	3 (12)	0 (0)	31 (91)	0 (0)
Josamycin	24 (92)	1 (4)	1 (4)	34 (100)	0 (0)
Pristinamycin	23 (88)	1 (4)	2 (8)	34 (100)	0 (0)
Ofloxacin	10 (38)	13 (50)	3 (12)	10 (29)	20 (59)
Ciprofloxacin	1 (4)	9 (34)	16 (62)	3 (9)	10 (29)

S: Sensitive, I: Intermediate, R: Resistance

Table 2. Antibiotic resistance rates against *Ureaplasma urealyticum* as obtained in various studies (%)

Author	n	Gender	Tet	Dox	Ery	Clair	Azt	Jos	Prs	Ofl	Cip
Saraçoğlu and Aydınlı (10)	18	M	0	5.6	0	0	0	-	-	0	0
Schneider et al. (11)	140	F, M	--	--	1.9	4.9	1	--	--	9.7	19.4
Pignanelli et al. (12)	542	F	2.9	1.7	18.9	14.6	6.3	3.7	2.1	5.6	40.7
Bayraktar et al. (14)	27	F	0	0	34.7	12.5	25	0	0	81.3	84.4
Diaz et al. (13)	150	F		16	46	63				64	
Leli et al. (16)	152	M, F	--	0	0	--	0	0	0	27.6	66.4
This study	60	M, F	0	0	7	8	5	2	3	12	62

M: Male, F: Female, Tet: Tetracycline, Dox: Doxycycline, Ery: Erythromycin, Clair: Clarithromycin, Azt: Azithromycin, Jos: Josamycin, Prs: Pristinamycin, Ofl: Ofloxacin, Cip: Ciprofloxacin

Discussion

U. urealyticum is a bacterium that potentially causes upper respiratory tract, lower urinary tract and genital system infections in adults. It is also known to play a role in neonatal infections. Inability of the growth of this bacterium in the routinely used culture media makes it difficult for isolation. Samples of increasing number of patients are isolated in the recent years thanks to the media, which are specially developed for the growth of this specific bacterium and are now in routine practice (10,16).

U. urealyticum is innately resistant to certain antibiotics given its absence of bacterial cell wall. Beta-lactam antibiotics including penicillin and cephalosporin, glycopeptides including vancomycin and teicoplanin and phosphomycin are the antibiotics inefficacious against this bacterium. Furthermore, polymyxin, sulphonamide, trimethoprim, nalidixic acid and rifampicin are also not efficacious. When the above given matters are taken into consideration, it is understood that majority of the antibiotics used in empirical treatment in daily practice have no effect on *U. urealyticum*.

The main antibiotics efficacious on *U. urealyticum* are tetracyclines, macrolides, fluoroquinolones and pristinamycin. Although fluoroquinolones are the most commonly used antibiotics, development of resistance to these antibiotics is a major concern.

In the recent 4 years, the incidence of *U. urealyticum* has been increasing continuously. Therefore, we wonder if the antimicrobial resistance of *U. urealyticum* and *Mycoplasma hominis* has changed. The fluoroquinolone resistance rate in *Ureaplasma* spp. varies widely among different countries and studies. For instance, in a recent study carried out in Switzerland, Schneider et al. (11) reported a rate of non-susceptibility to ciprofloxacin of 19.4%, while in a recent study in Italy, 41% of isolates were ciprofloxacin-resistant (12). In our study, the rate of ciprofloxacin resistance was 62%. Diaz et al. (13) reported that less than 35% of *U. urealyticum* isolates in Cuba were resistant to minocycline, pefloxacin, doxycycline, tetracycline, clindamycin, and azithromycin. They showed that the rate of resistance to ofloxacin, clarithromycin, and erythromycin were 64.3%, 63%, and 46.1%, respectively. In a study conducted in Turkiye on pregnant women, Bayraktar et al. (14) reported that the rate of resistance of genital mycoplasmas to doxycycline, josamycin, ofloxacin, erythromycin, tetracycline, ciprofloxacin, azithromycin, clarithromycin, and pristinamycin was 0%, 0%, 81.3%, 34.4%, 0%, 84.4%, 25%, 12.5%, and 0%,

respectively, which was the report with the most similarity to our study. In their study conducted on South African pregnant women, Redelinghuys et al. (15) reported that susceptibility of *Ureaplasma* spp. to levofloxacin and moxifloxacin was 59% and 98%, respectively. They showed that mixed isolates (*Ureaplasma* spp. and *M. hominis*) were highly resistant to erythromycin (97%) and tetracycline (97%).

Antibiotic resistance of *U. urealyticum* strains isolated from the urogenital samples obtained in 2001, 2008 and 2013 were investigated in this study. High rates of sensitivity to tetracycline and doxycycline were observed to continue. Resistance to ofloxacin and ciprofloxacin was found to be at high rates. High rates of resistance or these two antibiotics were also observed in other studies in the literature as summarized in Table 2.

Study Limitations

Due to low number of cases, patients were not sub-grouped according to gender, age and mode of sampling. It would be useful to investigate any potential difference in terms of antibiotic sensitivity among the sub-groups of gender, age groups and modes of sampling as urine, ejaculate, urethral discharge, vaginal discharge or cervical smear in larger series.

Conclusion

It would be beneficial to consider these sensitivity rates in the treatment of patients with suspected *U. urealyticum* infection but not eligible for culturing. Our study is important in terms of demonstrating a statistically significant increase in resistance to ofloxacin and ciprofloxacin within a period of 14 years.

Ethics

Ethics Committee Approval: Retrospective study.

Informed Consent: Retrospective study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: M.S., Design: M.S., R. T.D., Data Collection or Processing: M.S., Analysis or Interpretation: A.E., M.S., Literature Search: R.T.D., A.E., Writing: M.S., A.E.

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Prevalence of Anal Incontinence and Constipation in Female Patients with Urinary Incontinence

Üriner İnkontinanslı Kadın Hastalarda Anal İnkontinans ve Konstipasyon Görülme Sıklığı

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

Urinary incontinence and anal incontinence are quite prevalent conditions. On the other hand, some studies have been performed to investigate both of these entities with the hypothesis that they could co-exist due to common risk factors playing a role in the etiopathogenesis. Nevertheless, most of these studies involved elderly and home-care patients. This study aims at investigating the incidence of anal incontinence and constipation in patients with urinary incontinence in all adult age groups.

Abstract

Objective: To investigate the prevalence of anal incontinence and constipation in patients with urinary incontinence.
Materials and Methods: Adult female patients who presented with the complaint of urinary incontinence were evaluated with anal incontinence and constipation assessment survey prepared on the basis of "the International Consultation on Incontinence Questionnaire-Short Form", "the Overactive Bladder 8-Question Awareness Tool" and "the Rome 3" criteria.
Results: Two hundred female patients with urinary incontinence were evaluated. The patients were in the age group of 18-88 with the average age of 55.24±16.86 standard deviation. Stress incontinence was present in 19.5%, urge incontinence in 36% and mixed incontinence in 44.5% of the subjects. Seventy-seven percent of patients presented with flatal incontinence, 7.5% with fecal incontinence and 52.5% presented with constipation. There was no difference between sub-groups created according to age groups and types of urinary incontinence in terms of frequency of gastrointestinal symptoms. The incidence of constipation was statistically significantly higher in patients presenting with findings of urinary incontinence for more than 1 year and in those with overactive bladder ($p<0.01$ and $p<0.001$, respectively).
Conclusion: Flatal incontinence was found in 77%, fecal incontinence in 7.5% and constipation in 52.2% of female adult patients with urinary incontinence. The incidence of constipation was higher at the level of statistical significance in patients presenting with findings of urinary incontinence for more than 1 year and in those with overactive bladder.
Keywords: Urinary incontinence, Overactive bladder, Anal incontinence, Fecal incontinence, Constipation

Öz

Amaç: Bu çalışmanın amacı üriner inkontinanslı hastalarda anal inkontinans ve konstipasyon görülme sıklığının araştırılmasıdır.
Gereç ve Yöntem: Üriner inkontinans yakınması ile başvuran erişkin kadın hastalar; "International Consultation on Incontinence Short Form", "Overactive Bladder 8-Question Awareness Tool" ve "Roma 3" kriterlerine göre hazırlanan anal inkontinans ve konstipasyon değerlendirme anket formları ile değerlendirildiler.
Bulgular: Üriner inkontinansı bulunan 200 kadın hasta değerlendirilmiştir. Hastaların yaşları 18-88 arasında olup ortalama 55,24±16,86 standart sapma olarak bulunmuştur. Stres tipi idrar kaçırma %19,5, sıkışma tipi idrar kaçırma %36 ve karışık tipte idrar kaçırma %44,5 oranlarında bulunmuştur. Gaz inkontinansı %77, fekal inkontinans %7,5 ve konstipasyon %52,5 oranlarında saptanmıştır. Yaş gruplarına göre ve üriner inkontinansın tiplerine göre oluşturulan alt gruplar arasında gastrointestinal semptomların görülme sıklığı açısından fark saptanmamıştır. Üriner inkontinansı bir yıldan daha uzun süreli olan hastalarda ve aşırı aktif mesanesi bulunan hastalarda konstipasyon görülme oranı istatistiksel olarak anlamlı bir şekilde daha yüksek bulunmuştur (sırasıyla; $p<0,01$ ve $p<0,001$).

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Sonuç: Üriner inkontinansı bulunan erişkin kadınlarda gaz inkontinansı %77, fekal inkontinans %7,5 ve konstipasyon %52,2 oranında görülmektedir. Konstipasyon; üriner inkontinansı bir yıldan daha uzun süreden beri bulunan hastalarda ve aşırı aktif mesanesi bulunan hastalarda istatistiksel olarak anlamlı bir şekilde daha yüksek oranlarda görülmektedir.
Anahtar Kelimeler: Üriner inkontinans, Aşırı aktif mesane, Anal inkontinans, Fekal inkontinans, Konstipasyon

Introduction

Urinary incontinence and anal incontinence are quite prevalent conditions. Many community-based studies have been performed to investigate the prevalence of these two conditions. Majority of studies have focused on urinary and anal incontinence as two distinct entities. On the other hand, some other studies have been performed to investigate both of these entities with the hypothesis that they could co-exist due to common risk factors playing a role in the etiopathogenesis (1,2,3). Nevertheless, most of these studies involved elderly and home-care patients.

The later studies concentrated on the prevalence of urinary incontinence in patients with anal incontinence and vice versa. There are only a few studies on this topic and more studies are needed with a larger age span.

This study aims at investigating the prevalence of anal incontinence and constipation in patients with urinary incontinence in all adult age groups.

Materials and Methods

Female patients aged 18 years and over presenting with urinary incontinence and agreeing to fill in the questionnaires on anal incontinence and constipation at the time of routine work-up were included in the study. Those who provided written informed consent were included in the study.

Patients with a history of lower urinary tract or anorectal surgery, pregnant women and those less than 6 months postpartum less than six months after labor and/or presenting with acute lower urinary tract infections were excluded.

The validated Turkish version of the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) and the Overactive Bladder 8-Question Awareness Tool (OAB-V8) were used to assess the lower urinary system complaints of the patients (4,5).

The first two forms questioning gastrointestinal system functions are the forms prepared according to the Rome 3 diagnostic criteria. The first form questions anal incontinence. Anal incontinence was considered in two sub-types as flatal incontinence and fecal incontinence. The second form, on the other hand, questions constipation. Comorbidities were also questioned and registered. The comorbidity status was assessed according to the Charlson comorbidity index (6). The patients filled the questionnaires were filled with the supervision of a trained nurse during face-to-face interviews. The study was limited with 200 patients. The study was conducted after approval of the Ethics Board of Şifa University dated 30.01.2014 and numbered B.30.2.ŞFÜ.00.50.500/06.

Statistical Analysis

Chi-square and Fisher's exact tests were used as statistical methods to evaluate the significance of differences between two groups.

Correlation analysis was performed to evaluate the relationship between urinary incontinence and OAB in comorbid cases.

Results

The study was performed between February 2014 and May 2015, and was terminated as soon as the number of patients reached 200.

Of the 200 patients presented with the complaint of urinary incontinence, 39 (19.5%) had findings of stress incontinence, 72 (36%) had urge incontinence and 89 (44.5%) had mixed incontinence. The mean age of the patients was 55.24±16.86 years ranging from 18 to 88 years. As for the age distribution according to type of urinary incontinence, stress incontinence was present in the mean age group of 50.26±14.89, urge incontinence in 54.0±18.06 and mixed incontinence in 58.44±16.27.

One hundred fifty-four (77%) patients presented with flatal incontinence, 15 (7.5%) with fecal incontinence and 105 (52.5%) with constipation. Table 1 shows the rates of flatal incontinence, fecal incontinence and constipation according to

Table 1. Incidence of gastrointestinal symptoms according to types of incontinence

	n (%)	Flatal incontinence n (%)	Fecal incontinence n (%)	Constipation n (%)
Stress incontinence	39 (19.5%)	31 (15.5%)	3 (1.5%)	17 (8.5%)
Urge incontinence	72 (36%)	51 (25.5%)	8 (4%)	35 (17.5%)
Mixed incontinence	89 (44.5%)	72 (36%)	4 (2%)	53 (26.5%)
Total	200 (100%)	154 (77%)	15 (7.5%)	105 (52.5%)

Table 2. Number of patients with urinary and gastrointestinal symptoms according to age groups

	n	SUI n (%)	UUI n (%)	MUI n (%)	FtI n (%)	FI n (%)	Constipation n (%)
≤40	37	7 (18.9%)	17 (45.9%)	13 (35.2%)	28 (75.7%)	2 (5.4%)	18 (48.7%)
41-50	43	12 (28%)	11 (25.6%)	20 (46.5%)	32 (74.4%)	3 (7%)	22 (51%)
51-60	36	12 (33.3%)	11 (30.5%)	13 (36%)	28 (77.7%)	4 (11%)	16 (44.4%)
61-70	48	5 (10.4%)	24 (50%)	19 (39.6%)	36 (75%)	4 (8.3%)	24 (50%)
≥71	36	3 (8.3%)	9 (25%)	24 (66.6%)	30 (83.3%)	2 (5.5%)	25 (69.4%)
Total	200	39 (19.5%)	72 (36%)	89 (44.5%)	154 (77%)	15 (7.5%)	105 (52.5%)

SUI: Stress urinary incontinence, UUI: Urge urinary incontinence, MUI: Mixed urinary incontinence, FtI: Flatal incontinence, FI: Fecal incontinence

types of urinary incontinence. There was no difference in the incidence of constipation between urinary incontinence and anal incontinence. P value was 0.29 for flatal incontinence, 0.28 for fecal incontinence and 0.18 for constipation.

Table 2 shows the number of patients with urinary incontinence and lower gastrointestinal tract dysfunction according to the age groups. There was no statistically significant difference between age groups in terms of the prevalence of flatal incontinence, fecal incontinence and constipation (p=0.81, p=0.88 and p=0.24, respectively).

Table 3 presents an association between the duration of urinary incontinence complaints and lower gastrointestinal dysfunction. Patients having incontinence complaints for more than one year were found to have higher rates of constipation at the level of statistical significance.

One of the most prevalent diseases of the lower urinary system is OAB, which may be quite common in patients with urinary incontinence. OAB is diagnosed with thorough evaluation of patient complaints using OAB-V8. The treshold value was found to be 11 during the validation study of the Turkish version of OAB-V8. Accordingly, 174 patients were found to have OAB (Table 4). There was no difference in anal and fecal incontinence between patients with and without OAB (p=0.99 and p=0.42, respectively), whereas the incidence of constipation was statistically significantly higher in OAB patients (p=0.001).

As for grouping of incontinent patients according to parity, there was no statistically significant difference among nulliparous, uniparous, secundiparous, triparous or other multiparous women in terms of flatal incontinence, fecal incontinence and constipation.

The patients were assessed for comorbidities using Charlson comorbidity index. The age of the patients was also considered in calculation. Nighty-three patients with a comorbidity score of 0 had no comorbidity. Fourty-seven patients with a comorbidity score of 1-3 had mild comorbidities. Sixty with a comorbidity score of 4 or higher had a moderate level of comorbidities. It was observed that Charlson comorbidity scores were weakly but positively correlated with ICIQ-SF and OAB-V8 scores (r=0.0285 and r=0.0147, respectively).

Table 3. Incidence of gastrointestinal symptoms according to duration of urinary incontinence

	N	Flatal incontinence	Fecal incontinence	Constipation
<1 year	57	46	4	22
>1 year	143	108	11	83
p		0.43	0.87	**0.01**

Table 4. Gastrointestinal symptoms in individuals with and without overactive bladder

	n	Flatal incontinence	Fecal incontinence	Constipation
OAB+	174	134	12	99
OAB-	26	20	3	6
p		0.99	0.42	**0.001**

OAB: Overactive bladder

Patients without comorbidities, low-risk patients and moderate-risk patients were compared in terms of anal incontinence and constipation but there was no statistically significant difference between the groups.

Discussion

Studies investigating the prevalence of urinary incontinence in women have reported a broad range of variation, from 5% to 69%. Nevertheless, most of the studies have reported a prevalence of 25-45% (7). Studies on anal incontinence have reported a prevalence of 11-15% in adults (7). Prevalence studies on anal incontinence, though, report results of 11-15% in adults (7).

The broad range of prevalence for urinary incontinence is due to lack of homogeneity in the patient population of studies and the difference in definition criteria used for incontinence. Whether or not flatal incontinence is included in anal incontinence inquiry also significantly affects the study results.

There are some common risk factors in the etiopathogenesis of both urinary and anal incontinence including age, gender, obesity, diabetes mellitus, pelvic organ prolapse, constipation, pregnancy, parity, pelvic surgery and gynecologic surgery. Therefore, several studies have been performed to investigate the prevalence of coexistence of both conditions.

In a study done with 778 male and 762 female subjects aged 50 and older, Roberts et al. (2) reported a female urinary incontinence rate of 48.4%, fecal incontinence rate of 15.2% and combined incontinence of 9.4%. In their study including 864 elderly women, Yuaso et al. (8) reported that the incidence of combined incontinence was 4.9%. In a study by Biswas et al. (9) including 177 women, it was found that 27.7% of women had urinary incontinence 28.8% had constipation and 17.5% had fecal incontinence.

Of those presenting with urinary incontinence, 41.2% also had constipation and 35.5% had fecal incontinence (9).

This study evaluated 200 women with urinary incontinence. 19.5% of patients were found to have stress incontinence, 36%- urge incontinence and 44.5%- mixed incontinence. This distribution corroborates with the literature. In our study, the incidence of flatal incontinence was 77%, fecal incontinence was 7.5% and the incidence of constipation was 52.5%. The rate of fecal incontinence was slightly lower than in the literature and slightly higher than the constipation rate, which may be due to differences in the patient population.

There was no difference between sub-groups based on age or types of urinary incontinence in terms of prevalence of gastrointestinal symptoms. Patients with urinary incontinence for one year and longer and those with OAB had a statistically significantly higher prevalence of constipation ($p<0.01$ and $p<0.001$, respectively).

High rates of constipation in patients with urinary incontinence lasting more than a year could be associated with the side effects of medicines used for the treatment of incontinence and it could be associated with the impacts of pathology that led to incontinence on the gastrointestinal tract in the course of time. There is a need for further studies on this subject.

High rates of constipation in OAB patients could also be related with the side effects of medicines used in the treatment. At this point, there may be a common etiopathogenesis. In addition, constipation may trigger OAB. Further studies are needed.

Study Limitations

The study included women aged 18 years and over, only using questionnaire forms, lack of pediatric patient group and male patient group, lack of functional evaluation studies for urinary system and gastrointestinal system is the missing side of the study.

Conclusion

Anal incontinence and constipation rates are critical in patients with urinary incontinence. Therefore, to question patients with urinary incontinence for other gastrointestinal symptoms, including anal incontinence and constipation, may be of key importance.

Ethics

Ethics Committee Approval: The study was conducted after approval of the Ethics Board of Şifa University dated 30.01.2014 and numbered B.30.2.ŞFÜ.00.50.500/06.

Informed Consent: It was taken.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: M.S., R.T.D., Design: R.T.D., A.E., Data Collection or Processing: M.S., Analysis or Interpretation: R.T.D., A.E., Literature Search: M.S., A.E., Writing: R.T.D., A.E.

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Evaluation of Nocturia in Patients with Obstructive Sleep Apnea Syndrome

Obstrüktif Uyku Apne Sendromlu Hastalarda Noktürinin Değerlendirilmesi

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

Nocturia and obstructive sleep apnea syndrome significantly decrease general health-related quality of life. Nocturia is commonly reported in patients with obstructive sleep apnea syndrome. This study aims to increase awareness of nocturia when evaluating and treating patients with obstructive sleep apnea syndrome.

Abstract

Objective: This study aims to increase awareness of nocturia when evaluating and treating patients with Obstructive Sleep Apnea syndrome (OSAS).
Materials and Methods: A total of 324 patients, who attended our sleep center with the suspected diagnosis of OSAS between June 2012 and December 2015, participated in our research. The patients were divided into 4 groups according to age distribution. Demographic variables, comorbid conditions and severity of OSAS were evaluated retrospectively for their association with the nocturia.
Results: In this study, 176 patients had nocturia and 148 patients did not have. There was a statistically significant difference in the presence of nocturia between patients with and without OSAS ($p \leq 0.001$). We found that the prevalence of nocturia was higher in the severe OSAS group than in the moderate and the mild OSAS and normal groups ($p \leq 0.001$). We demonstrated that there were statistically significant differences in the frequency of nocturia and total apnea-hypopnea index between OSAS groups and age groups ($p \leq 0.001$). There was a statistically significant but weak correlation between nocturia and severity of OSAS and between frequency of nocturia and OSAS severity ($r=0.310$, $p \leq 0.001$ and $r=0.276$, $p \leq 0.001$). This relationship was more significant in women than in men and more significant in patients below age 40 than in the other age groups. However, we could not find any significant difference in the presence of nocturia between patients with and without comorbid diseases.
Conclusion: The frequency of nocturia increases as the severity of OSAS increases and especially patients with OSAS below age 40 years should be evaluated for nocturia.
Keywords: Nocturia, Sleep Apnea syndrome, Quality of life

Öz

Amaç: Bu çalışmada, Obstrüktif Uyku Apne sendromlu (OUAS) hastalar değerlendirilirken ve tedavi edilirken noktürinin farkındalığının arttırılması amaçlanmaktadır.
Gereç ve Yöntem: Haziran 2012 Aralık - 2015 tarihleri arasında uyku kliniğimize OUAS şüphesi ile başvuran 324 hasta çalışmamıza dahil edildi. Hastalar yaş dağılımlarına göre 4 gruba ayrıldı. Hastaların demografik verilerinin, komorbiditelerinin ve OUAS şiddetlerinin noktüri ile ilişkileri geriye dönük olarak değerlendirildi.
Bulgular: Çalışmada 176 hastada noktüri varlığı saptanırken 148 hastada noktüri yoktu. OUAS olan ve olmayan hastalar arasında noktüri bulunması yönünden istatistiksel olarak anlamlılık vardı ($p \leq 0,001$). Noktüri varlığı, şiddetli OUAS olan hastalarda orta OUAS'li, ılımlı OUAS'li hastalar ve normal hastalara göre daha yüksek saptandı ($p \leq 0,001$). Noktüri sıklığı ve toplam AHI skorları için OUAS grupları ve yaş grupları arasında istatistiksel olarak anlamlı fark bulundu ($p \leq 0,001$). Noktüri ve OUAS şiddeti arasında ve noktüri sıklığı ile OUAS şiddeti arasında istatiksel olarak anlamlı ama zayıf bir

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ilişki vardı (r=0,310 p≤0,001 ve r=0,276 p≤0,001). Bu ilişki kadınlarda erkeklere göre ve 40 yaşın altındaki hastalarda diğer yaş gruplarına göre daha anlamlıydı. Ancak çalışmamızda noktüri varlığı için komorbitidesi olan ve olmayan hastalarda istatistiksel fark gözlenmedi.
Sonuç: Noktüri sıklığı arttıkça OUAS şiddeti de artmaktadır ve özellikle 40 yaş altındaki OUAS'li hastalar noktüri varlığı açısından değerlendirilmelidirler.
Anahtar Kelimeler: Noktüri, Uyku Apne sendromu, Yaşam kalitesi

Introduction

Nocturia is defined by the International Continence Society as a complaint that an individual has to wake at night one or more times to void and each void is preceded and followed by sleep (1). The prevalence of nocturia increases with age. The prevalence rate is 3.4% for males under 30 and 32.4% for males over 60 years of age (2). The most common causes of nocturia in men and women are benign prostatic hyperplasia, overactive bladder and reduced bladder capacity. Nocturia is also found to be associated with medications such as diuretics and analgesics. However, nocturia can signify possible contribution of numerous systemic health- related disorders, such as diabetes mellitus, diabetes insipidus, anorexia nervosa, congestive heart failure causing peripheral edema, and Obstructive Sleep Apnea syndrome (OSAS) (3). OSAS is one of the most common respiratory disorders. It is characterized by recurrent occlusion of breathing in the upper airway, affecting up to 20% of the general population (3,4). OSAS as defined by an apnea-hypopnea index (AHI) of ≥5 diagnosed by polysomnography (PSG) is commonly associated with obesity, hypertension and diabetes (4,5). Nocturia is commonly reported in patients with OSAS. However, the causes of nocturia in patients with OSAS are not well understood. Possible pathophysiologycal mechanisms of nocturia involve large negative swings in intrathoracic pressure resulting in cardiac mediated diuresis and due to effects of atrial natriuretic peptide (ANP) which is a strong vasodilator polypeptide secreted by the atrial myocytes in response to hypoxia (6). Increased secretion of natriuretic peptides may be associated with nocturnal urine production. The functions of antidiuretic hormone, arginine vasopressin, and the renin angiotensin-aldosterone system, which may induce nocturnal urination, are suppressed by ANP (6,7). It is well known that nocturia and OSAS significantly decrease general health-related quality of life (HRQL) (8). Recent published data has shown that nocturia may be a predictive symptom of OSAS (9). In addition, previous clinical studies demonstrated that continuous positive airway pressure (CPAP) may reduce nocturia in patients with OSAS and the frequency of nocturia tends to decrease when OSA is treated with CPAP (10). In this study, we investigated the prevalence of nocturia and frequency of nocturnal urination in patients with mild, moderate and severe OSAS defined according to AHI scores.

Materials and Methods

We retrospectively evaluated the PSG recordings of 324 patients who attended our sleep center between June 2012 and December 2015 with suspected OSAS and stayed one night. OSAS was diagnosed in our sleep laboratory according to full-night PSG results using a digital PSG system (Grass Technologies Comet As40 Amplifier Diagnostic Sleep System). Patients with an AHI score of <5 were labeled as having simple snoring (normal), patients with an AHI score between 5 and 15 were diagnosed with mild OSAS, patients with an AHI score between 15 and 30 were diagnosed with moderate OSAS, and patients with an AHI value of ≥30 were diagnosed with severe OSAS (11). The patients were divided into 4 groups according to age. Patients under the age of 40, between the age of 40 and 49, between the age of 50 and 59 and over the age of 60 were defined as group 1, group 2, group 3 and group 4, respectively. Nocturia was defined as the need to awaken ≥1 times per night for urination (1). Frequency of nocturia was determined using the PSG records, night time observation forms and video records. Patients with nocturia were included only if they suffered from nocturia affecting daily life activities. The frequency of nocturia was defined as the total times of urination between going to bed to sleep and leaving the bed to get up.

Patients with a history of surgical treatment of benign prostate hyperplasia (BPH) and urinary incontinence and patients receiving drug therapy for nocturia, overactive bladder and BPH were excluded from the study.

In this study, demographic variables such as age, gender, comorbid conditions, such as diabetes mellitus, hypertension, obesity, coronary heart disease, chronic respiratory disease, hypothyroidism and hyperthyroidism, and severity of OSAS were evaluated for their possible association with the frequency of nocturia. In this study, ethics committee approval was not obtained due to retrospective study. Informed consent was not taken because of retrospective study.

Statistical Analysis

Data of patients were analyzed using SPSS version 22 (SPSS Inc., Chicago, IL, USA). The One-Way ANOVA and correlation analysis were performed. A p value of less than 0.05 was considered statistically significant.

Results

Three hundred twenty four patients (212 males and 112 females) participated in this study. A hundred seventy six patients had nocturia (54.3%) and 148 patients (45.7%) did not have. The prevalence of nocturia (≥1 time per night) was similar between males and females (55.2% vs. 52.7%). There was no statistically

significant difference in the presence of nocturia between patients with and without comorbid diseases. However, there was a statistically significant difference in the presence of nocturia between patients with and without OSAS (p≤0.001). We also found that the prevalence of nocturia was higher in the severe OSAS group than in the moderate and the mild OSAS and normal groups (70.5% vs. 50% and 49.4% and 28.1%, respectively, p≤0.001). The distribution of nocturia between genders, patients with or without comorbid conditions and OSAS are shown in Table 1. We demonstrated that there were statistically significant differences in the frequency of nocturia and total AHI between OSAS groups and age groups. As the frequency of nocturia increased, severity of OSAS and age also increased (p≤0.001). Demographic data of patients according to OSAS severity and age groups are shown in Table 2 and Table 3. In our study, a statistically significant, but weak correlation was detected between nocturia and severity of OSAS and between frequency of nocturia and OSAS severity (r=0.310, p≤0.001 and r=0.276, p≤0.001). However, this relationship was more significant in women than in men (men; r=0.275, p≤0.001 and r=0.279 p≤0.001; women; r=0.384, p≤0.001 and r=0.335, p≤0.001). Moreover, among the age groups, in patients below the age of 40, a statistically significant correlation was found between presence of nocturia and severity of OSAS as well as between frequency of nocturia and OSAS severity (r=0.493 p≤0.001 and r=0.446 p≤0.001). However, this relationship was weaker in group of patients aged between 40 and 50 (r=0.249 p≤0.001 and r=0.223) and no significant correlation was found between presence of nocturia, frequency of nocturia and OSAS severity among the other age groups. We analysed our patient's chronic diseases and found that 45 patients had diabetes mellitus (13.9%), 25 had coronary heart disease (7.7%), 56-hypertension (17.3%), 47-hyperlipidemia (13%), 17-thyroid disease (5.3%), 20-obesity (6.2% body mass index ≥30), 20-chronic obstructive pulmonary disease (6.2%) and 4 patients had cerebrovascular disease (1.2%). We found no significant correlation between OSAS severity and these systemic diseases, but we found a weak correlation between presence of nocturia and systemic diseases (r=0.119 p<0.05).

Table 1. The distribution of nocturia between genders, patients with or without comorbid conditions and Obstructive Sleep Apnea syndrome

Patients	Nocturia (+)	Nocturia (-)	Total	p
Male - n (%)	117 (55.2)	59 (44.8)	212	NS
Female - n (%)	59 (52.7)	53 (47.3)	112	NS
Comorbid conditions (+) - n (%)	75 (62.0)	46 (38.0)	121	NS
Comorbid conditions (-) - n (%)	101 (49.8)	102 (50.2)	203	NS
OSAS (+) - n (%)	158 (60.8)	102 (39.2)	260	≤0.001
OSAS (-) - n (%)	18 (28.1)	46 (71.9)	64	≤0.001

OSAS: Obstructive Sleep Apnea syndrome, NS: Not significant

Table 2. Demographic data of patients according to obstructive sleep apnea groups

	No OSAS n=64	Mild OSAS n=36	Moderate OSAS n=85	Severe OSAS n=139	p
Age (year)	42.3±9.8	47.9±6.8	48.7±10.7	51.7±10.9	≤0.001*
Total AHI	-	9.4± 3.1	21.2±4.0	61.8±19.9	≤0.001*
Frequency of nocturia	0.5±0.8	1±1.1	0.9±1.0	1.3±1.1	≤0.001*
BMI (kg/m^2)	25.2±3.6	26.3±3.8	24.9±3.4	26.3±3.4	0.1

OSAS: Obstructive Sleep Apnea syndrome, AHI: Apnea-hypopnea index, BMI: Body mass index
*There is statistically significant difference between severe OSAS and the other OSAS groups

Table 3. Demographic data of patients according to age groups

	Group 1 (<40 years) n=73	Group 2 (40-49 years) n=96	Group 3 (50-59 years) n=94	Group 4 (≥60 years) n=61	p
Total AHI	26.6±29.1	27.4±28.8	37.1±28.6	44.4±26.5	≤0.001
Frequency of nocturia	0.7±0.9	0.8±0.9	0.9±0.9	1.9±1.2	≤0.001*
BMI (kg/m^2)	25.9±3.9	25.7±3.0	25.2±3.7	26.3±3.7	0.328

AHI: Apnea-hypopnea index; BMI: Body mass index
*There is statistically significant difference between group 4 and the other age groups

Discussion

Nocturia is one of the most common reasons for patient's referral to urology. Whereas nocturia may have a little effect on health in some people, for others it can be a highly bothersome and debilitating condition because of disturbing impacts of nocturia on both sleep quality and HRQL. The most common causes of nocturia are urologic diseases such as benign prostatic hyperplasia, overactive bladder and reduced bladder capacity (12). Nocturia is also found to be associated with aging and medications such as diuretics and analgesics (12). However, nocturia can signify possible contribution of numerous systemic disorders, such as diabetes mellitus, diabetes insipidus, anorexia nervosa, congestive heart failure causing peripheral edema, hypertension, obesity, renal disorders, and OSAS (3,12).

In the literature, many studies have shown that nocturia was associated with OSAS and nocturia reduced health-quality and increased morbidity in OSA patients, but the mechanisms causing nocturia in patients with OSA have not been fully explained by these studies (8,9,10). Yoshimura et al. (7) found that both night-time urine production and ANP excretion are elevated in OSAS patients, and they claimed that the obstructive respiratory events created negative intrathoracic pressure, caused the heart to receive a signal of volume overload and resulted in an increase in ANP release. The hormonal response to this signal is increased ANP secretion which may be associated with urine urinary production at night (6,7). In the literature, the prevalence of nocturia in OSAS has been reported to range between 47% and 75% (9,13,14). Our findings are similar with the previous reports as we found the rate of 60.8% in patients with OSAS. In a large sleep study, Romero et al. (15) have demonstrated that the positive predictive value was 85% and 81% in snoring and nocturia, respectively and they concluded that nocturia was comparable to snoring as a screening tool for OSAS. Raheem et al. (16) have showed age and AHI score as predictors of nocturia in patients with OSAS. Additionally, in their study, Ayik et al. (17) have shown that the frequency of nocturia increased as the severity of OSA increased. We also found a significant correlation between nocturia and OSAS severity in concordance with these previous reports. All these data support the hypothesis that nocturia may be used as a predictive symptom of OSAS and may be kept in mind in the evaluation of patients with OSAS. There are controversial results as to male or female predominance in nocturia (12,13). In the present study, we found no difference in the prevalence of nocturia between both sexes. However, the association between frequency of nocturia and severity of OSAS was more pronounced in females than in males as mentioned above. This may be confounding because of the relative low number of patients included in the present study. Nevertheless; one should see that this condition affects both sexes. In the literature, there are many studies with regard to the effect of age on the frequency of nocturia and OSAS. The prevalence of nocturia and OSAS increases with age. The prevalence of nocturia increases with age, from 3.4% in men younger than 30 years to 32.4% in men older than 60 years (2,12), likewise, the diagnosis of OSAS peaks between ages 40 and 60 (13). Maeda et al. (18) have demonstrated that OSAS severity was associated with the number of urinations in men younger than 50 years and treatment of OSAS decreased the frequency of nocturia in 85% of patients with nocturia, however, treatment was most effective in patients with severe AHI. Similarly, in our study, we found that there was a statistically significant difference total AHI score and frequency of nocturia between age groups. However, when we analyzed the relationship between presence of nocturia and severity of OSAS and frequency of nocturia and OSAS severity in the age groups, we found that these relationships were stronger in patients below age 40 than in the other age groups. These findings may result from excluding patients with a history of surgical treatment and drug therapy of BPH, urinary incontinence and overactive bladder from the study. This study is not without limitations as most of the studies. First of all, we did not use frequency-volume charts for defining nocturia but just asked patients if they experience or not in their daily lives. Due to the retrospective nature of the present study, we did not have the chance to use standardized questionnaires for nocturia and lower urinary tract symptoms; therefore, interpretation of the present study requires further validation with future prospective trials. Nevertheless, defining patients with sleep laboratory records for nocturia may provide valuable information when combined with patient history.

Conclusion

We highlight in this study that, the frequency of nocturia increases as the severity of OSAS increases and especially patients with OSAS below the age of 40 years should be evaluated for nocturia. Particularly, this study aims to increase awareness of nocturia as a potentially complex comorbidity among clinicians when evaluating and treating patients with OSAS, and vice versa.

Ethics

Ethics Committee Approval: Ethics committee approval was not obtained due to retrospective study.

Informed Consent: Informed consent was not taken because of retrospective study.

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Authorship Contributions

Surgical and Medical Practices: B.İ., A.Ç., H.Ç., Concept: B.İ., Design: B.İ., Data Collection or Processing: B.İ., O.B., Ö.D.,

Analysis or Interpretation: B.İ., Literature Search: B.İ., Writing: B.İ., O.B., Ö.D.

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A Randomized Controlled Comparison of Effects of Three Different Agents Used for Local Anesthesia in Transrectal Ultrasound-Guided Prostate Biopsy

Transrektal Ultrason Kılavuzluğundaki Prostat Biyopsisinde Kullanılan Üç Farklı Anestezik Ajanın Etkinliklerinin Randomize Kontrollü Karşılaştırılması

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

In many studies it has been shown that administration of local anesthesia is effective to decrease the pain in the prostate biopsy procedure. In contrast to this, there are limited number of studies that evaluate pain associated with the injection of these agents, their specific advantages and the duration of their effects. Therefore, we evaluated three different anesthetic agents, specifically, on their effectiveness in pain management during prostate biopsy in regard to these aspects. We used lidocaine which is a short-acting anesthetic commonly used in literature, as well as bupivacaine and levobupivacaine which both are long-acting anesthetic agents.

Abstract

Objective: To evaluate the effects of three different local anesthetic agents in patients who underwent Transrectal ultrasoun guided prostate needle biopsy.

Materials and Methods: One hundred and sixty patients who were admitted to our clinic between January 2012 and May 2012 for prostate biopsy were divided into 4 groups: no anesthesia-administered group (group 1), lidocaine-administered group (group 2), levobupivacaine-administered group (group 3) and bupivacaine-administered group (group 4). Pain intensity was evaluated in each group using the visual analog scale (VAS): during administration of local anesthetic (VAS 1), during the biopsy (VAS 2), just after the biopsy (VAS 3) and one hour after the biopsy (VAS 4).

Results: There was not any significant difference among the groups in terms of VAS 1 (p=0.152). Pain scores were significantly lower during biopsy (VAS 2) in groups 1, 2 and 3 compared to that in group 1 (p=0.001, p=0.005 and p=0.007, respectively). VAS 3 scores were significantly lower in group 2 and group 3 compared to group 1 while no difference was found in group 4 (p=0.003, p=0.032, and p=0.136, respectively). VAS 4 scores were significantly lower only in group 3 compared to group 1 (p=0.001).

Conclusions: It was observed that all the three local anesthetics effectively diminished pain during prostate biopsy. However, we found that levobupivacaine, which improved pain scores in all steps of pain evaluation compared to the control group, was relatively superior for pain management in the transrectal biopsy setting.

Keywords: Pain, Analgesia, Anesthesia, Periprostatic nerve blockage, Prostate biopsy, Transrectal ultrasonography

Öz

Amaç: Bu çalışmada transrektal ultrason kılavuzluğunda prostat biyopsisi alınan hastalarda kullandığımız üç farklı lokal anestezik ajanın etkilerini değerlendirdik.

Gereç ve Yöntem: Ocak 2012-Mayıs 2012 tarihleri arasında kliniğimizde prostat biyopsisi uygulanan 160 hasta dört gruba ayrıldı; anestezi kullanılmayan grup (grup 1), lidokain kullanılan grup (grup 2), bupivakain kullanılan grup (grup 3) ve bupivakain kullanılan grup (grup 4). Her grupta ağrı skorları vizüel analog skala (VAS) kullanılarak ölçüldü; lokal anestezik ajanın uygulanması sırasındaki ağrı skoru (VAS 1), biyopsi sırasındaki ağrı skoru (VAS 2), biyopsiden hemen sonraki ağrı skoru (VAS 3) ve biyopsiden bir saat sonraki ağrı skoru (VAS 4).

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Bulgular: VAS 1 için gruplar arasında anlamlı bir fark bulunmadı (p=0,152). VAS 2 için anestezi uygulanan her 3 gruptaki ağrı skorları anestezi uygulanmayan gruba göre anlamlı olarak düşüktü (p değerleri sırasıyla: 0,001, 0,005, 0,007). VAS 3 skorları grup 2 ve grup 3'te anestezi uygulanmayan gruba göre anlamlı olarak düşükken grup 4 için anlamlı bir fark saptanmadı (p değerleri sırasıyla: 0,003, 0,032, 0,136). VAS 4 ağrı skorları anestezi uygulanmayan grupla karşılaştırıldığında sadece grup 3 için anlamlı olarak düşük bulundu (p=0,001).
Sonuç: Kullandığımız üç lokal anestezik ajanın da yapılan prostat biyopsileri sırasında oluşan ağrıları etkili bir şekilde azalttığı gösterilmiştir. Bununla beraber ağrının değerlendirildiği her üç aşamada da kontrol grubuna göre ağrı skorlarını anlamlı şekilde azaltan levobupivakainin bu ajnalar içerisinde bir adım öne çıktığı görülmüştür. Bu nedenle daha etkili bir ajan olarak levoupivakainin kullanımı öneriyoruz.
Anahtar Kelimeler: Ağrı, Analjezi, Anestezi, Periprostatik sinir blokajı, Prostat biyopsi, Transrektal

Introduction

Transrectal ultrasound (TRUS)-guided prostate biopsy is a standard method in the diagnosis of prostate cancer. Although minimally invasive, it is not a painless procedure (1,2,3,4). Procedure-related pain especially occurs due to placement of the probe in the anal canal, movement of the probe and penetration of the needle to the prostate during biopsy (5). The recent increase in the number of diagnostic biopsies associated with widespread use of prostate-specific antigen (PSA) has enhanced the interest on studies on improving patient comfort. With prostate biopsies being performed in younger patients, the increase in the number of biopsied quadrants and the increase in the number of repeat biopsies, the importance of pain control has increased. Studies done previously for this purpose have focused on intrarectal gel instillation and periprostatic nerve blockage. Intrarectal gel instillation was not found to be effective in decreasing pain in most studies (6,7,8,9). However, periprostatic nerve blockage was found to be effective in diminishing pain in many studies, as well as two meta-analyses (10,11,12,13,14). It has been shown that various anesthetic agents used for periprostatic nerve blockage, such as articaine, bupivacaine, levobupivacaine, ropivacaine, lignocaine and mainly lidocaine, provide effective analgesia (10,11,12,15,16,17). In contrast to this, there are limited number of studies evaluating pain associated with the injection of these agents, their specific advantages and the duration of their effects. Therefore, we evaluated three different anesthetic agents, specifically their effectiveness in pain management during prostate biopsy in regard to these aspects. In our study, we used lidocaine which is a commonly used short-acting anesthetic, as well as bupivacaine and levobupivacaine which both are long-acting anesthetic agents.

Materials and Methods

Our study group was comprised of 160 patients who underwent TRUS-guided prostate needle biopsy for suspected prostate cancer in the urology clinic at Bursa Yüksek İhtisas Training and Research Hospital between January and May 2012. A prostate biopsy was warranted in case of abnormal rectal examination and/or serum PSA levels above 2.5 ng/mL. Patients with acute prostatitis, prostadynia, painful conditions of prostate, rectum or anus such as anal fissure or stricture; patients with decreased pain sensation such as lower extremity paraplegia or no sensation at all; patients with hemorrhagic diathesis; patients who routinely receive analgesics, anxiolytics or narcotic drugs; patients with allergy to local anesthetics; patients who are unable to mark on the pain scale and patients who previously underwent TRUS-guided prostate biopsy were excluded from the study.

Approval was obtained from the ethics committee of our hospital for this study (Ethics Committee of Yüksek ihtisas Training and Research Hospital reg. no: 2012/9/3). All patients were informed on TRUS-guided prostate biopsy and its complications. In addition, possible complications and information about the present conditions of all patients, who did not take anesthesia and underwent periprostatic nerve blockage, were explained. Informed consents were obtained for the procedure.

Antibiotic prophylaxis was done with 500 mg ciprofloxacin twice daily one day prior to biopsy procedure and continued for the following 4 days. An intrarectal fleet enema was applied for bowel preparation in the morning of the biopsy. Digital rectal examinations of the patients were divided as suspicious and non-suspicious. Patients with findings of hardness, nodule, irregularity and effacement of sulci, etc. were included in the suspicious group. Age, total and free PSA levels, prostate volumes and educational levels of the patients were evaluated prior to the procedure. In regard to educational level, patients were divided as 8 years of obligatory education and below or more than 8 years of obligatory education. Pathology results of the patients were recorded as either benign or malign. The patients were randomized and divided into 4 groups, each consisting of 40 patients: group 1: no analgesia or anesthesia, group 2: 2% lidocaine injection, group 3: 0.25% levobupivacaine injection, and group 4: 0.25% bupivacaine injection. Anesthetic substance injection and prostate biopsy were done in the left lateral decubitus position with the hips and legs in flexion. For TRUS imaging, a 'LOGIQ 100 PRO Series' ultrasound machine with a 6.5 MHz rectal probe with a maximum diameter of 23 mm was used. After the probe was placed rectally, the prostate was visualized in the sagittal and transverse planes and the prostate volume was calculated automatically utilizing the

ellipsoid formula within the ultrasound equipment. Anesthetic agents were injected using a 30 cm 18 G spinal anesthesia needle following the placement of the TRUS probe. 5 ccs of local anesthetic was then injected in the sagittal plane between the base of the prostate and the seminal vesicle in the region where both neurovascular bundles were located. The biopsy procedure was then performed by the same physician in all patients after allowing 10 minutes for the establishment of the periprostatic nerve blockage. Biopsy samples were obtained as 12 cores, using a 30 cm 18 G automatic biopsy needle. Since all of our patients underwent biopsy for the first time, transitional zone sampling was not performed. A visual analog scale (VAS) with 10 cm length was used for assessing pain. This scale reflects pain intensity from zero (0) starting point where no pain is felt to ten (10) ending point where the pain experienced so far is most severe. The physician who performed the biopsy procedure described the VAS to the patients and asked them to mark a point appropriate for the pain they felt. The distance from zero to each patient's mark for pain was measured in millimeters and the data obtained were recorded as the pain scores.

The patients were asked to assess their pain in 4 different time points during the procedure:

VAS 1: Pain score during injection of anesthetic agent.

VAS 2: Pain score during the biopsy, after first half of the procedure is completed.

VAS 3: Pain score right after the biopsy, following removal of the probe.

VAS 4: Pain score 1 hour after the biopsy.

Since no anesthetic agents were administered in group 1, pain score data for injection (VAS 1) did not exist for this group. The patients were called for follow up on the 7th and 14th days following the biopsy procedure and any complications were recorded.

Statistical Analysis

Non-parametric statistical tests were used for statistical analysis. For comparison of the groups, the Mann-Whitney U and Kruskal-Wallis tests were used. The Wilcoxon signed-rank test was used for dependent variables, and chi-square and Fisher's exact tests were used for evaluating categorical data. Any difference with a p value of <0.05 was considered statistically significant.

Results

Age, total and free PSA values and prostate volumes are shown in Table 1; educational levels, digital rectal examination findings and pathology results are shown in Table 2. There was not any difference among the groups in terms of these variables. Median, minimum, maximum and average values of VAS 1, VAS 2, VAS 3 and VAS 4 pain scores for all groups are shown in Table 3. There was not any difference among the anesthetic agents for VAS 1 (p=0.152). When the VAS 2 pain scores were evaluated, the anesthesia groups had significantly lower pain scores compared to control group. We did not observe a statistically significant difference in pain alleviation between different local anesthesia agents during needle biopsy (Table 4). VAS 3 pain scores were significantly lower in the lidocaine and levobupivacaine groups compared to the control group, while there was no significant difference for bupivacaine. VAS 3 scores were similar between local anesthetic-administered groups (Table 4). Interestingly, only the patients in the levobupivacaine-administered group (group 3) reported a significant alleviation of pain in the 1 hour postoperative pain assessment (VAS 4) compared to both the control group and the other two anesthetic agents-administered groups. Lidocaine and bupivacaine did not produce a significant analgesic effect 1 hour post-biopsy (Table 4). Since we did not administer a placebo in lieu of anesthesia in our control group patients, in order to evaluate the pain associated with injection of the local anesthetic agent, we compared the pain intensity during the administration of local anesthesia (VAS 1) in the anesthesia-administered groups with the pain during prostate needle biopsy in the control group (VAS 2). VAS 2 pain scores in the control group was significantly higher than VAS 1 pain scores in group 2, while there was not any significant difference between group 3 and group 4 (p=0.001, p=0.148 and p=0.066, respectively). We also compared VAS 1 and VAS 2 pain scores

Table 1. Median, minimum and maximum values of the age, total prostate-specific antigen, free prostate-specific antigen and prostate volumes of the patients according to groups. P values calculated with Kruskal Wallis test

	Group 1			Group 2			Group 3			Group 4			p value
	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	
Age	69	53	83	66.5	50	79	62	50	83	64	49	82	0.057
Total PSA	10.1	5.1	148	7.3	0.9	100	7	1.4	49	11.2	3.4	314	0.202
Free PSA	1.5	0.5	50	1.5	0.2	50	1.3	0.3	6.4	1.6	0.3	66	0.127
Prostate volume	72.5	25	256	65.5	21	160	57	20	122	63	13	240	0.233

PSA: Prostate-specific antigen, Min: Minimum, Max: Maximum, Med: Median

and observed that pain scores were not significantly different between the groups 2, 3 and 4 (p=0.627, p=0.116 and p=0.171, respectively). As seen in Table 4, statistically significant low pain scores in all three time points were observed only in the levobupivacaine group. For lidocaine, VAS 2 and VAS 3 pain scores were significantly lower compared to the control group. In the bupivacaine group, however, only the VAS 2 time point scores were significantly lower. In evaluation of the anesthesia-administered groups, we did not observe a statistically significant difference in VAS 2 and VAS 3 pain scores while group 3 had lower VAS 4 pain scores compared to group 2 and group 4. Neither hypertensive nor syncope episodes requiring cancellation of the procedures was observed in all patients including group 1. The above mentioned complications did not occur also after the procedure. Rectal bleeding was seen in a total of 42 patients (10 patients in group 1, 13 patients in group 2, 9 patients in group 3, 10 patients in group 4). Hematuria was seen in a total of 11 patients (4 patients in group 1, 4 patients in group 2, 1 patient in group 3, 2 patients in group 4). Fever above 38 °C was seen in 2 patients of group 1 and orchitis was observed in 1 patient of group 3. Pairwise comparison of the groups did not reveal any significant difference in terms of complications (p=>0.05).

Discussion

TRUS-guided prostate biopsy is a routine method performed in outpatient settings for the diagnosis of prostate cancer. There are numerous studies indicating that periprostatic nerve blockage is an effective method for diminishing pain related to this procedure (10,11,12,13,14). However, periprostatic infiltration of the anesthetic is not a painless procedure in itself (1,2,3,4). Ashley et al. (2) reported that this was the most painful part of the procedure. In this study, pain produced by injection was higher in amplitude than the biopsy pain measured at the time when the patient was under local anesthesia. However, we believe that injection-related pain would not be the most painful part of the procedure if the pain associated with injection in this study was compared to the biopsy pain in a patient who did not receive anesthesia. Indeed, in our study, when we compared the pain intensity during injection with biopsy-related pain, we found it to be comparatively low across all anesthesia groups, statistically

Table 2. Numeric distribution of educational level, digital rectal examination finding and pathology results according to groups and p values of the comparisons with chi-square test among the groups

		Group 1	Group 2	Group 3	Group 4	Total	p value
Education level	Obligatory school and below	35	30	32	33	130	0.376
	Above obligatory school	5	10	8	7	30	
	Total	40	40	40	40	160	
Digital rectal examination finding	Non-suspicious	18	25	25	19	87	0.147
	Suspicious	22	15	15	21	73	
	Total	40	40	40	40	160	
Pathology result	Benign	33	32	30	32	127	0.862
	Malign	7	8	10	8	33	
	Total	40	40	40	40	160	

Table 3. Median. minimum. maximum and average levels of the groups for each visual analog scale score. Values represent the distance between zero point and patient marked point as millimeters

	Group 1				Group 2				Group 3				Group 4			
	Median	Minimum	Maximum	Mean	Median	Minimum	Maximum	Mean	Median	Minimum	Maximum	Mean	Median	Minimum	Maximum	Mean
VAS 1	None	None	None	None	16.2	83	23	9	27	3	94	33.1	27	2	92	31.9
VAS 2	34	2	97	44.4	16	2	83	22.8	23	3	63	25.3	16	2	94	30.1
VAS 3	18	2	88	25.8	6	2	84	15.1	9	2	90	17.7	8	2	97	21.6
VAS 4	3	2	18	4.3	2	1	72	6	2	1	6	1.9	3	1	18	3.2

Table 4. P values for pairwise comparisons of groups for each visual analog scale score

	p values					
	Group 1-2	Group 1-3	Group 1-4	Group 2-3	Group 2-4	Group 3-4
VAS 2	<0.001	0.005	0.007	0.345	0.470	0.872
VAS 3	0.003	0.032	0.136	0.508	0.114	0.346
VAS 4	0.129	<0.001	0.550	0.049	0.233	0.001

VAS: Visual analog scale

significantly so for the lidocaine group. Although we did not show a statistically significant difference for levobupivacaine and bupivacaine, average pain scores during administration of these anesthetics were almost one third lower (Table 3). When we used an evaluation similar to that in the study by Ashley et al. (2), we observed that the most painful part of the procedure was not the pain measured during injection. When we compared the pain during local anesthetic injection with the pain occurring during biopsy in the same group, pain scores were similar between the groups 2, 3 and 4 (p=0.627, p=0.116, and p=0.171, respectively). Therefore, the pain associated with local anesthetic substance injection was only as intensive as the pain occurring during the biopsy. Moreover, local anesthetic injection is a procedure done twice (bilaterally) and it takes a relatively short time. In comparison, during the biopsy procedure, the biopsy needle is inserted into the prostate for at least 10-12 times and for a longer period compared to local anesthetic injection. Therefore, we believe that extra pain burdened on the patient by local anesthetic injection is negligible compared to gains attained by the injection. We did not find a statistically significant difference among the agents when we compared the pain occurring during injection, although the pain scores measured in the lidocaine group were lower than in the other two groups (Table 3). There are four previous studies in the literature comparing the pain produced by lidocaine injection with a placebo. While in one study, lower pain scores were obtained in the lidocaine group (5), a significant difference in pain scores was not found in these studies (3,10,18). There are limited numbers of studies on this subject, but in the light of our results, we hypothesize that for the pain associated with injection, the volume effect produced by the anesthetic agent in the injection area could be more important than the type of agent used. In our study, we found that the intensity of pain occurred during the procedure was significantly lower in all the three groups that received anesthesia compared to the control group (Table 4). Our results in the lidocaine group is similar to many studies done with the same agent (1,5,10,18,19,20,21). In one of the studies done with bupivacaine, Rabets et al. (22) reported that bupivacaine alone was superior to the control group while in another study, Yurdakul et al. (15) demonstrated that bupivacaine combined with lidocaine gel was superior to controls, and the results of both studies were consistent with ours. In a study by Aktoz et al. (16), levobupivacaine was superior to 50 mg diclofenac sodium administered rectally but in this study, unlike ours, levobupivacaine was not compared with a control group. We observed that there was not a significant difference between the anesthetic agents in alleviating pain occurring during the procedure (Table 4). Yurdakul et al. (15) reported that there was not any significant difference between ropivacaine and bupivacaine combined with intrarectal lidocaine gel in decreasing biopsy-related pain. Considering this, we believe that periprostatic nerve blockage is necessary in order to decrease pain during prostate biopsy, however, agents used for this purpose do not have any superiority to each other. Although periprostatic nerve blockage was found to be an effective method in our study, consistent with literature in general, Obek et al. (19) stated that periprostatic nerve blockage combined with intrarectal lidocaine gel was more effective in decreasing pain associated with the procedure than periprostatic nerve blockage alone. They concluded that additional administration of intrarectal anesthetic gel could diminish pain resulting from probe placement. Inal et al. (23) similarly reported that in alleviating pain due to probe placement, this same combination was more effective than periprostatic nerve blockage alone. However, contrary to Obek et al. (19), they did not find any significant difference in pain that occurred during the procedure between these two groups. In our study, we believed that intrarectal analgesic gel administration would be an additional factor that could interfere with our results since we primarily aimed to compare anesthetic agents with each other. Similar to our study, Izol et al. (20) reported that lidocaine diminished end-of-procedure pain significantly compared to controls. While pain scores in our study were lower in the lidocaine and levobupivacaine groups compared to the control group, there was not a statistically significant difference in pain in the bupivacaine group, even though the pain scores were lower than in the controls (Table 4). When anesthetic agents were compared with each other, no single agent was observed to be superior in regard to management of end-of-procedure pain (Table 4). Keeping this information in mind, it seems that anesthetic agents are also effective in decreasing pain just at the end of the procedure. Lee-Elliott et al. (24) investigated the utility of combination of long- and short-acting agents in order to prevent the rebound effect that can be seen in the early phase after biopsy due to short-acting anesthetic agent use. In their study, they reported that a combination of bupivacaine and lidocaine was more effective in decreasing the first-hour

pain than lidocaine only. In a study which evaluated the first-hour pain following a prostate biopsy procedure, Yurdakul et al. (15) compared the combination of two long-acting agents, bupivacaine and ropivacaine, with lidocaine gel and found that they decreased the pain effectively, even though either method was not superior. Dridi et al. (25) compared patients who received short-acting lidocaine, long-acting bupivacaine or placebo, and they found that in bupivacaine-administered patients, pain scores were lower in the 1st, 2nd and 3rd hours, compared to both placebo and lidocaine groups. In our study, it was seen that the only agent that decreased the first-hour pain significantly compared to control group was levobupivacaine (Table 4). When we evaluate our findings alongside the aforementioned studies, we believe that a long-acting anesthetic agent should be used during early stage following biopsy in order to improve patent control.

Study Limitations

The limitation of our study was the lack of a placebo group.

Conclusions

Assessing our results in general, we observed that periprostatic nerve blockage provides effective pain control during a prostate biopsy procedure without increasing complication rates. We have shown that long-acting anesthetic agents used for this procedure decrease pain associated with the procedure as efficiently as short-acting agents, therefore, we believe there is no advantage of using short- and long-acting agents in combination. Moreover, we assume that long-acting agents could be better in controlling pain occurring after the procedure compared to short-acting agents. The use of long-acting agents for periprostatic nerve blockage therefore is recommended. In our study, where we compared two long-acting agents, it was seen that levobupivacaine, which acts better in controlling pain during the early post-procedure period, is one step ahead of the other agents. This finding seems to be consistent with those in other studies which reported that levobupivacaine caused a longer period of sensory block compared to bupivacaine (26,27). Also, it has been reported that levobupivacaine had fewer adverse effects on cardiovascular function (28). Considering the results of our study along with these advantages, we believe that levobupivacaine could be a better choice for nerve blockage and recommend its use in the prostate biopsy setting.

Ethics

Ethics Committee Approval: Approval was obtained from Ethical Committee of Yüksek İhtisas Training and Research Hospital for this study (approval number: 2012/9/3).

Informed Consent: Informed consents were obtained for the procedure. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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Authorship Contributions

Surgical and Medical Practices: S.A., V.Ç., Concept: S.A., Design: S.A., Data Collection or Processing: S.A., M.M.A., Analysis or Interpretation: S.A., S.Ö., M.D., Literature Search: S.A., E.Ö., Writing: S.A.

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CASE REPORT
General Urology

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Journal of Urological Surgery, 2018;5(1):37-38

A Case of Renal Hydatid Cyst Mimicking a Non-opaque Kidney Stone

Nonopak Böbrek Taşını Taklit Eden Kist Hidatik Olgusu

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Abstract

Hydatid cyst is an endemic disease in several regions of the world. Renal involvement is rare. Association with kidney stones is even less likely. We report a case with isolated renal hydatid disease mimicking a non-opaque kidney stone.
Keyword: Cystic hydatid, Kidney stone, Treatment

Öz

Kist hidatik dünyanın çeşitli bölgelerinde endemik hastalık olarak görülmektedir. Bununla birlikte sadece böbrek tutulumu nadirdir. Böbrek taşı ile birlikteliği ise son derece enderdir. Biz nonopak böbrek taşını taklit eden izole renal kist hidatik olgusunu sunmaktayız.
Anahtar Kelimeler: Kist hidatik, Böbrek taşı, Tedavi

Introduction

Hydatid cyst, which is a parasitic infestation caused by Echinococcus granulosus leading to hydatid disease, is endemic in several regions of the world. It maintains its importance as a common health problem in this region. Although mainly the liver and lungs are affected, the kidney and other organs are involved in 2-4% of cases. Isolated renal involvement is rare and coexistence with kidney stones is also extremely rare (1,2,3). We assume that this report of the case of hydatic cyst mimicking a non-opaque kidney stone will contribute to the literature.

Case Presentation

Written informed consent was obtained from the patient. A 26-year-old female patient was admitted to the urology clinic with right flank pain. The patient had a history of ureterorenoscopy and stone manipulation for right ureteral stones. Her physical examination was normal except for right costovertebral angle tenderness. Urinalysis revealed a large number of erythrocytes and leukocytes. Urine culture for bacterial pathogens revealed no microorganism growth. Dense fluid adjacent to the lower pole of the right kidney was observed on ultrasonography. Two cystic lesions with thick septa were observed in the upper pole, one being 27x19 mm and the other 23x13 mm in diameter. There were multiple stones in the renal pelvis reaching a diameter of 12 mm. No clear urinary tract calculus image was detected on the X-ray view of the kidney poles. Staghorn calculi were observed in the right kidney on stone protocol computed tomography scans (Figure 1a, 1b). The total stone size was measured as 55x24x18 mm on computed tomography. The patient underwent percutaneous nephrolithotomy operation. Upon entry into the collecting system, a necrotic membranous structure filling the collecting system was found. This formation was totally cleaned with a foreign body forceps (Figure 2). No intraoperative hemodynamic instability was seen. The operation was completed after insertion of a 16F nephrostomy tube. Pathological examination of the excised material revealed intense calcification over lamellar hyalinized cystic structures and although no daughter vesicles or germinative membrane were reported, the case was diagnosed as hydatid cyst. There were no other foci in whole body scans. Indirect hemagglutination test was negative. Albendazole 400 mg/day was started after consultation with the department of infectious diseases.

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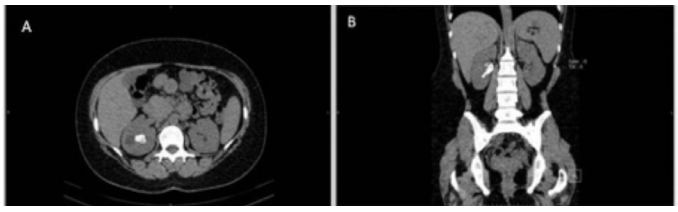

Figure 1. The transverse plan (a) and coronal plan (b) images of staghorn calculus in the right kidney in computed tomography

Figure 2. The image of hydatid cyst material

Discussion

The most common symptom of renal hydatid disease is abdominal and lumbar pain, however, palpable mass, hematuria, and fever are also observed. Determination of daughter cysts and cyst wall layers in the urine are diagnostic. This occurs with the opening of the cyst to the collecting system and has been reported in 5% to 28% of patients (4,5). There are no pathognomonic serological and immunological tests for renal hydatid disease. Imaging studies play a pivotal role in the diagnosis. Unilocular and multilocular cysts are observed on ultrasonography. Further evaluation with computed tomography can be used to identify calcification and daughter cysts. Isolated intrarenal hydatid cyst is a very rare disease. Radiological evaluation plays important role in diagnosis. However, the diagnosis of the disease cannot be usually achieved in the preoperative period since there is no specific laboratory finding. Treatment of renal hydatid cysts is the surgical excision of the cyst however, several percutaneous methods are also available. Surgical treatment alternatives are total cystectomy, pericystectomy, partial cystectomy, and total or partial nephrectomy. The cyst should be removed without rupture to reduce the possibility of planting. Allergic reactions, anaphylaxis, and even death may be seen because of intraoperative cyst rupture resulting in spilling of cystic material into the operative field. The kidney should be isolated from the surroundings using betadine-soaked sponges and hypertonic saline; 2% formalin, 1% iodine or 0.5% silver nitrate should be administered to the cyst cavity. Albendazole treatment may be used pre- and post-operatively in order to prevent recurrence. Cystic material was filling the renal collecting system in our patient. The patient did not have any symptoms other than pain. She did not define urinary excretion of cystic formations. Ultrasonography revealed septal cysts and renal pelvic calculi. Computed tomography showed a staghorn calculi image. The patient underwent percutaneous nephrolithotomy operation. Necrotic membranous formations seen upon entry into the collecting system were totally cleaned with foreign body forceps. Albendazole was started postoperatively at a dose of 400 mg/day. The treatment lasted for 3 months. The patient is being followed without problems in the first year after surgery.

Ethics

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Ü.G., M.V.K., Concept: Ü.G., Design: Ü.G., Data Collection or Processing: M.V.K., Analysis or Interpretation: Ü.G., M.V.K., Writing: Ü.G.

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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CASE REPORT
General Urology

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Adrenal Myelolipoma: A Case Presentation

Adrenal Myelolipom: Olgu Sunumu

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Abstract

Adrenal myelolipomas are non-functional benign tumors of hematopoietic and mature adipose tissue. Adrenal myelolipomas, which are generally detected in post-mortem examinations, have become more detectable thanks to evolution and frequent use of imaging techniques. This presentation elaborates on a case of 35-year old male patient presenting with no complaint but diagnosed with adrenal myelolipoma in histopathological examination following surrenalectomy operation for an adrenal mass incidentally detected on ultrasonography and computed tomography work-up.
Keywords: Adrenal, Myelolipoma, Benign tumor

Öz

Adrenal myelolipomlar hematopoetik ve matür yağ dokusundan oluşmuş non-fonksiyone benign tümörlerdir. Genelde otopsilerde tespit edilen adrenal myelolipomların, görüntüleme tekniklerinin gelişmesi ve sık kullanımı nedeni ile tespit edilebilirliği artmıştır. Bu sunumda 35 yaşında aktif yakınması olmayan erkek hastada ultrasonografi ve bilgisayarlı tomografi ile insidental olarak adrenal kitle tespit edilip sürrenalektomi operasyonu uygulanan ve histopatolojik inceleme sonucu adrenal myelolipom tanısı konulan olgu bildirilmektedir.
Anahtar Kelimeler: Adrenal, Miyelolipom, Benign tümör

Introduction

Adrenal myelolipoma is a rare type of benign tumors accounting for 2-4% of all adrenal tumors (1). Its histological structure contains mature adipose tissue and hematopoietic elements of myeloid and erythroid cells. Although it has quite a typical radiological presentation, misdiagnosis is frequent due to its rare manifestation. Since most of the cases are detected as asymptomatic incidental imaging findings, adrenal myelolipomas are also named as "insidentoma". This condition was first defined in 1905 by Gierkel and was later named in 1929 by Oberling (2). It is a mostly unilateral, asymptomatic and hormonally inactive condition, and mostly seen in the age group of 40-60 years with a similar gender distribution. Most adrenal myelolipomas are smaller than 5 mm in diameter. Surgically removed cases are rare in the literature but detection rates are rising today with frequent use of imaging modalities including ultrasonography (USG), computed tomography (CT) and magnetic resonance imaging (3).

Case Presentation

A hyperechoic–slightly heterogeneous solid mass measuring 113x83 mm and showing minimal lobular contour was detected on the right adrenal gland in a 35-year-old male patient during USG done for right lumbar pain. Urine analysis, full blood count, prothrombin time and serum electrolytes were normal. CT taken for further investigation revealed a 103x110 mm heterogeneous lesion with smooth contours and limited fat density on the lateral side of the right suprarenal tissue (Figure 1). Hormonal analysis indicated inactivity. Open adrenalectomy was performed with a preliminary diagnosis of a mass in the supra renal gland. Macroscopic work-up of the surgical specimen revealed a 12x12 cm red-orange colored mass (Figure 2). Histopathological examination showed myelolipoma containing mature adipose tissues and hematopoietic elements. The patient was discharged on the 4th postoperative day.

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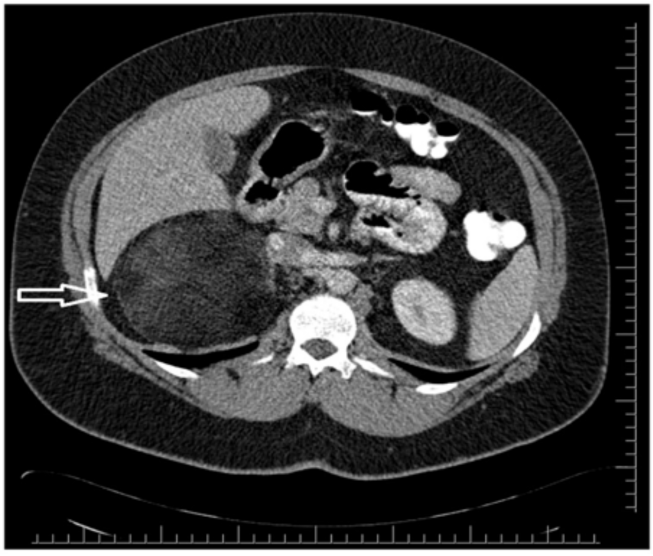

Figure 1. Conformal contour with heterogeneous mass in limited fat densities in the right adrenal gland in computed tomography

Figure 2. Macroscopic appearance of adrenal gland

Discussion

Adrenal myelolipomas are non-functional benign tumors of hematopoietic and mature adipose cells. Although they are generally unilateral in presentation and hormonally inactive, about 10% may be associated with endocrine diseases including Cushing's syndrome, congenital adrenal hyperplasia, Conn's syndrome, pheochromocytoma, and hyperthyroidism (4). There are many theories about their formation but the most accepted one is that they are formed as a result of metaplastic changes taking place in reticuloendothelial cells of blood vessels upon stimulations such as necrosis, infection and stress (5). The incidence of myelolipoma detected at autopsy is between 0.08% and 0.4% most myelolipomas reported in the literature are small tumors (0.5-5 cm) (3). About 10% of adrenal myelolipomas may grow and become symptomatic. The main complication of large myelolipomas is acute hemorrhage causing side or back pain. There was no other adrenal disease in this patient. The mass was 12 cm in diameter and it caused right lumbar pain. The generally accepted rule is to treat asymptomatic, hormonally inactive myelomas smaller than 6 cm conservatively, whereas to surgically remove symptomatic or complicating myelomas larger than 6 cm in diameter (6). Surgical treatment was preferred for this patient since the mass was very large and caused pain.

Ethics

Informed Consent: Consent form was filled out by the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.K., Y.C.A., Concept: E.K., Design: A.D., Data Collection or Processing: E.H., Analysis or Interpretation: E.K., Literature Search: E.K., E.H., Writing: E.K.

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
Radiology

Doi: 10.4274/jus.1274
Journal of Urological Surgery, 2018;5(1):41-43

Endovascular Management of Surgically Uncontrolled Hemorrhage Following Post-Radical Nephrectomy: A Case Report

Radikal Nefrektomi Sonrası Cerrahi Olarak Kontrol Edilemeyen Kanamanın Endovasküler Yöntemle Tedavisi: Olgu Sunumu

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Abstract

We present an isolated right lumbar arterial hemorrhage following right radical nephrectomy. Surgical re-exploration was unsuccessful therefore active bleeding was diagnosed and treated with endovascular approach.
Keywords: Arterial embolization, Lumbar artery, Nephrectomy, Hemorrhage

Öz

Sağ radikal nefrektomi sonrası gelişen izole sağ lomber arteriyal kanama olgusu sunuldu. Cerrahi re-eksplorasyonda başarısız olunması nedeniyle aktif kanamaya endosvasküler yaklaşımla tanı konularak tedavisi yapıldı.
Anahtar Kelimeler: Arteriyal embolizasyon, Lomber arter, Nefrektomi, Kanama

Introduction

Retroperitoneal hematoma secondary to lumbar artery injury is a rare but life-threatening condition (1). Although it may be spontaneous in patients receiving anticoagulants, majority of the cases appear as a consequence of trauma or as a complication following open surgery, laparoscopic surgery or percutaneous interventions (2). Renal injury or vascular injury to the posterior abdominal wall during open or percutaneous interventions may lead to active extravasation, pseudoaneurysm or arteriovenous fistula formation (3). Pseudoaneurysms possibly will give rise to consequent acute or delayed retroperitoneal bleeding since they develop gradually from an overlooked focal arterial wall disruption and an urologist should be aware of this postoperative complication. Clinical spectrum of retroperitoneal bleeding ranges from a self-limiting hematoma to a persistent bleeding leading to hypovolemic shock (4). Treatment options for significant retroperitoneal bleeding include conservative management, transarterial embolization and surgical exploration. Persistent hemorrhage despite a proper conservative treatment should indicate a surgical or endovascular intervention to avoid severe morbidity and mortality. Conventional management of persistent bleeding has been surgical exploration and ligation of the bleeding artery. Endovascular treatment has been shown to be a very effective procedure in the management of arterial bleeding in various locations and it can also be used in case of persistent bleeding after surgical exploration (2).

Case Presentation

A 79-year-old male presented to our hospital owing to right flank pain. His physical examination and past medical history was unremarkable. On admission, urine culture was negative and blood urea nitrogen, creatinine; blood electrolyte and hemoglobin levels were within normal limits. Ultrasound (US)

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and computed tomography (CT) scans showed a renal mass measuring 5x3.5 cm in the mid-pole of the right kidney (Figure 1a). An open right radical nephrectomy was performed for treatment. On postoperative follow-up, a sudden decline in the hemoglobin level from 13.3 g/L to 6.96 g/L was monitored. Drainage catheter output was hemorrhagic and above 350 mL/day. The fall in the hemoglobin level persisted despite transfusion of three units of erythrocyte suspension. US, and further CT scans revealed a right retroperitoneal hematoma measuring 16x10 cm and contrast extravasation from a lumbar artery branch (Figure 1b). Emergency surgical exploration was performed. However, no active arterial bleeding could be identified and only an oozing from the iliopsoas muscle was present after evacuation of the hematoma. The patient persisted with hemoglobin decrease following the surgical exploration and the hemoglobin level dropped from 11.5 g/dL to 6.9 g/dL within 24 hours despite 2 units of erythrocyte suspension and 3 units of fresh frozen plasma transfusions. The patient was referred to the interventional radiology unit for diagnostic and therapeutic intervention. Non-selective abdominal angiograms showed no arterial extravasation but selective right third lumbar artery injection revealed active extravasation from a dorsal branch (Figure 1c). This branch was catheterized with a microcatheter and occluded with injection of 1 mL of 15% N-butyl cyanoacrylate (NBCA) (Histoacryl; Braun, Aesculap AG, Germany) diluted with iodized oil (Lipiodol Ultra-Fluide, Guerbet, Aulnay-sous-Bois, France). Control angiograms revealed permanent occlusion of the dorsal branch of the third right lumbar artery and cessation of extravasation (Figure 1d). Clinical success was achieved after the procedure and the hemoglobin level progressively improved over the following days.

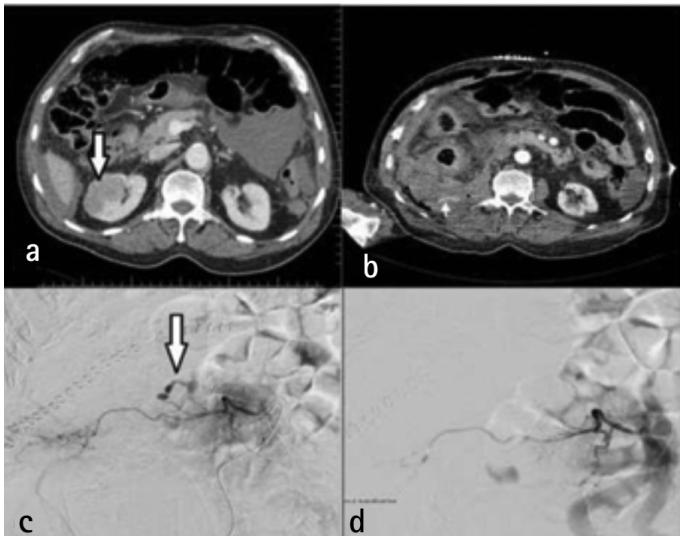

Figure 1. a) Preoperative abdominal computed tomography scan shows the mass (arrow) located at the lateral side of the right kidney. b) Postoperative abdominal computed tomography shows extensive retroperitoneal hematoma and mild contrast extravasation (arrow). c) Pre-embolization angiogram of the right third lumbar artery shows the active bleeding from a dorsal branch of the lumbar artery. d) Angiogram after embolization of the dorsal branch with 15% N-butyl cyanoacrylate and lipiodol mixture shows cessation of extravasation in the dorsal branch of the right third lumbar artery

Written informed consent was obtained from the patient.

Discussion

Symptomatic retroperitoneal bleeding requires prompt diagnosis and therapy. Endovascular therapy has been accepted as a minimally invasive, safe and effective procedure for treating acute arterial bleeding. It offers several advantages over surgical exploration for the treatment of acute arterial bleeding: it is performed without general anesthesia and operative blood loss, tamponade effect of the hematoma is preserved, and the patient's recovery time is shorter (2,5).

Lumbar arterial bleeding is an infrequent complication after renal surgery, which may be life-threatening. The lumbar arteries are typically paired vessels that originate from the posterior abdominal aorta. After they surround the vertebral bodies, they split into small branches that supply the psoas muscle and the radicular medullary arteries which accompany the spinal nerve roots to split into anterior and posterior spinal arteries. After then, the arteries split into two branches. The posterior branch of the artery supplies the sacrospinalis muscle and skin of the back. The anterior branch supplies the quadratus lumborum, sacrospinalis muscles and skin of the flank region. These muscular branches that course dorsally to the kidney are prone to injury during any renal surgery or biopsy (6). Significant bleeding due to lumbar artery and/or deep circumflex iliac artery injury has been reported in 3.7% of cases after various laparoscopic procedures (7). To the best of our knowledge, this is the second report in the English literature describing lumbar arterial bleeding following radical nephrectomy. The first case describing lumbar artery hemorrhage complicating radical nephrectomy for renal infarction and perirenal haematoma was reported by Geldof et al. (8).

Lumbar arterial bleeding may present a major diagnostic and therapeutic problem. Selective lumbar arterial angiogram has been shown to be very effective in locating the bleeding artery, which could not be identified with surgical exploration (2,4). In our case, selective lumbar angiography made it possible to detect the source of bleeding which surgical exploration could not.

Co-axial microcatheters and various embolic agents provide selective embolization of the arterial bed at any desired level. Choice of the embolic agent depends on the target vessel size, the target organ to be embolized, and whether permanent, temporary or repeated embolization is required (3). In this case,

permanent distal branch embolization with 15% NBCA-iodized oil mixture was performed after highly selective catheterization of the branch with the co-axial microcatheter since NBCA has been reported to provide faster and more effective embolization in distal branches (2). Proximal embolization with coils was not preferred to prevent retrograde re-bleeding from collateral pathways.

To conclude, urologists should be aware of lumbar artery injury complicating renal surgery in the immediate postoperative period. Highly selective angiograms and embolization of the bleeding artery is an effective procedure and a preferable alternative to surgical exploration for immediate cessation of active bleeding.

Ethics

Informed Consent: Written informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.D., U.Ö., Concept: A.D., Design: A.D., Data Collection or Processing: A.D., Analysis or Interpretation: U.Ö., Literature Search: A.D., Writing: A.D.
Confict 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
Pediatric Urology

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Journal of Urological Surgery, 2018;5(1):44-46

A Rare Cause of Scrotal Mass in a Newborn: Antenatal Intravaginal Testicular Torsion

Yenidoğanda Nadir Bir Skrotal Kitle Nedeni: Antenatal İntravajinal Testis Torsiyonu

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Abstract

Intravaginal testicular torsion is a very rare pathology in the neonatal period. However, it is the most common type of torsion in puberty. In this article, we present a male patient with testicular hyperemia and a mass in the testis. Ultrasonography revealed intravaginal testicular torsion and absence of testicular blood flow. This paper aims to draw attention to the importance of neonatal examination for the presence of testicular torsion which is a rare pathology in newborns with scrotal colour change or presence of an abnormal mass.
Keywords: Testis, Torsion, Newborn, Intravaginal

Öz

Yenidoğan döneminde intravajinal testis torsiyonu çok nadir görülen bir patolojidir. Bu yazıda yenidoğan muayenesinde skrotal hiperemi ve ele gelen kitleyle prezente olan ve ultrasonografik incelemede testiste kan akımın izlenmediği antenatal intravajinal testis torsiyonlu erkek hasta güncel literatür eşliğinde sunulacaktır. Bu makale yenidoğan muayenesinin önemine dikkat çekmek ve yenidoğanda skrotal renk değişikliği veya kitle imajı veren durumlarda nadir bir patoloji olan testis torsiyonunu hatırlatmak amacıyla yazılmıştır.
Anahtar Kelimeler: Testis, Torsiyon, Yenidoğan, İntravajinal

Introduction

Testicular torsion occurs most commonly in newborn and puberty periods. Newborn testicular torsion frequency is 6.1/100000 (1). Extravaginal torsion is frequently observed in undescended testicle cases and newborns while 95% of the testicular torsions are seen during puberty except newborn are in the form of intravaginal torsion. Few cases of intravaginal torsion in the neonatal period have been reported in the literature (2,3). In this paper, we present a case of intravaginal testicular torsion in puberty. This can be explained by the fact that intravaginal torsion is characterized by congenital anatomical abnormalities such as a high attachment of the tunica vaginalis to the spermatic cord and an excessive laxity of gubernaculum testis. These events are named as "bell clapper deformity". Intravaginal torsion is caused by the testis twisting within the tunica vaginalis. A child with an antenatal testicular torsion, which is a rare pathology, is presented in this article.

Case Presentation

A 22-year-old mother gave birth to her second healthy child (3370 g) in the 38 weeks of her pregnancy. In the routine neonatal examination of the baby, right testicular stiffness and size increase were determined and pediatric surgeon consultation was requested. During physical examination, the left testis was normally palpated but hyperemia was observed in the right hemiscrotum skin and the size increase and stiffness were observed according to the testis symmetry. Blood flow was not observed in the right testicular parenchyma as a result of torsion. Colour Doppler ultrasonography performed with the preliminary diagnosis of testicular torsion showed that the

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right testis was heterogeneous in appearance and its size was significantly increased compared with the left testis (Figure 1). The patient was urgently operated. The operation started with the right inguinal transverse skin incision. Right intravaginal torsion and testicular gangrene were observed during the exploration (Figure 2). After detorsion, it was waited for about 15 minutes and parenchymal incisions were made on the testis. However, right orchiectomy was performed because there was no blood supply and the colour was still dark. Necrotic testis tissue was observed. The patient was discharged on the second postoperative day and he was followed without complication in the forth-postoperative month.

Written informed consent was obtained from patient parents who participated in this study.

Discussion

Testicular torsion is the most important occurrence among acute scrotum pathologies and it is a condition requiring immediate intervention (4). The survival of the gonad in testicular torsion depends on two important factors: the grade and duration of the torsion. Experimental animal studies have reported that 90-degree testicular torsion did not affect the circulation, and 180-, 360-, and 720-degree torsions lead to permanent loss of the testis within 3-4 days, 12-24 hours, and 2 hours, respectively (5). 92% of newborn testicular torsions are extravaginal and 8% are intravaginal. Torsions in this age group account for 10% of all testicular torsions (6). It has been reported that 48% of newborn torsions were in the left side, 44% in the right side, and 8% were bilateral (7). Intravaginal presentation of the torsion in the right side reported in this paper is a rare condition for this age group. Emergency surgical intervention in prenatal testicular torsion remains controversial. It has been reported that, the testis was preserved in approximately 22-33% of patients with postnatal testicular torsion with the help of the immediate surgical intervention; however, testes were not preserved in patients who had prenatal testicular torsion and who were urgently operated in the neonatal period (8,9). Nandi and Murphy (7) have indicated that the salvage rate was low in their experience with neonatal torsion. For instance, it has been found in a review of 18 case series of neonatal testicular torsion including 268 patients that the salvage rate was approximately 9% (7). Scrotal-inguinal hernia, testicular tumour, epididymo-orchitis, torsion of the appendix testis, and testicular epididymal torsion should be considered in the differential diagnosis in the acute phase (10). In our case study, tumour markers such as alpha-fetoprotein and beta-human chorionic gonadotropin were examined but no significant difference was found in this age group. However, it should not be forgotten that such markers may normally be found to be high in the newborn period and must be checked for a while. Whether or not to fix the contralateral testis should be discussed during the surgical intervention with ipsilateral testis (9). It is also recommended that the fixation of the contralateral testis can be performed in the second session (3). In our study, no fixation was performed in the contralateral testis in the same session. Instead, fixation will be performed after the age of one in another operation in order to protect the contralateral testis from complications such as infections. In conclusion, in the case of scrotal colour change and presence of an abnormal mass, testicular torsion should be kept in mind and surgical treatment should be provided.

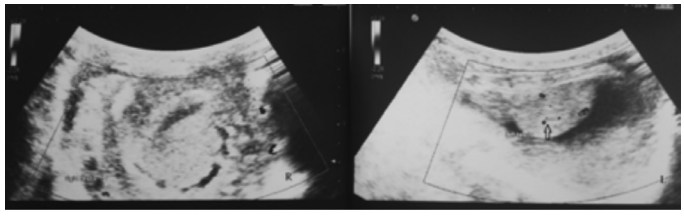

Figure 1. Colour Doppler ultrasonography revealed that the testis was heterogeneous in appearance and its size was significantly increased compared to the symmetry. Unlike the left testis, no blood flow was observed in the right testis (arrow shows the vascular coding in right testis)

Figure 2. Peroperative apperence of the right testis. Intravaginal testicular torsion and necrosis of testicular tissue are observed

Ethics

Informed Consent: Written informed consent was obtained from patient parents who participated in this study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.A.T., K.Y., A.B., Concept: A.A.T., A.B., Design: A.A.T., A.B., Data Collection or Processing: A.A.T., K.Y., Analysis or Interpretation: S.Ç., A.A.T., D.B.E., Literature Search: A.A.T., K.Y., A.B., D.B.E., Writing: A.A.T., A.B.

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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CASE REPORT
Andrology

Doi: 10.4274/jus.1371
Journal of Urological Surgery, 2018;5(1):47-50

Dry Gangrene of the Glans Penis Following Surgical Correction of Peyronie's Disease

Peyronie Cerrahisi Sonrası Glans Penisin Kuru Gangreni

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Abstract

Ischemic gangrene of the glans penis following surgical correction of Peyronie's disease is a very rare condition. Ischemic gangrene is a rare phenomenon due to rich vascular collateral circulation in the penis, but serious complications can occur in patients with vascular insufficiency. There is no standardized method among treatment options. We herein report a patient who was operated due to Peyronie's disease and developed ischemic gangrene of the glans penis in the postoperative period.
Keywords: Peyronie's disease, Concorde deformity, Penile disassembly, Venous patch, Ischemic gangrene

Öz

Peyronie cerrahisi sonrası glans penisin iskemik gangreni çok ender bir durumdur. İskemik gangren, penisin zengin vasküler kollateral dolaşımı sebebiyle nadir görülür. Fakat vasküler yetersizliği olan olgularda ciddi komplikasyonlar ortaya çıkabilir. Standardize edilmiş bir tedavi metodu yoktur. Bu yazıda Peyronie hastalığına bağlı opere edilen ve postoperatif dönemde iskemik glans penis gangreni gelişen olgu sunuldu.
Anahtar Kelimeler: Peyronie hastalığı, Konkord deformitesi, Penil ayrıştırma, Venöz yama, İskemik gangren

Introduction

Penile necrosis is generally seen in patients with diabetes mellitus and end-stage renal disease, but may also be seen in patients with vascular obstruction, tourniquet syndrome, priapism and venous thrombosis, and in those receiving anticoagulant therapy (1). Additionally, penile prosthesis implantation, circumcision, acute arterial obstruction, Fournier gangrene, spider bite, foreign bodies and trauma are among the other factors that may cause ischemic gangrene (2). Regardless of its etiology, penile necrosis is a very critical condition that may lead to very serious complications, such as loss of penis, and it should be treated urgently. In this report, we present a patient who underwent surgical correction of Peyronie's disease and developed ischemic gangrene of the glans penis in the postoperative period, and a review of the current literature.

Case Report

A 56-year-old patient presented to our clinic with the complaint of penile curvature. Although the erectile capacity was normal, it was learnt that the patient had difficulty with sexual intercourse for 5 years. In artificial erection provided by a vasoactive material, it was seen that there was concorde deformity and a surgical correction was planned after having spoken with the patient in detail. The patient provided written informed consent. The surgery was started by a cut from the circumcision line, and penile degloving was performed thereafter. A tourniquet was placed at the root of the penis, and an artificial erection was ensured with saline solution. It was observed that the penis had concorde deformity. The penile disassembly technique was used by means of separating the neurovascular bundle, urethra, and glans penis and cavernous tissues from each other (Figure 1a, 1b). Plication was performed

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to the area of curvature, and saphenous patch was applied by incising and excising the plaques in the lower part and tip of the corpora cavernosa (Figure 2a, 2b). After having corrected the corpora cavernosa, the glans penis was sutured to the corpora cavernosa. A transurethral catheter was placed and a dressing (Coban wrap) was loosely wrapped around the penis. The bandage was removed on postoperative day 1 and the transurethral catheter on day 2. It was seen on postoperative day 5 that necrosis developed on glans penis and the sub-coronal site. In this phase, pentoxifylline (3x400 mg/day), acetylsalicylic acid (300 mg/day), tadalafil (5 mg/day), enoxaparin (60 mg/day), and dipyridamole (2x75 mg/day) were started to prevent glans penis ischemia. On postoperative day 10, necrotic tissues on the glans penis and sub-coronal site were debrided. In the meantime, it was observed that cavernous tissues were separated from the glans penis and there was a clean-cut laceration on the urethra (Figure 3a, 3b, 3c, 3d). A cephalosporin derivative antibiotic was started for prophylaxis for prevention of catheter-associated infection. On postoperative day 15, the patient was operated on again for debridement, and the glans penis and the cavernous tissues were united. On the 30th day, the glans penis was observed to be epithelized and there was no ischemia (Figure 4a, 4b). Pentoxifylline, tadalafil and dipyridamole were continued for 6 months. Coitus was not recommended for 3 months postoperatively and the patient reported having problem-free sexual intercourse after this period of time.

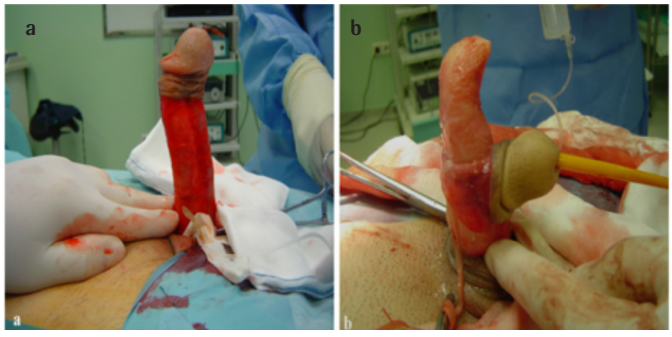

Figure 1. a, b) Concorde deformity of the penis and penile disassembly technique

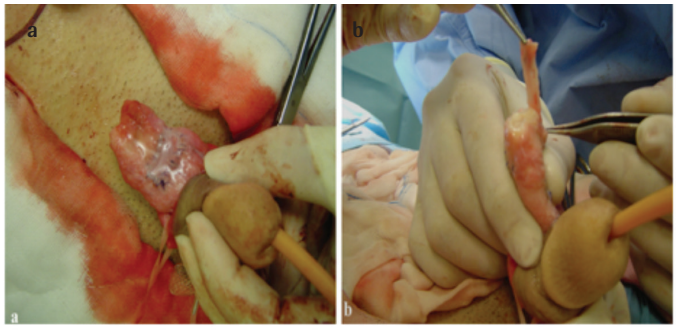

Figure 2. a ,b) Cavernos incision/excision and venous patch

Discussion

Penile gangrene is an infrequent complication that can occur due to many reasons. Although generally seen in patients with diabetes and end-stage renal disease, other reported causes of penile gangrene involves trauma, vessel narrowing procedures, circumcision, vasculitis (3), acute occlusion of arteries, foreign bodies, Fournier gangrene, spider bites and topical treatment with 1% gentian violet (2). Also urine extravasation, priapism, narrow bands or pressure from clothing, Wegener's

Figure 3. a) Ischemic necrosis of glans penis and sub-coronal area b, c) debridman of the necrotic tissue d) the view of glanulocavernosal dissociation and urethral laceration

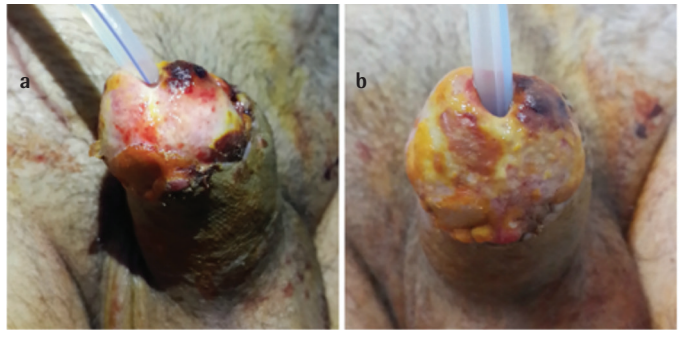

Figure 4. a, b) The view of re-epithelised glans penis on postoperative day 30

granulomatosis, septic emboli due to intravenous drug abuse, penile prosthesis implantation and perivascular invasion of penile tumors have been shown to cause penile gangrenes (4).

Inability to remove out metallic and non-metallic objects that are applied to the penis to obtain a longer erection and to increase sexual stimulation and performance after erection can cause complications such as ischemia and dry gangrene besides the mechanical trauma and vascular injury (3). Penile strangulations with use of hair, ring, thread, tape and bottle neck which might be due to mental issues or autoerotic purposes have been reported (5). Ischemia of the glans penis after circumcision generally occurs secondary to the use of the local anesthetic agents during penile block (3). Cases of penile necrosis after a penile prosthesis implantation have been reported. The common feature of these cases was the presence of diabetes. Poor glycaemic control has been reported to play a role in the development of ischemia as well as super-infection (6). A rare medical condition called "calciphylaxis" is characterized by a progressive cutaneous necrosis and ischemia of the lower extremities and penis that occurs as a result of small arterial occlusions at sites of calcification regions. Ohta et al. (7) have reported a case of penile necrosis secondary to calciphylaxis and determined that calciphylaxis associated with long-term diabetes and chronic renal insufficiency were risk factor for penile necrosis.

Although there are various forms of necrosis or gangrene, they are generally divided into two groups as ischemic (dry) or infected (wet). Super-infections can be added upon ischemic necrosis. Thus, in cases of ischemic necrosis, the use of broad-spectrum antibiotics is preferred. Wet gangrene developing secondary to infections caused by bacterial agents is more frequently seen in immunocompromised patients, e.g. transplant recipients, human immunodeficiency virus-positive individuals and patients with diabetes mellitus (6).

In our patient, penile plication and venous patch grafting were performed due to Peyronie's disease. The penile disassembly technique was used due to the existing concorde deformity. To the best of our knowledge, the case of glans penis necrosis after implementation of a penile disassembly technique in a patient with Peyronie's disease has not been reported. Although ischemic gangrene causes complications that can even lead to loss of penile tissues, in our patient, we were able to preserve the glans penis after treatments to re-establish micro circulation.

We assume that ischemia of the glans occurring in the postoperative period can be due to the wide dissection of the neurovascular bundle, excision of the plaque in the distal end of the corpus cavernosum and the implementation of a venous patch. A report published by Garcia Gomez et al. (6) is also in line with our view. We also believe that transurethral catheter might have added to the development of the ischemic process.

This is not yet a standardized approach for patients suffering from penile gangrene. In our patient, we started a vasodilator therapy with pentoxifylline (3x400 mg/day) and tadalafil (5 mg/day). Also, we used low-molecular-weight heparin (enoxaparin 60 mg/day), acetylsalicylic acid (300 mg/day) and dipyridamole (2x75 mg/ day) to prevent thrombotic processes. Pentoxifylline is a peripheric vasodilator substance that is reported to be beneficial in preventing ischemic tissue damage. It has been proposed that the preventive effect of pentoxifylline on ischemia-reperfusion injury is mediated via stimulation of prostaglandin synthesis and increase in cyclic 3',5'-adenosine monophosphate after inhibition of the enzyme phosphodiesterase (2). It inhibits the free oxygen radicals as a result of inhibition of xanthine oxydase (8). Aslan et al. (2) has reported a successful treatment of severe glans penis ischemia after circumcision by pentoxifylline treatment.

Dry gangrene of the penis is a rare complication, however, it can result in serious complications. It is important to know the difference between wet and dry gangrenes and to use broad-spectrum antibiotics. In cases of wet gangrene, debridement of the infected area should be done and penile amputation may be necessary. Dry gangrene cases can be followed up conservatively if there are no signs of infection. Pentoxifylline can successfully be used in severe ischemia of the glans penis. Also, early diagnosis and treatment is important to improve quality of life, to obtain good cosmetic and functional outcomes and to reduce associated morbidity and mortality.

Ethics

Informed Consent: The patient signed an informed-consent agreement.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: F.A., Ö.K., Concept: F.A., E.O., Design: F.A., Ö.K., E.O., Data Collection or Processing: F.A., Ö.K., Analysis or Interpretation: F.A., Ö.K., Literature Search: F.A., Ö.K., E.O., Writing: F.A.

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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Transplant Survey

Doi: 10.4274/jus.2018.05.001

Re: Prostate Cancer Treatment in Renal Transplant Recipients: A Systematic Review

Marra G[1], Dalmasso E[1], Agnello M[1], Munegato S[1], Bosio A[1], Sedigh O[1], Biancone L[2], Gontero P[1]

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BJU Int 2018;121:327-344. doi: 10.1111/bju.14018.

EDITORIAL COMMENT

Prostate cancer (PCa) is the most frequent non-skin cancer observed in male kidney transplant recipients (KTRs) over 50 years of age, probably the rise in its incidence is due to increasing number and age of surviving male KTRs in their mid 50s. This means that an urologist is more likely to evaluate KTRs with PCa more often. However, it is still unknown if the natural history of PCa is changed due to immunosuppression. The aim of this systematic review was to summarize the outcomes of PCa treatment in KTRs. For this purpose, the authors have evaluated 241 patients from 27 retrospective studies published between 1991 and 2016. In almost ¾ of cases, PCa was organ-confined and Gleason score was ≤6 in 60% of patients. Surgery was the most preferred treatment modality, and cancer-specific and overall survival rates were both 96.8%. Functional outcomes, including continence and erectile function, and complications were less frequently reported and were generally similar to those reported for radical prostatectomy in non-KTRs. No treatment-related graft losses have occurred. Immunosuppression and antibiotic schemes were poorly reported and inconsistent. Outcomes of PCa treatment in KTRs seems to be encouraging and do not appear to be inferior to those of non-KTRs. Other treatment modalities preferred in decreasing frequency were radiotherapy, brachytherapy and androgen deprivation treatment. Immunosuppression and antibiotic use were poorly reported and highly variable. This systematic review is important since there is no meta-analysis performed on this topic, however, discreet interpretation of the results is necessary due to lack of strong evidence.

Yarkın Kamil Yakupoğlu, MD

Transplant Survey

Doi: 10.4274/jus.2018.05.002

Re: Intra-Abdominal Cooling System Limits Ischemia-Reperfusion Injury During Robot-Assisted Renal Transplantation

Meier RPH[1], Piller V[1], Hagen ME[1], Joliat C[1], Buchs JB[1], Nastasi A[1], Ruttimann R[1], Buchs NC[1], Moll S[2], Vallée JP[3], Lazeyras F[3], Morel P[1], Bühler L[1]

[1]Geneva University Hospitals and Medical School, Department of Surgery, Visceral and Transplant Surgery, Geneva, Switzerland
[2]Geneva University Hospital and Medical School, Department of Pathology and Immunology, Division of Clinical Pathology, Geneva, Switzerland
[3]University of Geneva Faculty of Medicine, Department of Radiology and Medical Informatics, Geneva, Switzerland

Am J Transplant 2018;18:53-62. doi: 10.1111/ajt.14399.

EDITORIAL COMMENT

Minimally invasive, especially robot-assisted kidney transplantation (RKT) is of interest, however, concerns have been raised about possible increases in warm ischemia times. For this purpose, the authors have compared ischemia-reperfusion injuries after open or RKT in a porcine model and also have described a novel intra-abdominal cooling system aimed at reducing kidney rewarming during the procedure. After performing standard open donor nephrectomy, the kidneys were transplanted with standard open technique with intermittent 4 ^{0}C saline cooling (group 1), RKT without (group 2) and with continuous intra-abdominal cooling (group 3). Group 1 had the shortest vascular anastomosis time while the other 2 groups had similar vascular anastomosis duration. Group 3 maintained lower renal cortex temperatures throughout the procedure when compared to other two groups. Magnetic resonance imaging showed that parenchymal heterogeneities and histologic ischemia-reperfusion lesions were more severe in the robotic group without cooling than in the open surgery and the robot-assisted group with cooling groups. Reperfusion injuries are more prone to occur during RKT without efficient kidney cooling. The use of a novel intraoperative cooling device may successfully prevent ischemia-reperfusion injuries in the era of minimally invasive surgery.

Yarkın Kamil Yakupoğlu, MD

Andrology

Doi: 10.4274/jus.2018.05.003

Re: The Combination of Penile Revascularization Surgery with Penile Corrective Techniques as an Alternative to Prosthesis Implantation in Patients with Peyronie's Disease Accompanied by Erectile Dysfunction: Long-Term Results

Kayigil O[1], Okulu E[2], Akdemir F[3], Cakici OU[2]

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[2]The Urology Clinics of Ankara Ataturk Training and Research Hospital, Ankara, Turkiye
[3]The Urology Clinics of Terme State Hospital, Samsun, Turkiye

Int J Impot Res 2017. doi: 10.1038/s41443-017-0012-4.

EDITORIAL COMMENT

In this study, Kayıgil et al. reported a new surgical approach for the treatment of Peyronie's disease that combines penile revascularization with penile corrective techniques which is an effective alternative to penile prosthesis implantation. In a total of 60 patients, saphenous vein grafts were used in 55, penile dorsal grafts in five, multiple plication and imbrication sutures in 20, urethra dissection in five, and penile disassembly in one patient. None of the patient had perioperative or postoperative complications and complete penile straightening was achieved in all patients. The mean follow-up period was 18 months. Most patients (53/60) expressed satisfaction with the outcomes of the surgery and reported improvements in their quality of life. According to the data, the authors report excellent outcomes. However, only patients fulfilling very strict inclusion criteria were enrolled and 80% of them had no risk factors such as atherosclerotic disease, smoking, and advanced age. This technique could be an alternative to penile implant surgery in selected patients.

Emre Bakırcıoğlu, MD

Andrology

Doi: 10.4274/jus.2018.05.004

Re: Male Infertility: A Biomarker of Individual and Familial Cancer Risk

Hanson BM[1], Eisenberg ML[2], Hotaling JM[3]

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[2]Stanford University, Male Reproductive Medicine and Surgery Program, Departments of Urology and Obstetrics and Gynecology, Stanford, California, USA
[3]University of Utah, Center for Reconstructive Urology and Men's Health, Department of Surgery-Urology, Salt Lake City, Utah, USA

Fertil Steril 2018;109:6-19. doi: 10.1016/j.fertnstert.2017.11.005.

EDITORIAL COMMENT

Association between infertility and cancer is gaining importance. In this review article, relationships between male factor infertility and cancer are focused in the light of the recent literature. Developing testicular cancer and high grade prostate cancer risk in infertile men appear to be at least double compared to the general population. It has been demonstrated that male infertility can be a biomarker for cancer risk in first- and second-degree relatives. Moreover, testicular cancer risk in the first-degree relatives of infertile men is higher than in fertile controls. Male infertility has been shown to be associated with a two- to threefold elevation in the risk of childhood cancer in the siblings of infertile men. Extensive studies investigating the underlying genetic, epigenetic, environmental and hormonal mechanisms of the relationship between male infertility and cancer development will provide comprehensive counseling for infertile men and their families.

Emre Bakırcıoğlu, MD

Basic Research

Doi: 10.4274/jus.2018.05.005

Re: Intraoperative Optical Imaging and Tissue Interrogation During Urologic Surgery

Hsu M[1], Gupta M[2], Su LM[2], Liao JC[1,3]

[1]Stanford University School of Medicine, Department of Urology, Stanford, California, USA
[2]University of Florida College of Medicine, Department of Urology, Gainsville, Florida, USA
[3]Veterans Affairs Palo Alto Healthcare System, Palo Alto, California, USA

Curr Opin Urol 2014;24:66-74. doi: 10.1097/MOU.0000000000000010.

EDITORIAL COMMENT

The era of minimally invasive surgery includes development of endoscopic, laparoscopic, and robotic-assisted surgery techniques. In contrast of these developments, there are still some problems such as lack of tactile sensation, small operative fields and disadvantage of white-light sight. Depending on the advances in modern imaging technologies, additional improvements could be obtained in diagnosis and surgical procedures. Photodynamic diagnostic technique (PDD) is a fluorescence-based optical imaging technology that uses photosensitive protoporphyrin analogues as contrast agents. PDD has been applied principally in bladder cancer through intravesical contrast administration. Other new technique is near-infrared fluorescence image-guided surgery (NIRF). Indocyanine green is a contrast agent for intraoperative imaging that absorbs and emits light in the near infrared portion of the electromagnetic spectrum. Actual studies have investigated the use of intraoperative NIRF imaging to enhance intraoperative decision-making in prostate cancer or renal cell cancer surgery. Optical coherence tomography is an optical biopsy technique that provides high-resolution, real-time, cross-sectional imaging of tissues for cystoscopy in bladder cancer, evaluation of kidney morphology and renal masses or detection of extraprostatic invasion in prostate cancer and identification of the neurovascular bundle during radical prostatectomy. Nowadays, confocal laser endomicroscopy (CLE) with fluorescein as the contrast agent enables real-time *in vivo* microscopy with the highest spatial resolutions among the optical imaging technologies. *In vivo* CLE is valuable especially for the evaluation of bladder cancer patients. Moreover, cancer-specific contrast agents can be hopeful as a molecular imaging technique for diagnosis of cancer. In the future, intraoperative optical imaging techniques will be more usable during urologic surgery.

Fehmi Narter, MD, PhD

Basic Research

Doi: 10.4274/jus.2018.05.006

Re: Nanotechnology in Urology

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Urol Clin North Am 2009;36:179-88. doi: 10.1016/j.ucl.2009.02.005.

EDITORIAL COMMENT

Nanomedicine is a new scientific revolution that interests in nanoscale materials for health science. At nanoscale, the physical properties of materials are changeable as well as their interactions with cells and tissue. Nanomedicine can be useful in the diagnosis and treatment of human diseases at cellular and molecular levels using engineered nanodevices and nanostructures. As an example of this imaging technique, the development of tumor-targeted contrast agents (such as superparamagnetic iron oxide and iron oxide nanoparticles) based on nanoscale materials are becoming more popular for the development of target-specific magnetic resonance imaging agents. Other applications on nanomedicine are detection of single nucleotide polymorphisms in genes related to cancer and genetic diseases. On the other hand, it can be promising for bacterial detection in many infection diseases. Moreover, application of nanotechnology for treatment are based on nanocarrier delivery of drugs for the treatment of urooncological diseases (such as nanocarrier-based delivery of anticancer drugs to tumor tissue) or nononcological diseases (such as treating erectile dysfunction with prostaglandin-E1). In the near future this technique can be used for delivery of genes (such as nanoparticle mediated gene transfection). The other logical idea about application of nanotechnology can be possible solution for tissue engineering in end-stage renal diseases or neobladder reconstruction. In the future, nanomedicine can provide many nanotechnological equipments for the diagnosis and treatment of urologic diseases.

Fehmi Narter, MD, PhD

Kidney Cancer

Doi: 10.4274/jus.2018.05.007

Re: Local Tumor Bed Recurrence Following Partial Nephrectomy in Patients with Small Renal Masses

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EDITORIAL COMMENT

Majority of incidentally detected kidney tumors in contemporary series are small renal masses. Partial nephrectomy (PN) is the preferred method of treatment for most of these patients depending on the patient's medical status given the operation is technically feasible. In patients with a solitary kidney and bilateral disease at presentation, the indication for PN may be extended into more technically challenging tumors in order to avoid renal replacement therapy. On the other hand, trading oncologic principles for quality of life might translate into higher recurrence and lower survival rates. The authors have retrospectively reviewed the charts of 2.256 patients treated for PN in M.D. Anderson Cancer Center between 2000 and 2014 to examine the incidence, characteristics and treatment of patients with tumor bed recurrence after PN. Tumor bed recurrence was strictly defined as detection of a new enhancing lesion in the surgical defect or in the same region as the PN site. They identified 44 (1.9%) patients with local tumor bed recurrence and compared these to 163 randomly selected patients without recurrence. Median time for recurrence was 23 months (range 2 to 107). A solitary kidney at PN, positive surgical margins, multiple tumors, higher nephrometry score, and higher pathological stage were associated with tumor bed recurrence. Technical refinements not to tip the balance between nephron preservation and adequate cancer control, and management and prognosis of patients with tumor bed recurrence are issues that need further consideration.

Özgür Yaycıoğlu, MD

Prostate Cancer

Doi: 10.4274/jus.2018.05.008

Re: Community-Based Outcomes of Open Versus Robot-Assisted Radical Prostatectomy

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EDITORIAL COMMENT

Robot-assisted radical prostatectomy (RARP) has been increasingly used as a minimally invasive technique for the surgical treatment of prostate cancer (PCa) in both academic- and community-based centers. Numerous retrospective studies with weak level of evidence have suggested superiority in surgical, oncologic and functional outcomes of RARP over open radical prostatectomy (ORP). Fewer have suggested otherwise. The majority of such studies have been based on data derived from high-volume academic medical centers. Only one prospective randomized study was published recently which demonstrated similar functional outcomes at 12 weeks for RARP and ORP (1). The authors of this study assessed surgical outcomes and urinary and sexual quality of life in patients undergoing ORP versus RARP. The study included patients enrolled in Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) who underwent radical prostatectomy between 2004 and 2016. CaPSURE is a mostly community-based large prospective PCa registry in the USA. Among 1892 men, 1137 underwent ORP, and 755 RARP. Surgical margin rates and 5-year biochemical recurrence-free survival rates were similar in both groups. Urinary and sexual quality of life outcomes were similar beyond 12 months. This study underlines the fact that, there is yet no high-level evidence suggesting superiority of RARP or ORP over the other for oncologic or quality of life outcomes.

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Özgür Yaycıoğlu, MD

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Mesenchymal Tumors of the Prostate

Prostatın Mezenkimal Tümörleri

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Introduction

Mesenchymal tumors of the prostate are seen relatively rare in comparison with epithelial tumors and constitute less than 1% of all tumors (1). Despite they are seen rarely, there are great numbers of lesions in the differential diagnosis of mesenchymal tumors. Since mesenchymal tumors of the prostate are seen rarely, pathologists have very limited experience in this regard. Additionally, mesenchymal tumors show morphologically significant overlap with epithelial tumors causing problem particularly in the differential diagnosis of spindle cell mesenchymal tumors and they frequently require ancillary methods for accurate diagnosis.

Patients are mostly middle-aged and older and they generally present to hospital with symptoms of nonspecific urinary system obstruction. Besides, hematuria and rectal distension may be the admission symptoms as well. Prostate abnormality can be observed during examination, and increased serum prostate-specific antigen can be detected. Any of these symptoms and findings may not be a specific clinical finding of mesenchymal tumors. Imaging methods are not always reliable to identify the nature of the lesion. Well-circumscribed lesions may not always be benign, for example some prostatic sarcomas show well circumscribed growth pattern. Infiltrative-circumscribed lesions are not always malignant tumors; some mesenchymal tumors, such as inflammatory myofibroblastic tumors (IMTs), are infiltrative-circumscribed in spite of benign nature.

Biopsy is necessary for diagnosis. However, diagnosis is difficult in cases where a very limited part of the tumor is sampled at transurethral resection or needle biopsy. Stromal tumors of uncertain malignant potential (STUMP) containing, especially, mesenchymal as well as epithelial components, may not be noticed and they may be diagnosed as benign prostate tissue or tumors containing pure spindle cell components can be mixed with stromal hyperplasia. There are numerous subtypes of mesenchymal tumors and the most commonly used categorization is the World Health Organization classification. This classification is summarized in Table 1 (2). Morphological and immunohistochemical characteristics of mesenchymal tumors of the prostate are given in Table 2 and 3.

Prostatic Stromal Tumors

Since histological patterns of tumors originating from the specialized prostatic stroma show wide spectrum, these tumors are classified into two different categories as prostatic STUMP and stromal sarcoma for making predictions about biological behavior and for treatment planning (3). Less than 100 cases of STUMP, which has been described by several names, such as atypical stromal hyperplasia, cystic epithelial-stromal tumor and phylloides, has been reported in the literature (3,4,5,6). STUMPs

Table 1. World Health Organization classification of mesenchymal tumors of the prostate

Stromal tumor of uncertain malignant potential
Stromal sarcoma
Leiomyosarcoma
Rhabdomyosarcoma
Leiomyoma
Angiosarcoma
Synovial sarcoma
Inflammatory myofibroblastic tumor
Osteosarcoma
Undifferentiated pleomorphic sarcoma
Solitary fibrous tumor
Solitary fibrous tumor, malignant
Haemangioma
Granular cell tumor

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have been reported to occur between the ages of 27 and 83 years with a peak incidence between 6th and 7th decades. They can be in the white, tan, solid or solid-cystic pattern (Figure 1) and up to 15 cm in size. STUMPs have been classified into four histologic patterns. The first pattern contains hypercellular stroma showing degenerative atypia with benign glands; the second pattern contains bland, fusiform stromal cells with eosinophilic cytoplasm with benign glands; the third pattern contains benign phylloides tumor-like hypercellular stroma with cytologically atypical/non-atypical benign glands and; the fourth pattern contains bland stromal cells in myxoid stroma without prostate glands (Figure 2). Recently, Sadimin and Epstein (7) described a novel round cell pattern. It shows CD34 (+), vimentin (+), progesterone (+), S100 (-) and C-kit (-) staining patterns, immunohistochemically. A large proportion of STUMPs has atypia and may imitate malignant lesions such as stromal sarcoma. However, absence of atypical mitosis and presence of degenerative appearance of atypical nuclei with benign prostate glands help distinguish it from malignant tumors. STUMP is typically indolent, and generally cured with complete resection (3,8). However, as sarcomatoid differentiation may occur rarely, close follow-up is required in cases where complete resection is not possible (1,3).

Prostatic stromal sarcoma (PSS) is a rare malignant neoplasm originating from specialized stromal prostatic cells. Less than 40 cases of PSS have been reported in the literature (1). PSS has been reported to occur between the ages of 25 and 86 years. Half of the cases were under 50 years of age. PSS may arise *de novo* or it may develop from a previous STUMP (5). Macroscopically, PSS is a tan-white, solid, fleshy tumor 2-18

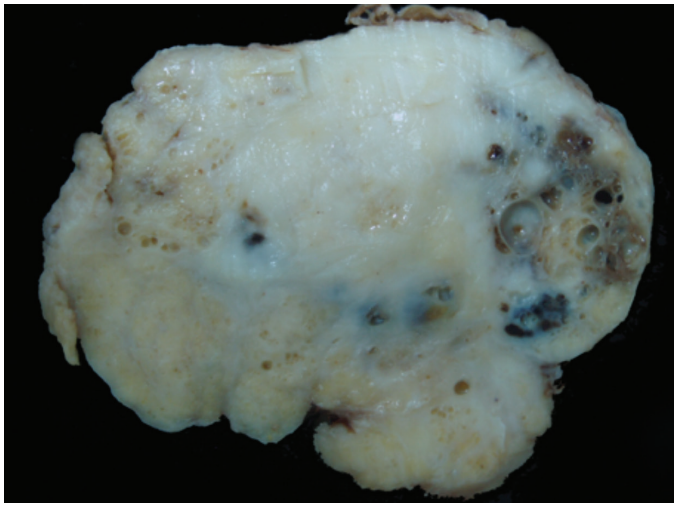

Figure 1. White-tan and solid-cystic pattern, well circumscribed stromal tumors of uncertain malignant potential

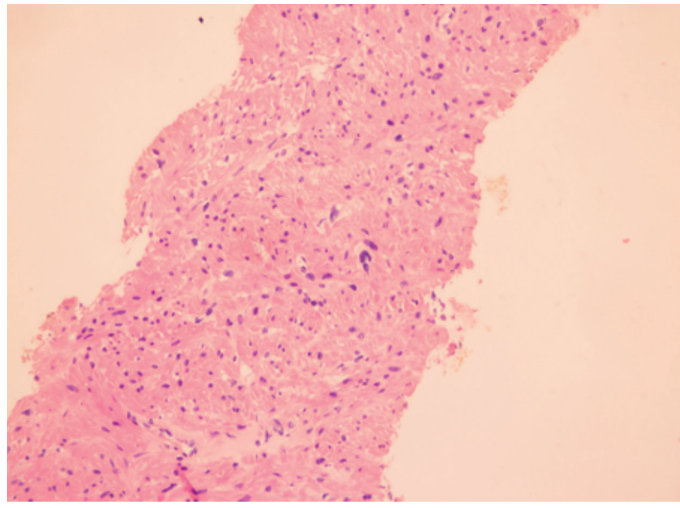

Figure 2. High magnification of a stromal tumors of uncertain malignant potential shows degenerative-appearing spindle cells in hypercellular stroma without glands

Table 2. Morphologic features of mesenchymal tumors of the prostate

	Morphological characteristic
STUMP	Four patterns: (1) Hypercellular stroma showing degenerative atypia with benign glands, (2) bland fusiform-shaped stromal cells with eosinophilic cytoplasm with benign glands, (3) benign phylloides tumor-like hypercellular stroma with cytologic atypical/non-atypical benign glands, (4) bland stromal cells in myxoid stroma without prostate glands
PSS	Hypercellularity, necrosis, cytologic atypia and mitosis; it is classified as low-grade and high-grade according to mitotic index and the degree of necrosis and atypia
Leiomyoma	Well-organized circumscribed crossing fascicles lacking mitotic activity and with little to no atypia
Leiomyosarcoma	Crossing fascicular structures showing mitoses, cytologic atypia, and necrosis
IMT	Uniform, reactive myofibroblasts on a loose zone with variable a level of inflammation and extravasation of red blood cells
SFT	Haphazard, patternless pattern, bland spindle cells, absence of mitosis, ropy collagen/hyalinizing deposits, myxoid changes and edema and sclerosis in the stroma
GIST	Fascicular growth pattern, bland spindle cells, perinuclear vacuoles. Some of the cases may show malignant features
RMS	Small round cells with variable eosinophilic cytoplasm, occasional elongated/strap cells, and, commonly, a myxoid background

STUMP: Stromal tumors of uncertain malign potential, PSS: Prostatic stromal sarcoma, IMT: Inflammatory myofibroblastic tumor, SFT: Solitary fibrous tumor, GIST: Gastrointestinal stromal tumor, RMS: Rhabdomyosarcoma

Table 3. Immunohistochemical features of mesenchymal tumors of the prostate

	SMA	Desmin	Myogenin	CD34	PgR	CD117	Pankeratin	ALK	S100	STAT6
STUMP	-/+	-/+	-	+	+	-	-	-	-	-
PSS	-/+	-/+	-	+	+	-	-	-	-	-
SMT	+	+	-	-	-	-	-/+	-	-	-
IMT	+	+	-	-	-	-	-/+	+	-	-
SFT	-/+	-	-	+	+/-	-	-	-	-	+
GIST	+/-	+/-	-	+	-	+	-	-	-	-
RMS	+	+	+	-	-	-	-	-	-	-
NT	-	-	-	-	-	-	-	-	+	-

STUMP: Stromal tumors of uncertain malign potential, PSS: Prostatic stromal sarcoma, SMT: Smooth muscle tumors, IMT: Inflammatory myofibroblastic tumor, SFT: Solitary fibrous tumor, GIST: Gastrointestinal stromal tumor, RMS: Rhabdomyosarcoma, NT: Neural tumors, SMA: Smooth muscle actin, PgR: Progesterone receptor, ALK: Anaplastic lymphoma kinase, STAT6: Signal transduction and activation of transcription 6

cm in size. Microscopically, it is similar to STUMP. Unlike STUMP, it exhibits marked increased cellularity, stromal cellular atypia, mitosis (which may be in atypical forms), and necrosis. The most common patterns are storiform, epithelioid, fibrosarcomatous, or patternless pattern. Less frequently, it consists of malignant phyllodes tumor-like hypercellular stroma and leaf-like glands. Its PSS storiform cell component consists of one or more of the followings: hypercellularity, cytologic atypia, mitotic figure and necrosis. It shows CD34 (+), vimentin (+), progesterone (+), S100 (-) and C-kit (-) staining pattern, immunohistochemically. In addition, PSSs are divided into two subgroups as low- and high-grade. High-grade tumors include moderate-evident cytologic atypia, hypercellularity, increased mitotic activity and necrosis. Low-grade PSSs are local invasive and high-grade ones metastasize mostly to the lung and bone, and usually require complete resection and adjuvant therapy (5).

Leiomyoma

Leiomyoma is seen rarely and less than 100 cases have been reported in the literature (9). Microscopically, they are non-atypical or less atypical tumors consisting of well-circumscribed crossing fascicular structures and having no mitotic activity. They are between 1 and 12 cm in size. Immunohistochemically, It differs from STUMP and gastrointestinal stromal tumor (GIST) by its smooth muscle actin (SMA) (+), desmin (+), C-kit (-) and CD34 (-) staining pattern.

Leiomyosarcoma

It is the most common sarcoma in the prostate in adults in the 5th to 8th decades of life (2,9). It is seen as poor-circumscribed infiltrative nodules between 1 and 25 cm in diameter. They are tumors composed of crossing-fascicular structures and they show mitosis, cytologic atypia and necrosis at high level. Immunohistochemically, it differs from other high-grade sarcomas by its SMA (+), desmin (+), h-caldesmon (+) S100 (-), C-kit (-) and CD34 (-) staining pattern. The clinical course of leiomyosarcomas is characterized by multiple recurrences and pulmonary metastasis. Most patients die within 3-4 years of diagnosis (2).

Gastrointestinal Stromal Tumor

GISTs develop from the rectum or perirectal region and keep the prostate as a secondary site by infiltrating or compressing. Although GISTs occur in the gastrointestinal system, small numbers of prostatic GISTs have been reported in the literature (10,11). They contain perinuclear vacuoles in fascicular growth pattern and consist of storiform and epithelioid cells. Immunohistochemically, they differ from other mesenchymal tumors by CD34 (+), C-kit (+), discovered on GIST-1 (+), desmin (+/-), SMA (+/-), CD31 (-) and S100 (-) staining. Since their response to imatinib treatment is very good, correct diagnosis is very important.

Rhabdomyosarcoma

It is the most common soft tissue sarcoma in children. It has been reported very rarely in adulthood (2,12). They are tumors composed of small round cells with scant cytoplasm and variable numbers of eosinophilic small round cells, and elongated cells with occasionally variable eosinophilic cytoplasm on a frequent myxoid zone. Immunohistochemically, they differ from other tumors by myogenic differentiation 1 (+), myogenin (+), desmin (+) myoglobin (+), muscle specific actin (+), keratin (-) and terminal deoxynucleotidyl transferase (-) staining pattern. They respond well to multimodality treatment in childhood, but metastasis occurs even if complete resection is performed. Approximately half of adults die within 2 years due to the disease (12).

Inflammatory Myofibroblastic Tumor

IMTs have been described by several names such as post-operative spindle cell nodules in the literature (13). Morphology, molecular features and clinical behavior of the lesions, which develop as *de novo* or after a lower genitourinary tract procedure, are similar. IMT has been reported to affect adults between the ages of 42 and 67 years. Most of them are smaller

than 1 cm in size. They are tumors composed of uniform, reactive myofibroblasts on a loose zone with variable level of inflammation and extravasation of red blood cells. It shows vimentin (+), anaplastic lymphoma kinase-1 (+), calponin (+/-), SMA (+/-), CD34 (-), C-kit (-), keratin (-) and S100 (-) staining patterns. Although many cases of incomplete resections have been reported, they behave in a benign fashion and there is one reported case of metastasis in the literature (8).

Solitary Fibrous Tumor

Solitary fibrous tumor (SFT) is a rare storiform cell neoplasia, which is seen on the pleura and peritoneum. The first reported case of SFT involving the prostate was one of 5 tumors in the lower urinary tract in 2000 year (14). Up to now, 20 cases of SFT involving the prostate have been reported (8). It has been reported that patients with prostatic SFT were between the ages of 21 and 75 years and the lesions were measured 2-14 cm in size. Microscopically, it is composed of storiform cells that do not form any pattern. The classical histological feature of these tumors is the "irregular order" appearance. It also contains thick collagen bands and hyalinizing vessels in the form of distinctly branched, deer horn. Immunohistochemically, it differs from other mesenchymal tumors by its CD34 (+), signal transduction and activation of transcription 6 (+), aldehyde dehydrogenase 1 (+), desmin (-), SMA (-), CD31 (-), S100 (-) and C-kit (-) staining pattern (15). Although most of the SFT show benign features, some of these tumors have malign characters which show high mitotic activity (greater than 4/10 high power fields), mild and evident nuclear pleomorphism, increased cellularity, necrotic or hemorrhagic areas. Four cases have been reported so far in the literature (16,17).

Other Lesions

Mesenchymal tumors which are not specific for prostate such as angiosarcoma, synovial sarcoma, osteosarcoma, undifferentiated pleomorphic sarcoma, haemangioma, granular cell tumor and neural tumors have been reported as rare cases (2).

Conclusion

Despite the fact that mesenchymal tumors of the prostate constitute less than 1% of all tumors, their differential diagnosis is difficult and includes a broad spectrum of conditions. For this reason, it is important that clinical and radiological findings are reported to pathologists and adequate biopsy specimens are obtained. In spite of all these, the differential diagnosis of mesenchymal tumors may be problematic and ancillary methods may be needed for accurate diagnosis.

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Keywords: Prostate, Mesenchymal tumor, Differential diagnosis

Anahtar Kelimeler: Prostat, Mezenkimal tümör, Ayırıcı tanı

Ethics

Peer-review: Externally peer-reviewed.

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