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Editorial

Dear Colleagues,

Our journal titled Grand Journal of Urology (Grand J Urol), whose foundation studies were completed by the end of 2020 was published in January 2021 by publishing its first issue and took its place among scientific journals in the field of urology. The journal aims to publish original scientific urological articles. It is an open access, peer-reviewed journal and will be published online three times a year (January, May and September) in English.

Our primary goal is to carefully evaluate the works of domestic and foreign authors, to take place in national and international reputable indexes with original and scientific articles, and to announce its name and content on scientific platforms.

One of the most important criteria in the long journey to an academic career in our country is the production of scientific articles. I believe that the recently applied associate professorship criteria and the subsequent professorship criteria will increase the production of scientific articles in our country. This increase will increase the demand for distinguished, rigorous and scientific journals. In this process, the Grand Journal of Urology (GJU) will play an important role in delivering written and visual scientific publications to academic platforms and contributing to urology. GJU will add a new impetus to academic activities with its unique style.

I am honored to present you the first issue of the Grand Journal of Urology (GJU) journal with the contributions of valuable researchers and scientists in a period when branch activities have decreased considerably due to the COVID-19 pandemic.

At the beginning of this journey of our journal, I would like to express my wholehearted gratitude to the very valuable members of the Urology Community, my colleagues, my friends and my dear wife, who always supported us, our authors who contribute to our journal with original articles, review articles, case reports, clinical images and letters to the editor, our reviewers who meticulously evaluate the articles and present their support, our designers, and our publisher.

January 2021
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Factors Affecting TESE Success in Infertility Treatment: Preliminary Results of Single-Center Experience

İnfertilite Tedavisinde TESE Başarısını Etkileyen Faktörler: Tek Merkez Deneyimi Ön Sonuçları

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Abstract

Objective: Today, infertility is a health problem with increasing treatment seeking. Testicular sperm extraction (TESE) is the only possible procedure to offer genetic parenting to men with nonobstructive azoospermia (NOA). Our aim in this study is to present our clinical experiences that affect the success of sperm retrieval in men with NOA in the light of the literature.

Materials and Methods: In our study, patients who underwent TESE with a diagnosis of NOA between 2017-2020 were retrospectively analyzed. According to the TESE procedure; the patients were divided into two groups as conventional TESE and TESE performed under microscopic magnification (micro-TESE). Medical histories, hormone values, and physical examination findings of all patients were recorded.

Results: Our micro-TESE success rate was found to be 100%. A positive correlation (ρ 0.714, $p = 0.009$) was found between the factors affecting sperm retrieval, and the application of micro-TESE, and a negative correlation was detected with FSH levels (ρ -0.759, $p = 0.004$).

Conclusion: The success of sperm retrieval increases with the micro-TESE procedure. As FSH levels increase, sperm retrieval success rates decrease.

Keywords: infertility, nonobstructive azoospermia, testicular sperm extraction, TESE

Öz

Amaç: İnfertilite günümüzde tedavi arayışları artan bir sağlık sorunudur. Testiküler sperm ekstraksiyonu (TESE), nonobstrüktif azospermi (NOA) olan erkeklere genetik ebeveynlik sunmak için mümkün olan tek prosedürdür. Bizim bu çalışmamızdaki amacımız NOA'si olan erkeklerde sperm bulma başarısına etki eden klinik deneyimlerimizi literatür eşliğinde sunmaktır.

Gereç ve Yöntemler: Çalışmamızda 2017-2020 yılları arasında NOA tanısı ile TESE uygulanmış hastalar retrospektif olarak incelendi. TESE işlemine göre; geleneksel TESE ve mikroskop altında yapılan TESE (mikro-TESE) olarak iki gruba ayrıldı. Tüm hastaların tıbbi hikayeleri, hormon değerleri, fizik muayeneleri kayıt altına alındı.

Bulgular: Mikro-TESE başarılarımız %100 olarak saptandı. Sperm elde edilmesine etki eden faktörler olarak; mikro-TESE uygulanması ile pozitif yönde (ρ 0,714, $p=0,009$), FSH seviyeleri ile de negatif yönde (ρ -0,759, $p=0,004$) bir ilişki saptandı.

Sonuç: Sperm elde edilme başarısı Mikro-TESE işlemi ile artırmaktadır. FSH seviyeleri yükseldikçe sperm elde etme başarı oranları ise azalmaktadır.

Anahtar kelimeler: infertilite; nonobstrüktif azospermi; testiküler sperm ekstraksiyonu, TESE

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Introduction

The World Health Organization (WHO) defines infertility as the inability of a sexually active couple to have spontaneous pregnancy despite unprotected sexual intercourse in the last 1 year [1]. Infertility affects approximately 15% of all couples. In previous studies on the male and female factors, mostly the female factor was prioritized. Although it is stated that 50% of infertility is caused by the female factor and 50% by the male factor, in fact many couples have male and female infertility factors in combination. In the evaluation of male infertility semen analysis plays an important role. Azoospermia, defined as the absence of sperm cells in semen analysis, is responsible for approximately 10-15% of cases with male infertility. Approximately 60% of azoospermic patients have non-obstructive azoospermia (NOA). A disorder in the stages of spermatogenesis of these patients is thought to constitute the underlying pathology [2].

Testicular sperm extraction (TESE) is the possible procedure to offer genetic parenting to men with nonobstructive azoospermia (NOA) [3]. Spermatozoa can be taken directly from the testis in TESE and used for intracytoplasmic sperm injection (ICSI). The first successful fertilization and pregnancy by obtaining spermatozoa from the testis were reported in 1993 [4]. Looking at the current literature, TESE achieves success rates of 100% for men with obstructive azoospermia (OA) and 56% for men with NOA [5–9]. Many predictive factors have been identified that affect the success rates of TESE, such as levels of follicle stimulating hormone (FSH), luteinizing hormone (LH), testicular volume, and

the application of microscopic TESE (micro-TESE) [10].

Our aim in this study is to present our clinical experiences that affect the success rates of sperm retrieval in men with NOA in the light of the literature.

Materials and Methods

In our study, patients who underwent TESE with a diagnosis of NOA between 2017-2020 were retrospectively analyzed. The procedures applied in this study are in line with the ethical standards of the institutional research committee. Local ethics committee approval was obtained for the study (Approval Number: 2020/255). Informed consent forms were obtained from all patients before the procedure.

The diagnosis of NOA was confirmed by 2 consecutive semen analysis, medical history, physical examination, follicle stimulating hormone (FSH), luteinizing hormone (LH), and total testosterone levels. Medical history, physical examination, FSH, LH, total testosterone, prolactin values and pathology results of the patients who had TESE were taken from the hospital information management system retrospectively. Testicular volumes of the patients were measured using a Prader orchidometer (ASSI, Westbury, NY, USA). A decrease in testicular volume greater than 2 standard deviations between the evaluated testis and the normal age-matched population was considered as atrophic testis.

Table 1. Comparison of TESE in patients with and without sperm yield

	Group 1 (sperm +) n=7	Group 2 (sperm -) n=5	p
Age (years) (mean ± SD)	34 (27 – 38)	35 (32 – 39)	0.623
Infertility period (months) (median, min.-max.)	48 (36 – 120)	36 (18 – 180)	0.159
FSH IU/L (median, min.-max.)	5.62 (1.75 – 13.17)	19.62 (8.16 – 45.97)	0.012
LH IU/L (median, min.- max.)	6.43 (2.64 – 8.59)	6.38 (4.17 – 11.31)	0.465
Total Testosterone ng/dL (median, min.-max.)	3.15 (2.07 – 5.79)	4.89 (2.92 – 5.72)	0.223
Prolactin (median, min.-max.)	9.74 (6.31 – 22.66)	7.60 (5.89 – 10.89)	0.223
Smoking	Yes n (%)	2 (28.6)	0.470
	No n (%)	5 (71.4)	
Physical Examination Findings of the Testes	Normal n (%)	4 (51.7)	0.293
	Atrophic testis n (%)	3 (42.9)	
Previously Applied Assisted Reproductive Treatment Methods	Yes n (%)	3 (42.9)	1.000
	No n (%)	4 (51.7)	
TESE Methods	Conventional TESE n (%)	2 (28.6)	0.028
	Micro-TESE n (%)	5 (71.4)	

FSH: follicle stimulating hormone; LH: luteinizing hormone; TESE: testicular sperm extraction; Micro-TESE: microsurgical testicular sperm extraction

Table 2. Correlation analysis between factors affecting sperm detection rates and positivity of sperm detection

		Age	Infertility period	Smoking	Atrophic testis	Micro-TESE application	FSH	LH	Prolactin	Total Testosterone
Positivity of sperm detection	Rho	-0.148	0.424	0.378	-0.371	0.714**	-0.759**	-0.220	0.367	-0.367
	p	0.646	0.169	0.226	0.235	0.009	0.004	0.491	0.240	0.240
	n	12	12	12	12	12	12	12	12	12

FSH: follicle stimulating hormone; LH: luteinizing hormone; TESE: testicular sperm extraction; Micro-TESE: microsurgical testicular sperm extraction

Two methods were applied to the patients, namely, conventional (traditional) TESE (testicular sperm extraction performed with open surgical method without using any auxiliary enlargement tools and equipment) and micro-TESE (testicular sperm extraction performed by using OPMI VARIO/S88 System, Karl Zeiss microscope-assisted 20 x magnification). Whether sperm was obtained or not after the procedure was noted and pathology samples were taken from the testis. Patients with incomplete information, chromosomal disorders such as Klinefelter syndrome and Sertoli cell only syndrome were excluded from the study.

Statistical Analysis

For statistical analyses, IBM SPSS version 22.0 (SPSS Inc, Chicago, IL) for Windows was used. Descriptive data were defined as number, percentage, mean, standard deviation, median, minimum and maximum. The normality of distribution of data was tested with the Kolmogorov-Smirnov test. Mann-Whitney U test was used for the analysis quantitative data that did not show normal distribution. For qualitative data, chi-square test, and when chi-square assumptions were not met, Fisher's exact test was used. Spearman correlation analysis was used to evaluate the factors affecting sperm detection. The results were expressed within 95% confidence interval and $p < 0,05$ was considered statistically significant.

Results

A total of 17 patients who underwent TESE were included in our study. The mean age of the patients was 33.35 ± 3.96 years. The duration of primary infertility was 53.29 ± 41.94 months. Pathology result was reported as Sertoli –cell only syndrome in 5 patients and they were excluded from the study. A total of 12 patients with sperm maturation disorders were included in the study. No postoperative complications were observed in any patient.

The patients were divided into two groups according to sperm retrieval in TESE procedure; Group 1 was Sperm (+) and Group 2 was Sperm (-). Clinical and laboratory findings of both groups were compared and the results are given in **Table 1**; A statistical

difference was found between the groups in terms of FSH levels and TESE methods used. While the median FSH value in Group 1 (minimum - maximum) was 5.62 (1.75 - 13.17), this value was found to be statistically significantly higher in Group 2 (9.62 (8.16 - 45.97) ($p = 0.012$)). Micro-TESE application was effective in achieving successful results in Group 1 ($p = 0.028$). Sperm was found in all 5 patients who underwent micro-TESE and its success rate was 100%.

When the correlation analysis of the factors affecting sperm retrieval is examined; a positive relationship with micro-TESE application ($\rho = 0.714$, $p = 0.009$) and a negative relationship with FSH levels ($\rho = -0.759$, $p = 0.004$) were detected. A statistically significant relationship was not found with other parameters (**Table 2**).

Discussion

Today, diagnosis and treatment rates of infertility are increasing. This case raises a successful assisted reproductive technology centers and foreground. It is stated that female and male factors are responsible at similar rates in infertility. Azoospermia, defined as the absence of sperm cells as a male factor, is responsible for approximately 10-15% of the cases with male infertility. Approximately 60% of azoospermic patients have non-obstructive azoospermia (NOA). Testicular sperm extraction (TESE) is the only possible procedure to offer genetic parenting to men with nonobstructive azoospermia (NOA) [3]. Patients with NOA have a higher sperm retrieval rate in microdissection TESE (micro-TESE) application compared to conventional TESE [3]. Sertkaya et al. [3] reported a 78.3% success rate in 60 patients they applied micro-TESE. Ortaç et al. [10] stated that they obtained sperm with a success rate of 46.7% with micro-TESE in a total of 379 patients. In other studies, the success rates of this procedure ranged between 42.9, and 63% [5–9,11–13]. Patients with Sertoli cell -only syndrome and those with Klinefelter syndrome were included in these studies. In our study, the success rate of micro-TESE was 100%. The low number of patients, exclusion of patients with Sertoli cell -only syndrome and those with genetic anomalies such as Klinefelter syndrome from our study may be the reason for our high success rates. In accordance with the literature, we can say

that micro-TESE application increases the success rates of sperm retrieval compared to conventional TESE procedure.

When other factors affecting success rates are examined; many studies in the literature have indicated that the success rates of micro-TESE increase in direct proportion to testicular volume [10,14,15]. The limit testicular volumes that reduce the chance of sperm retrieval were reported by various authors as < 8 ml (Marconi et al. [16]), < 4ml (Bromage et al. [17]) and < 5.7 ml (Ziaee et al. [18]). Bryson CF et al. [19], on the other hand, stated that spermatozoa will be found in testes with volumes less than 2 ml. In our study, due to the low number of patients, testicular volume measurement was grouped only according to the presence or absence of atrophy, and the effect of atrophic testis on sperm retrieval was not investigated.

FSH is stated to be another factor that affects success of TESE. FSH has an important role in the regulation of spermatogenesis due to its effect on germ cells responsible for spermatogenesis. In the literature, the cut-off FSH value for the presence of sperm in the TESE procedure has not been shown [14]. Bernie et al. [8] found higher FSH levels such as 19.7 ± 12.8 IU / L in patients with, and 25.3 ± 15.5 IU / L in patients without testicular sperm. In studies investigating the cut-off value of FSH, Ramasamy et al. [20], and Souza et al. [15] reported that sperm retrieval rates decreased in patients with FSH levels <15 IU / L, and <17 IU / L, respectively. In our study, we found that the median FSH value (19.62 IU / L) in patients who could not yield sperm was higher than the FSH median value (5.62 IU / L) of the patients in whom sperm retrieval was realized. Our findings were consistent with the literature. We showed that FSH levels have a prognostic value in predicting sperm retrieval, and correlation analysis has demonstrated that the success rates of sperm retrieval decrease as the FSH levels increase.

Our study has some limitations. In this study, we examined a relatively small number of patients. We did not include a control group in the study as in similar publications. Not mentioning the amount of sample retrieved by micro-TESE or whether unilateral or bilateral TESE was performed may be the limitation of our study.

Conclusion

It is possible to retrieve sperm with TESE in cases with nonobstructive azoospermia. Micro-TESE procedure increases the success rates of sperm retrieval. As FSH levels increase, success rates of sperm retrieval decrease. The results should be supported by prospective studies performed in large patient groups.

Ethics Committee Approval: The study was approved by Hitit University Faculty of Medicine Clinical Research and Ethics Committee, Corum, Turkey (Decision No: 2020/255).

Informed Consent: An informed consent was obtained from all the patients.

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M.D.; Design – A.B., M.I.O., M.D.; Supervision – A.B., M.Y., M.M.B.; Resources – A.B., M.I.O., M.D., M.E., M.Y.; Materials – A.B., M.I.O., M.D., M.E., M.Y.; Data Collection and/or Processing – A.B., M.I.O., M.D., M.E., M.Y.; Analysis and/or Interpretation – A.B., M.I.O., M.D., M.E., M.Y.; Literature Search – A.B., M.I.O., M.D., M.E., M.Y.; Writing – A.B., M.I.O., M.D., M.E.; Critical Review – A.B., M.Y., M.M.B.

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The Evaluation of Platelet Volume Indices in Patients with Varicocele

Varikoseli Olan Hastalarda Trombosit Hacim İndekslerinin Değerlendirilmesi

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Abstract

Objective: Varicocele is the abnormal venous dilatation and the tortuosity of the pampiniform plexus. Varicocele has been shown to be related with systemic varicosity in some studies. Platelet volume indices have also been reported to increase in vascular disorders. In this study, we aimed to determine if complete blood count (CBC) parameters especially platelet counts and volume indices could be a practical tool in the diagnosis and follow-up of varicocele.

Materials and Methods: The medical records of all patients who underwent varicocelectomy due to grade 2 or 3 clinical varicocele were reviewed. Examined parameters included patient demographic characteristics and preoperative CBC parameters [hemoglobin, white blood cell, platelet, mean platelet volume (MPV) and platelet distribution width (PDW)]. Patients without varicocele, active infection and vascular disorders constituted the control group.

Results: The study population consisted of 61 patients with varicocele and 62 control subjects. The mean age of the patients was 28.6 ± 6.2 years. Mean preoperative hemoglobin, WBC, platelet, MPV and PDW were 15.5 ± 1 g/dL, $7.5 \pm 1.6 \times 10^3/\mu\text{L}$, $(236 \pm 53.4) \times 10^3/\mu\text{L}$, 9.3 ± 1.1 (fL) and 15.2 ± 3.9 (%), respectively. There was no difference between patients with varicocele and control subjects in terms of age, mean preoperative Hb, WBC and MPV. However, mean preoperative platelet count was significantly lower and mean PDW was significantly higher in varicocele patients compared to controls ($p < 0.05$).

Conclusion: We found that PDW is significantly higher in varicocele patients compared to controls. Thus, PDW might be a practical tool in the confirmation of varicocele diagnosis and also be utilized at follow-up after varicocelectomy.

Keywords: varicocele, platelet, blood, CBC

Öz

Amaç: Varikosel, anormal venöz genişleme ve pampiniform pleksusun tortiyoz olmasıdır. Bazı çalışmalarda varikoselin sistemik varikosite ile ilişkili olduğu gösterilmiştir. Trombosit hacim indekslerinin de vasküler bozukluklarda arttığı bildirilmiştir. Bu çalışmada, tam kan sayımı (CBC) parametrelerinin, özellikle trombosit sayısı ve hacim indekslerinin varikosel tanı ve takibinde kullanılıp kullanılmayacağını belirlemeyi amaçladık.

Yöntem ve Gereçler: Grade 2 veya 3 klinik varikosel nedeniyle varikoselektomi yapılan tüm hastaların tıbbi kayıtları gözden geçirildi. İncelenen parametreler hasta demografiklerini, ameliyat öncesi CBC parametrelerini [hemoglobin, beyaz kan hücresi, trombosit, ortalama trombosit hacmi (MPV) ve trombosit dağılım genişliğini (PDW)] içeriyordu. Kontrol grubu varikoseli, aktif enfeksiyonu ve damar rahatsızlığı olmayan hastalardan oluşturuldu.

Bulgular: Çalışmaya 61'i varikoselli ve 62'si kontrol olmak üzere 123 hasta dahil edildi. Hastaların ortalama yaşı 28.6 ± 6.2 yıldır. Ortalama preoperatif hemoglobin, WBC, trombosit, MPV ve PDW sırası ile $15,5 \pm 1$ g/dL, $7,5 \pm 1,6 \times 10^3/\mu\text{L}$, $(236 \pm 53,4) \times 10^3/\mu\text{L}$, $9,3 \pm 1,1$ (fL) ve $15,2 \pm 3,9$ (%) idi. Yaş, ameliyat öncesi Hb, Wbc ve MPV açısından varikoseli olan hastalarla kontroller arasında fark yoktu. Bununla birlikte, kontrollere göre varikosel hastalarında ameliyat öncesi ortalama trombosit sayısı anlamlı olarak düşüktü ve ortalama PDW anlamlı olarak yüksekti ($p < 0.05$).

Sonuç: Varikosel hastalarında PDW'nin kontrollere göre anlamlı olarak daha yüksek olduğunu bulduk. Bu nedenle PDW, varikosel tanısının doğrulanmasında pratik bir araç olabilir ve aynı zamanda varikoselektomi sonrası takipte de kullanılabilir.

Anahtar Kelimeler: varikosel, platelet, kan

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Introduction

Varicocele is a disease characterized by abnormal enlargements in the testicular vein and pampiniform plexus caused by various factors [1]. Varicocele is found in about 15% of men and represents the primary cause of male infertility in 35% of cases [2]. The etiology of varicocele is multifactorial and the pathogenic mechanisms of varicocele are unclear, but varicocele may lead to increased venous pressure, high testicular temperature, oxidative stress, hypoxia and ultimately testicular damage [3]. According to previous studies, it is known that oxidative stress enhances vascular inflammation, which plays an important role in the progression of atherosclerotic disease [4]. Varicocele is a vascular disease and causes local and / or systemic inflammation [5]. In addition, a systemic vascular varicosity was positively correlated with varicocele [6]. Changes in platelet function caused by vascular damage can be associated with varicocele [2].

In this study, we aimed to determine if complete blood count (CBC) parameters especially platelet count and volume indices could be a practical tool in the diagnosis and follow-up of varicocele.

Materials and Methods

After obtaining institutional review board approval (Approval Number: 2018/29620911-929), the medical records of all patients who underwent varicocelectomy due to grade 2 or 3 clinical varicocele in Türkiye Yüksek İhtisas Training and Research Hospital between 2014 and 2018 were retrospectively reviewed. Patients who underwent unilateral varicocelectomy without any active infection constituted the patient group. Patients admitted to outpatient clinic with a complaint other than infertility or scrotal pain without varicocele, active infection, inflammatory disease and vascular disorders constituted the control group.

Statistical Analysis

IBM SPSS statistical package programme v.21 for Mac (Armonk, NY, USA) was used. Quantitative variables were given as mean \pm standard deviation and qualitative values were shown in numbers and percentages. Comparison of variables between two groups was made by using Mann-Whitney U tests. Statistical significance was set as $P < 0.05$.

Results

The study included 61 patients with varicocele and 62 control subjects. The mean age of the patients was 28.6 ± 6.2 years. Mean preoperative hemoglobin, WBC, platelet, MPV and PDW values were 15.5 ± 1 g/dL, $7.5 \pm 1.6 \times 10^3/\mu\text{L}$, $236 \pm 53.4 \times 10^3/\mu\text{L}$, 9.3 ± 1.1 (fL) and 15.2 ± 3.9 (%), respectively. There was no difference between patients with varicocele and controls in terms of age (28 ± 6.8 vs 29.1 ± 5.5 years), mean preoperative Hb (15.6 ± 0.9 vs. 15.4 ± 1.1 g/dL), WBC (7.4 ± 1.6 vs $7.6 \pm 1.6 \times 10^3/\mu\text{L}$) and MPV (9.3 ± 1.1 vs 9.4 ± 1 fL). However, mean preoperative platelet count was significantly lower and mean PDW was significantly higher in varicocele patients compared to controls ($p=0.006$ and $p=0.001$, respectively) (Table 1).

Discussion

Underlying pathogenesis of varicocele can be related to increased pressure in the pampiniform venous plexus and venous drainage [7]. Many studies have been conducted in the literature to elucidate the exact etiology of varicocele. In the literature, it is reported that the presence of large platelets is a possible risk factor for the diseases and the conditions such as testicular torsion, varicocele, stroke, myocardial infarction and angina, coronary artery atherosclerosis, malignancy, ulcerative colitis, familial Mediterranean fever, Alzheimer's disease and Behçet's disease [5]. Most of the mediators necessary for coagulation, inflammation, thrombosis and atherosclerosis are secreted by platelets [8].

Table 1. Comparison of age and complete blood count variables of varicocele patients and the control group

Variables	Varicocele (n=61)	Control (n=62)	P value
Age (yr)	28 \pm 6.8	29.1 \pm 5.5	0.096
Mean Preoperative Hb (g/dL)	15.6 \pm 0.9	15.4 \pm 1.1	0.455
Mean Preoperative WBC $\times 10^3/\mu\text{L}$	7.4 \pm 1.6	7.6 \pm 1.6	0.482
Mean Preoperative PLT $\times 10^3/\mu\text{L}$	222 \pm 47	249 \pm 56	0.006
Mean Preoperative MPV (fL)	9.3 \pm 1.1	9.4 \pm 1	0.419
Mean Preoperative PDW (%)	16.2 \pm 4.5	14.2 \pm 2.8	0.001

Hb: hemoglobin; WBC: white blood cell; PLT: platelet; MPV: mean platelet volume; PDW: platelet distribution width

Vascular change and platelet indices may be useful for detecting or screening subclinical varicocele [2]. Platelet indices such as mean platelet volume (MPV), platelet distribution width (PDW) and thrombocytocrit (PCT) are standard indicators of platelet function in the pathophysiology of diseases [9]. MPV is an important marker of platelet size and activation. However, the results of the studies on this subject in the literature are contradictory. In a study by Cüce et al., MPV values were found to be significantly higher in patients with varicocele than those without ($P = 0.010$), but no statistically significant relationship was found between grade of varicocele and MPV and RDW values [4]. Bozkurt et al. stated that the increase in MPV was due to the varicocele disease and that the increase in the degree of varicocele was associated with higher MPV in varicocele patients [8]. In concordance with the aforementioned studies Coban et al. found that MPV values were significantly higher in the varicocele group, and platelet and PDW values were significantly lower than in the control group [1]. In another study, in contrast with our study, when the platelet (PLT), MPV, PCT and PDW values of the varicocele and the non-varicocele groups were compared, a significant increase was observed in MPV ($p = 0.003$), but no

difference was observed in the platelet count or platelet indices [3].

In another study by Polat et al., platelet counts or indices represented no difference between the groups with and without varicocele in terms of MPV, PDW and PCT [9]. Mahdavi et al. found that platelet volume indices [PVI (MPV, PDW, and P-LCR)] was higher in varicocele patients compared to normal healthy controls [10]. In our study, no significant difference was observed between the groups with and without varicocele in terms of MPV, while the mean preoperative PDW value was found to be significantly higher in those with varicocele.

Our study is also not without limitations. One of the main limitations of the study is that the study is its retrospective design. In addition, the small number of patients and the fact that we did not measure other platelet indices like (platelet-large cell ratio (PLCR) and platelet-large cell concentration (PLCC) and platelet activation markers such as beta-thromboglobulin and platelet factor IV might be considered among the other limitations of our study.

Conclusion

We found that PDW is significantly higher in varicocele patients compared to controls. Thus, PDW might be a practical tool in the diagnostic confirmation of varicocele and also be utilized at follow-up after varicocelectomy.

Ethics Committee Approval: The study was approved by Higher Specialization Training and Research Hospital Medical Specialty Education Board (TUEK), Cankaya, Ankara, Turkey (Decision No: 15 March, 2018/29620911-929).

Informed Consent: An informed consent was obtained from all the patients.

Publication: The results of the study were not published elsewhere in full or in part in form of abstracts.

Peer-review: Externally peer-reviewed.

Authorship Contributions: Any contribution was not made by any individual not listed as an author. Concept – M.Y., M.K., C.C., S.T.; Design – M.Y., M.K., C.C., S.T.; Supervision – M.Y., M.K., C.C., S.T.; Resources – M.Y., M.K., C.C., S.T.; Materials – M.Y., M.K., C.C., S.T.; Data Collection and/or Processing – M.Y., M.K., C.C., S.T.; Analysis and/or Interpretation – M.Y., M.K., C.C., S.T.; Literature Search – M.Y., M.K., C.C., S.T.; Writing – M.Y., M.K., C.C., S.T.; Critical Review – M.Y., M.K., C.C., S.T.

Conflict of Interest: The authors declare that they have no conflict of interest.

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False Penile Fracture: Case Series and Literature Review

Yalancı Penil Fraktür: Olgu Serisi ve Literatürün Gözden Geçirilmesi

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Abstract

Objective: Penile fracture is one of the urological emergencies that require early surgical intervention. False penile fracture, on the other hand, is a condition that presents with similar clinical features and can be treated conservatively. In this study, in the light of the literature, it was aimed to present the clinical and operative results of 8 patients who were operated on with a prediagnosis of penile fracture and then diagnosed with a false penile fracture.

Material and Methods: Data of 8 patients who were diagnosed with a false penile fracture between January 2006 and September 2019 were retrospectively analyzed. Patients' demographic characteristics, preoperative, intraoperative and postoperative data were retrospectively analyzed.

Results: Mean age of the patients was 39.12 (28-54) years. The most common complaints were penile swelling and ecchymosis. The most common etiological factors were as follows: sexual intercourse in 6, masturbation in 1, and manual bending of the erect penis in 1 patient. All operations were performed by degloving the penis from the circumcision line. Superficial dorsal vein injury was detected in 6, and nonspecific dartos bleeding was detected in 2 patients. There were no intraoperative complications. Wound site infection developed in 1 patient postoperatively. No erectile dysfunction, penile curvature, and sensory disturbances were detected in any patient.

Conclusion: It is difficult to distinguish a false penile fracture from true penile fracture clinically or radiologically. False penile fracture can be treated conservatively without the need for surgery. Surgery should still be the first-line treatment option in suspected patients. Studies with larger patient series are needed on this subject.

Keywords: superficial dorsal penile vein, false penile fracture, penile fracture, tunika albuginea

Öz

Amaç: Penil fraktür erken cerrahi müdahale gerektiren ürolojik acillerden biridir. Yalancı penil fraktür ise benzer klinik özelliklerle prezente olan konservatif olarak tedavi edilebilen bir durumdur. Bu çalışmada penil fraktür ön tanısı ile opere edilen ve yalancı penil fraktür tanısı konulan 8 hastanın klinik ve operatif sonuçlarının literatür eşliğinde sunulması amaçlandı.

Gereç ve Yöntemler: Ocak 2006 ve Eylül 2019 tarihleri arasında yalancı penil fraktür tanısı alan 8 hastanın verileri retrospektif olarak incelendi. Hastaların demografik özellikleri, operasyon öncesi, intraoperatif ve postoperatif verileri retrospektif olarak değerlendirildi.

Bulgular: Hastaların ortalama yaşı 39.12 (28-54) yıl idi. En sık başvuru şikayeti peniste şişlik ve morarmaydı. En sık saptanan etyolojik faktör 6 hastada cinsel ilişki, 1 hastada masturbasyon, 1 hastada penisin ereksiyonda bükülmesiydi. Tüm operasyonlar sirkümsizyon hattından penisin deglove edilmesi ile yapıldı. 6 hastada yüzeysel dorsal ven yaralanması, 2 hastada ise nonspesifik dartos kanaması tespit edildi. İntraoperatif bir komplikasyon saptanmadı. Operasyon sonrası 1 hastada yara yeri enfeksiyonu gelişti. Hiç bir hastada erektil disfonksiyon, penil kurvatur ve his bozukluğu saptanmadı.

Sonuç: Yalancı penil fraktürün gerçek penil fraktürden klinik veya radyolojik olarak kesin olarak ayırt etmek zordur. Yalancı penil fraktür cerrahi gereksinimi olmadan konservatif olarak tedavi edilebilir. Şüpheli hastalarda cerrahi halen ilk basamak tedavi olmalıdır. Bu konuda daha fazla sayıda hasta serileri ile yapılacak çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: yüzeyel dorsal penil ven, yalancı penil fraktür, penil fraktür, tunica albuginea

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Introduction

A true penile fracture is the occurrence of a tunical tear as a result of blunt trauma to the penis, usually during sexual intercourse or masturbation. It is an emergency that requires timely repair of the tear in the tunica albuginea. Otherwise, there may be consequences such as erectile dysfunction, chronic pain, corporal fibrosis and penile curvature in the long term [1].

In some patients, no tear is observed in the tunica albuginea during surgery. There may be penile ecchymosis or hematoma secondary to the rupture of the superficial veins of the penis. This condition is called a false penile fracture and amounts to 5-52% of clinically diagnosed penile fractures [2].

The characteristic symptoms of a penile fracture include ecchymosis and swelling of the penile body following a cracking sound, penile pain, and immediate detumescence [3]. However, history and physical examination can be inaccurate in 15% of patients with suspected penile fracture [4]. Preoperative detection of false penile fracture cases bears great importance. In these cases, morbidity can be avoided by refraining from performing unnecessary surgical interventions, and successful results can be obtained conservatively.

In this study, in the light of the literature, it was aimed to present the clinical and operative results of 8 patients who were operated on with a prediagnosis of penile fracture and then diagnosed with a false penile fracture in the light of the literature.

Materials and Methods

Local ethics committee approval was obtained prior to study (Approval Number: 2020/525). Out of 101 patients operated with a prediagnosis of penile fracture between January 2006 and September 2019, the medical records of 8 (7.9%) patients who were diagnosed with a false penile fracture after the examination of the operative reports were evaluated retrospectively. The diagnosis of false penile fracture was made based on the detection of injury to the artery, vein, ligament and nonspecific dartos structures that caused bleeding other than the tear in the corpus cavernosum during surgical exploration. Stab injuries to the penis were excluded. Patients who had a tunical tear detected on preoperative magnetic resonance imaging (MRI), but surgical exploration did not reveal a tunical tear were considered as having false penile fracture. Patients' demographic characteristics (age, etiologic factors), clinical symptoms, physical examination, and radiological findings, intraoperative and postoperative data were recorded.

All patients were urgently operated. A circumcision line incision was preferred in all surgical operations. After the evacuation of hematoma, tunical leakage was evaluated by establishing an artificial erection with intracorporal saline injection. The 2.0 and 3.0 absorbable sutures were preferred for ligation of arteries and veins causing bleeding. Urethral 16Fr-18Fr Foley catheters were inserted in all patients following the operation and then removed on postoperative day one. For dressing, Coban™ self-adhesive wraps were applied to all patients and removed on postoperative day three. Sexual intercourse and masturbation were banned for 6 weeks postoperatively. The patients were evaluated in terms of postoperative history, physical examination, erectile function

and cosmetic appearance. History of erectile dysfunction (ED), medical treatment for ED, penile deformity, curvature, fibrotic nodules and penile sensation were questioned and evaluated. This study was carried out in accordance with the ethical principles of the Declaration of Helsinki after local ethics committee approval was obtained. Written informed consent was obtained from all patients participating in the study.

Statistical Analysis

All statistical analyses were performed with SPSS 22.0 version (SPSS Inc, Chicago, IL) package program. While evaluating the research data, descriptive statistical methods (mean, frequency, and ratio) were used.

Results

The mean age of the patients was 39.12 (28-54) years. All patients' physical examination findings revealed penile swelling and ecchymosis, and two patients had suprapubic and scrotal ecchymosis in addition to the penile region. The eggplant deformity was present in only one patient during the penile examination of the patients with false penile fractures. In one patient, the complaint of cracking sound and gradual tumescence was prominent. The causes of false penile fractures were sexual intercourse in 6 (75%) masturbation in 1 (12.5%) and manual bending of the penis in 1 (12.5%) patient. The average time interval until surgery was 7.25 (2-24) hours. None of the patients had urethral injury. Superficial dorsal vein injury was detected in 6 (75%), and nonspecific dartos bleeding in 2 (25%) patients. False positivity was detected in one of the two patients who underwent preoperative MRI. There were no complications in any patient intraoperatively. One patient developed an infection at the incision line postoperatively. The patient was treated with local and systemic antibiotherapy (Table 1).

Erectile dysfunction was not observed in any of the patients during the one-year postoperative follow-up. None of the patients had penile curvature, pain, palpable stiffness, cosmetic impairment or impaired urinary bladder functions.

Discussion

In true penile fracture, patients report that they heard a cracking sound and accompanying pain during sexual activity, and then detumescence occurs. In the physical examination, edema and hematoma are observed in a wide area, and "eggplant deformity" can be seen with the deviation of the penis towards the opposite side of the fracture. Although false penile fractures are clinically similar to the true penile fracture, there are some nonspecific distinctive conditions as: the absence of sudden cracking sound, and tunical defect; gradual detumescence and post-traumatic erection [5-7]. In our series, all patients had ecchymosis and one patient had a cracking sound during intercourse. Gradual detumescence was present in one patient.

A study investigating the role of cracking sound in the distinction between false penile fracture and true penile fracture

Table 1. Patient clinical and operative characteristics

Patient	Age (year)	Time to hospital admission(hour)	Etiology	Physical examination	Injury	Urethral injury	Radiology	Operation	Complication
1	54	3	Sexual intercourse	Penile swelling and ecchymosis, eggplant deformity	Superficial dorsal vein	None	None	Ligation	None
2	40	5	Manuel bending	Penile swelling and ecchymosis	Superficial dorsal vein	None	MRI false positive	Ligation	None
3	28	6	Sexual intercourse	Penile swelling and ecchymosis, suprapubic ecchymosis	Nonspecific dartos bleeding	None	None	Ligation	None
4	37	5	Sexual intercourse	Penile swelling, scrotal ecchymosis	Superficial dorsal vein	None	MRI positive	Ligation	None
5	30	7	Sexual intercourse	Penile swelling and ecchymosis, cracking-sound	Superficial dorsal vein	None	None	Ligation	None
6	49	6	Masturbation	Penile swelling and ecchymosis, gradual detumescence	Nonspecific dartos bleeding	None	None	Ligation	None
7	42	2	Sexual intercourse	Penile swelling and ecchymosis	Superficial dorsal vein	None	None	Ligation	Wound site infection
8	33	24	Sexual intercourse	Penile swelling and ecchymosis	Superficial dorsal vein	None	None	Ligation	None

MRI: magnetic resonance imaging

among 65 consecutive clinically diagnosed penile fracture patients, true penile fractures were detected in 56 patients (86.2%) and the cracking sound was present in most patients (n=40, 71.4%). Two of the nine patients with false fractures reported the cracking sound (22.2%). Bayesian logistic regression revealed that the cracking sound was associated with surgical diagnosis of penile fracture (relative odds ratio = 4.25), and the probability of penile fracture fell from 92 to 74% when the cracking sound was not reported among patients injured during intercourse experiencing immediate detumescence [2]. In our series, only one patient reported a cracking sound during sexual intercourse.

The shape and spread of ecchymosis can help to distinguish false penile fracture from true penile fracture. In cases with false penile fractures, the bleeding results from superficial dorsal penile vein rupture [8], deep dorsal vein rupture [9], dorsal artery avulsion/injury, and nonspecific dartos bleeding [10]. Feki et al. examined a series of 16 patients who underwent surgical penile exploration and detected nonspecific dartos bleeding in 16 and superficial dorsal vein avulsion requiring venous ligation in 6 cases [6]. In the series of Kurkar et al., superficial dorsal vein injury was observed in all patients [11]. El-Assmy et al. examined a series of 17 patients and detected that the bleeding resulted from an avulsed superficial dorsal vein in 5 out of 14 patients who underwent surgery. Nonspecific dartos bleeding was observed in the remaining 9 patients [12]. In our series, the most commonly injured vascular structure was the superficial dorsal vein.

The deep dorsal artery and vein are located under the Buck's fascia, so hematomas due to penile fracture and penile dorsal vein rupture are limited to space under this fascia. As long as the Buck's fascia remains intact, the hematoma is also confined to the shaft of the penis. The superficial dorsal vein is outside of the Buck's fascia and the hematoma due to its rupture will not be limited by the fascia [13,14]. If ecchymosis involves the scrotum, perineum, or pubic area, there may be due to two causes; false penile fracture due to superficial dorsal vein rupture or true penile fracture accompanying rupture of the Buck's fascia [15]. In our series, two patients had ecchymosis spreading to the suprapubic region and scrotum due to superficial vein injury.

In the literature, an intact corpus cavernosum was found between 2.7% and 10.7% of the patients who were operated for penile fracture. In our study, the rate of false penile fracture was found 7.9%, which was consistent with the literature [6,12,16].

Coherent with the literature, in our series the most common etiology was injury during sexual intercourse [6,11,12,17]. In the series of Feki et al., the etiology of nine patients was sexual intercourse, while other etiological factors included manual manipulation of the penis, trauma, rolling from bed and masturbation [6]. Kurkar et al. examined a penile fracture series of 68 patients and reported the etiology in 9 of 11 patients who underwent negative exploration as sexual intercourse and in 2 patients as masturbation [11]. In our series, other etiological factors included masturbation and manual bending of the erectile penis.

Various studies assessed radiological imaging methods in addition to physical examination and anamnesis in order to avoid unnecessary surgery in the differentiation between true and false penile fractures. The utility of imaging modalities is controversial in case of suspected penile fractures. Various imaging modalities have been used, such as MRI, retrograde urethrography (RUG),

cavernosography, and ultrasonography (US). However, no specific radiological imaging method is routinely applied. The radiological imaging methods mentioned involve a number of advantages and disadvantages. In this regard, the penile US stands out in terms of its ease of use and cost-effectiveness. Two penile US findings are described in the definitive diagnosis of penile fracture as discontinuity of the tunica albuginea and/or intracavernosal hematoma or the appearance of "Turkish eye sign". Metzler et al. emphasized the importance of using the penile US and the appearance of "Turkish eye sign" in addition to anamnesis and physical examination [18]. El-Assmy et al., in their series of 17 patients, detected intact tunica albuginea in 3 preoperative patients using imaging methods and eliminated surgical exploration [12]. In our series, no imaging method was used in any patient, except MRI in two patients.

Differentiation between true and false penile fractures is still one of the challenges in urology. General inclination is towards surgical exploration. Feki et al. concluded that surgery is still the only option for differential diagnosis [6]. Similarly, Kurkar et al. recommended surgical exploration to avoid long-term complications of overlooked tunica albuginea tears, due to the absence of reliable, rapid and practical imaging, although there is little clinical difference between these two conditions. The authors reported that evacuation of the hematoma and repair of possible dorsal penile vascular injury with early surgery will provide advantages with fewer complication rates even if a false penile fracture is in question [11]. Contrary to these views, Polat et al. stated that conservative approach would be sufficient in the treatment of false penile fractures [19].

Conservative treatment of patients with penile ecchymosis or hematoma without penile fracture involves application of ice, non-steroidal anti-inflammatory medications in the absence of contraindications, and compression with a loosely-applied compressive dressing, replaced daily, for 1-2 weeks to prevent further bleeding from the ruptured vessels, and 4 weeks of sexual abstinence [18]. Early surgical exploration, evacuation of the hematoma and ligation of the bleeding vessel lead to satisfactory results and preservation of potency in most patients with venous injury. In our series, surgery was performed in all patients and ligation of bleeding vessels was achieved.

Various complications were reported following penile surgery. In the series of Feki et al., localized ecchymosis of the glans that developed during the 2-week follow-up in one patient resolved spontaneously [6]. In the series of Kurkar et al., penile hypoesthesia was observed in one patient [11]. No complications were observed in the series of El-Assmy and Polat et al [12,19]. In our series, a skin infection developed in the penile circumcision line in one case.

Our study has some limitations. Firstly, it is a retrospective study. Secondly, it includes a small number of patients. The absence of patients treated conservatively can be considered another limitation.

Conclusion

Until a diagnostic tool is available, a reliable test to distinguish between false and true penile fractures should be the first-line treatment. Studies with larger patient series are needed on this subject.

Ethics Committee Approval: The study was approved by University of Health Sciences, Dr. Sadi Konuk Training and Research Hospital Ethical Committee, Bakirkoy, Istanbul, Turkey (Decision No: 2020/525).

Informed Consent: An informed consent was obtained from all the patients.

Publication: The results of the study were not published elsewhere in full or in part in the form of abstracts.

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The Relation Between BMI and Polypharmacy with Urinary Incontinence in Diabetic Geriatric Patients

Diyabetik Geriyatrik Hastalarda VKİ ve Polifarmasinin Üriner İnkontinans ile İlişkisi

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Abstract

Objective: In our study, we aimed to examine the effects of body mass index (BMI) and multiple drug use on urinary incontinence (UI) in diabetic geriatric patients.

Materials and Methods: Our study included 246 type 2 diabetes mellitus patients aged 65 and over who applied to our outpatient clinic between October and December 2019 and remained after the exclusion criteria were applied. The relationship between the frequency of UI and age, diabetes age, HbA1c, BMI, number of drugs and gender was investigated. UI described as any involuntary incontinence complaint. The questionnaire contained socio-demographic questions and the International Consultation on Incontinence Modular Questionnaire Urinary Incontinence Short Form (ICIQ-UI SF).

Results: Most (82.2%) of the patients with UI were women. Diabetes age and HbA1c level did not differ significantly between those with and without UI. There was a statistically significant relationship between BMI and the number of drugs used with the indication of UI (Mann-Whitney U; p < 0.05). Incontinence was more common in those with high BMI (average BMI 30.27 kg/m²). While 47.7% of those with UI were obese patients. The number of drugs used was found significantly higher in those patients with UI (p=0.008).

Conclusion: UI causes social isolation, depressive mood and introversion. In our study, we found that obesity and polypharmacy are associated with incontinence and triggered urinary incontinence. This indicates that UI is a problem that needs to be questioned and focused on in this patient population.

Keywords: urinary incontinence, polypharmacy, geriatric patients, diabetes mellitus

Öz

Amaç: Çalışmamızda diyabetik geriyatrik hastalarda vücut kitle indeksi (VKİ) ve çoklu ilaç kullanımının üriner inkontinans (Üİ) üzerine olan etkilerini incelemeyi amaçladık.

Gereç ve Yöntemler: Çalışmamıza 2019 yılı ekim ve aralık ayları arasında polikliniğimize başvuran ve dışlama kriterleri uygulandıktan sonra kalan 246 tip 2 diabetes mellitus tanılı 65 yaş ve üzeri hasta dahil edilmiştir. Hastalarda Üİ sıklığı ile yaş, diyabet yaşı, HbA1c, VKİ, ilaç sayısı ve cinsiyet arasındaki ilişki araştırılmıştır. Üİ, herhangi bir istemsiz inkontinans şikayeti olarak tanımlandı. Anket, sosyo-demografik soruları ve Uluslararası İnkontinans Modüler Soru Formu Üriner İnkontinans Kısa Formunu (ICIQ-UI SF) içermekte idi.

Bulgular: Üİ olan hastaların %82,2'si kadınlardan oluşmaktaydı. Diyabet yaşının ve HbA1c düzeylerinin inkontinansı olanlarda ve olmayanlarda anlamlı bir farklılığı yoktu. Üİ'e göre VKİ ve ilaç sayısı açısından istatistiksel anlamlı farklılık vardı (Mann-Whitney U p<0,05). İnkontinans, VKİ yüksek olanlarda daha sık görülmektedir. (VKİ ortalama 30,27). İnkontinansı olanların %47,7 si obezdi. Kullanılan ilaç sayısı da inkontinansı olanlarda anlamlı olarak daha fazlaydı (p=0,008).

Sonuç: Geriyatrik popülasyonda yaşam kalitesi, Üİ ve frajilite iç içedir. Özellikle Üİ kişinin sosyal izolasyonuna, depresif duygu durumuna ve içe kapanmaya neden olmaktadır. Çalışmamızda obezitenin ve polifarmasinin inkontinans ile ilişkili olduğunu ve üriner inkontinansı tetiklediğini gördük. Bu da inkontinansın bu hasta popülasyonunda sorgulanması ve üzerinde durulması gereken bir sorun olduğunu göstermektedir.

Anahtar Kelimeler: üriner inkontinans, polifarmasi, geriyatrik hastalar, diabetes mellitus

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Introduction

Urinary incontinence (UI) is a common symptom of varying severity that can affect women of all ages. Although urinary incontinence is not directly life threatening, it can seriously disrupt the physical, psychological and social life of individuals [1].

Unless UI is considered and questioned by patients as a natural consequence of aging, it is often shamed and hidden. Therefore, patients consult the doctor late and the existing discomfort becomes more severe [2]. One study showed that women with diabetes complain less about urinary incontinence to doctors [3].

Geriatric syndromes are clinical conditions common in older adults who share underlying causal factors that involve more than one system. These include a range of clinical conditions that do not fit into a separate disease category. Examples of geriatric syndromes are incontinence, cognitive impairment, delirium, falls, pressure ulcer, pain, weight loss, anorexia, functional decline, and depression [4]. UI affects quality of life and fragility in geriatric patients. With aging, the number of comorbid diseases increase and the number of drugs used causes polypharmacy. Polypharmacy results in many side effects and a decrease in quality of life in the geriatric population [5]. Polypharmacy and urinary incontinence are common in the geriatric population. Adverse drug effects are a concern in geriatric patients and should be considered in patients with urinary incontinence. Drug treatments may cause the emergence or aggravation of lower urinary tract symptoms. This should be kept in mind when there is a newly emerging UI [6]. Drugs that can cause or contribute to urinary incontinence in the elderly were presented by the 4th International Incontinence Consultation in 2009 [7]. There are many drugs that cause UI symptoms, and drugs used to treat heart failure may be associated with UI. For example, in the use of ACE inhibitors, drug-induced cough stress can cause UI. Diuretics frequently used by geriatric patients may cause incontinence due to higher urine volume [6]. Increased body mass index (BMI) has been associated with many chronic diseases, including cancer. Incidence of UI also increases in obese patients [8].

In our study, we aimed to investigate the relationship between the incidence of UI with polypharmacy and BMI in diabetic geriatric patient population.

Materials and Methods

Local ethics committee approval was obtained prior to study (Approval Number: 2019/412). A total of 246 Type 2 DM patients aged 65 and over who admitted to our outpatient clinic between 1 October and 1 December 2019 were included in our study. Patients under 65 years of age, those who were not diagnosed with Type 2 DM, who had an indwelling urinary catheter, urinary tract infection, and those who could not give consent were excluded from the study. In this prospective study, the relationship between the frequency of UI and age, diabetes age, HbA1c, BMI, number of drugs and gender were investigated. UI was described as complaint of any type of involuntary incontinence. Regardless of the type, all types of incontinence were included in the study (urge, stress and a

stress+urge urinary incontinence). Urinalyses were performed to exclude urinary tract infection in patients. The questionnaire contained socio-demographic questions and the International Consultation on Incontinence Modular Questionnaire-Short Form Turkish Version (ICIQ-UI SF) [9]. The current HbA1c values of the patients with type 2 DM were recorded. The patients' weight and height was measured, and their BMIs were calculated (weight/height²). The patients were asked about the medications that they were regularly using and the total number of medications were recorded.

This study was approved by the Ethics of Committees of Dr. Sadi Konuk Training and Research Hospital, and in accordance with the Helsinki Declaration and its later amendments or comparable ethical standards.

Statistical Analysis

MedCalc Statistical Software version 12.7.7 (MedCalc Software bvba, Ostend, Belgium; <http://www.medcalc.org>; 2013) program was used for statistical analysis. Student's t test was used to compare two variables that were independent and compatible with normal distribution, and the comparison of two variables that were not compatible was made using the Mann Whitney U test. Chi-Square (or Fisher Exact test where appropriate) was used to examine the relationship between categorical variables.

Results

Our study included 246 type 2 DM patients aged 65 and over. Average ages were calculated as 72.4 and 71.3 years in the group with and without incontinence, respectively. Most (82.2%) of the patients with UI were women. Drugs used in both groups in order of frequency were antihypertensives, oral antidiabetic drugs, insulin, acetylsalicylic acid, proton pump inhibitors and analgesics. Drug distribution was similar in both groups. Diabetes age and HbA1c level did not differ significantly between those with and without UI (13.4% and 13.1%, respectively, $p > 0.05$). There is a statistically significant relationship between BMI and the number of drugs used with the indication of UI (Mann-Whitney U; $p < 0.05$). UI was more common in those with high BMI. (average BMIs in incontinent and continent patients were 30.27 kg/m² and 28.2 kg/m², respectively). Also 47.7% and 2.8% of those with UI were obese and morbidly obese patients, respectively. The number of drugs used was found significantly higher in those patients with UI ($p = 0.008$) (Table 1).

Discussion

Due to many important developments in the treatment of diseases, successful struggle against infectious diseases and improvement in living conditions, life expectancy is prolonged. Accordingly, the elderly population is increasing rapidly in our country as in the World [10]. Clinical conditions that we call "geriatric syndrome", which can impair quality of life and

Table 1. Comparison of parameters according to incontinence status

		Continence n=139		Incontinence n=107		p
		Mean±SD Median (Min-Max)		Mean±SD Median (Min-Max)		
Age		71.3±6 70 (65-94)		72.4±5 71 (63-86)		0.348
Diabetes duration		13.1±8 10 (1-42)		13.4±9 13 (1-40)		0.950
HbA1c %		6.95±1.77 6.4 (5-17)		6.95±1.47 6.5 (5.2-15)		0.315
BMI kg/m²		28.2±3.7 28 (19,8-41.5)		30.2±4.2 30 (19-41.3)		<0.001*
Number of Drugs		4±2 4 (1-13)		5±3 5 (1-13)		0.008
		n	%	n	%	
Gender	Female	87	62.6	88	82.2	0.001**
	Male	52	37.4	19	1.8	
BMI subtypes	Normal	26	18.7	7	6.5	0.004**
	Overweighted	68	48.9	46	43.0	
	Obese	44	31.7	51	47.7	
	Morbidly Obese	1	0.7	3	2.8	

Mann-Whitney U, *Student t, **Fisher's Exact, BMI: body mass index

increase morbidity and mortality, are common in elderly patients. UI is also a common geriatric disease. Quality of life, UI and fragility are intertwined in the geriatric population. Especially UI causes social isolation, depressive mood and introversion. In our study, we found that obesity and polypharmacy are significantly associated with UI [5].

Previously reported risk factors for UI in women are higher BMI, multiparity, smoking, lower physical activity, current postmenopausal hormone use, diuretics, hysterectomy, vascular disease, longer diabetes duration, and urinary tract infection [11–13]. We identified some of the same risk factors, only polypharmacy and BMI have an association between glycemic control and urinary incontinence. Our results support the presence of BMI as a potentially risk factor for UI. Type 2 diabetes increases incontinence by causing microvascular damage and neuropathy, such as pudendal nerve degeneration and bladder sensational impairment in time [14]. However, in our study, the effect of duration of diabetes on incontinence was not found to be significant. After diuretics, calcium channel blockers and tricyclic antidepressants were found to be the factors mostly causing incontinence. Beta- and alpha-stimulators were also quite common (9% and 8%, respectively) [15]. In our study, the mean number of drugs used in the group with and without

incontinence were 5±3 and 4±2, respectively and drug usage was significantly higher in the group with incontinence (p:0,008).

The level of glycemic control as measured by HbA1c is significantly associated with the risk of urinary incontinence. Each percentage increase in HbA1c is associated with a 34% increase in the risk of only stress incontinence after controlling for age and BMI [14]. Phelan et al [11] found an association between HbA1c and urinary incontinence among women; however, Lee et al [16] found that higher HbA1c was less associated with urinary incontinence. No significant relationship was found between UI and HbA1c in our study.

Our study has several limitations. Urinary incontinence is a self-reported complaint. HbA1c represents blood glucose levels in the previous 3 months and does not show the duration of disease or other diabetic complications. Therefore HbA1c does not capture longer-term glycemic control, which may affect urinary incontinence. Randomized controlled studies are needed to determine whether achieving glycemic control can improve urinary incontinence.

Despite these limitations, our study has several strengths. Our results are generalizable given the nationally representative sample used, and relatively limited number of missing data. Also validated questions were used to define urinary incontinence.

Conclusion

Our study indicates that higher BMI levels and polypharmacy are significantly associated with the risk for urinary incontinence among elderly diabetic patients. Our results also suggest that there is a need for awareness concerning the risk of urinary incontinence among elderly women with diabetes.

Ethics Committee Approval: The study was approved by University of Health Sciences, Dr. Sadi Konuk Training and Research Hospital Ethical Committee, Bakirkoy, Istanbul, Turkey (Decision No: 2019/412).

Informed Consent: An informed consent was obtained from all the patients.

Publication: The results of the study were not published elsewhere in full or in part in the form of abstracts.

Peer-review: Externally peer-reviewed.

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The Effects of Previous Renal Stone Surgery on Percutaneous Nephrolithotomy Outcomes

Geçirilmiş Böbrek Taşı Cerrahisinin Perkütan Nefrolitotomi Sonuçları Üzerine Etkileri

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Abstract

Objective: We aimed to compare outcomes of percutaneous nephrolithotomy (PNL) surgery in patients who had and had not undergone renal stone surgery before PNL.

Material and Methods: We retrospectively analyzed the medical records of all patients who underwent PNL in our department between 2010 and 2019. Examined parameters consisted of patient demographics, medical and surgical history, stone size, stone density, stone site, estimated intraoperative blood loss, duration of operation, hospital stay and stone-free status.

Results: A total of 193 patients were included the study. The mean age of the patients was 45±13 years. The mean duration of surgery was 69±11.5 minutes. The mean stone area was 720.2±600.4 mm² and the mean stone attenuation was 982.8±327.7 HU. The mean postoperative hemoglobin decrease was 1.8±1.3 g/dL. 66 patients had previous stone surgery including open stone surgery, PNL and retrograde intrarenal surgery (RIRS). There was no statistically significant difference between patients who had and had not previously undergone renal stone surgery in terms of age, gender, body mass index and stone area. Operative time, estimated intraoperative blood loss, postoperative hemoglobin decreases and hospital stay were comparable between patients who had, and had not undergone previous renal stone surgery. Stone-free rate was significantly higher in primary PNL patients compared to patients with a history of renal stone surgery (92.1% vs 77.3%, p=0.006).

Conclusion: PNL has a similar complication rate in patients with and without previous kidney stone surgery. However, achieving stone-free status may be challenging in patients with a history of ipsilateral renal stone surgery.

Keywords: percutaneous nephrolithotomy, previous renal stone surgery, stone-free status

Öz

Amaç: Perkütan Nefrolitotomi (PNL) öncesi böbrek taşı ameliyatı geçirmiş ve geçirmemiş hastalarda PNL ameliyatının sonuçlarını karşılaştırmayı amaçladık.

Gereç ve Yöntemler: Bölümümüzde 2010-2019 yılları arasında PNL yapılan tüm hastaların tıbbi kayıtlarını retrospektif olarak inceledik. İncelenen parametreler; hasta demografisi, medikal ve cerrahi geçmiş, taş boyutu, taş yoğunluğu, taş bölgesi, tahmini intraoperatif kanama miktarı, ameliyat süresi, hastanede kalış süresi ve taşsızlık durumundan oluşmaktadır.

Bulgular: Çalışmaya toplam 193 hasta dahil edildi. Hastaların ortalama yaşı 45 ± 13 yıldır. Ortalama ameliyat süresi 69 ± 11.5 dakika idi. Ortalama taş alanı 720,2 ± 600,4 mm² ve ortalama taş atenuasyonu 982,8 ± 327,7 HU idi. Ortalama postoperatif hemogloblin azalması 1.8 ± 1.3 g / dL idi. 66 hasta daha önce açık taş cerrahisi, PNL ve retrograt intrarenal cerrahi (RIRS) dahil olmak üzere taş ameliyatı geçirmişti. Daha önce böbrek taşı ameliyatı geçirmiş ve geçirmemiş hastalar arasında yaş, cinsiyet, vücut kitle indeksi ve taş alanı açısından istatistiksel olarak anlamlı farklılık bulunmadı. Daha önce böbrek taşı ameliyatı geçirmiş ve geçirmemiş hastalar arasında ameliyat süresi, tahmini intraoperatif kanama miktarı, ameliyat sonrası hemogloblin azalması ve hastanede kalış süresi benzerdi. Primer PNL hastalarında daha önce böbrek taşı ameliyatı geçirmiş hastalara göre taşsızlık oranı anlamlı olarak yüksekti (% 92.1'e karşı % 77.3, p = 0.006).

Sonuç: Daha önce böbrek taşı cerrahisi geçiren ve geçirmeyen hastalarda PNL benzer komplikasyon oranına sahiptir. Bununla birlikte, ipsilateral böbrek taşı cerrahisi öyküsü olan hastalarda taşsızlık durumuna ulaşmak daha zor olabilir.

Anahtar Kelimeler: perkütan nefrolitotomi, geçirilmiş böbrek taşı cerrahisi, taşsızlık durumu

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Introduction

Urolithiasis is a major health problem all around the world with an estimated incidence of 11.1 % in Turkey [1]. Urinary stone disease is related to many factors such as genetics, dietary habits, body mass index, fluid intake, occupation, geography and climate [2]. Management of stone disease includes medical treatment, minimal invasive treatment modalities such as extracorporeal shock wave lithotripsy and surgical treatment like ureterorenoscopy (URS), retrograde intrarenal surgery (RIRS) and percutaneous nephrolithotomy (PNL) [3].

PNL has been utilized more than 30 years in renal stone disease treatment. Parallel to the developments in technology and refinement of endourological equipment's several modifications of PNL such as supine or prone, mini or micro has been offered during the recent years.

PNL is also not without complications. Perioperative bleeding is one of the main complications of PNL, and it is not always possible to achieve stone-free status after PNL. Several factors have been proposed to effect surgical outcomes of PNL. In this study, we aimed to compare outcomes of PNL surgery in patients who had , and had not undergone prior renal stone surgery before PNL and who did not have.

Materials and Methods

Local ethics committee approval was obtained prior to study (Approval Number: 2020/506). We retrospectively analyzed the medical records of all patients who underwent PNL in our department between 2010 and 2019. Both male and female patients above 18 years of age who underwent PNL were

included the study. Patients with bleeding diathesis or history of renal malignancy were excluded from the study. Examined parameters consisted of patient demographics, medical and surgical history, stone size, stone density, stone site, estimated intraoperative blood loss, operative time, hospital stay and stone-free status. Stone area was calculated by multiplying two dimensions of the stone.

Statistical analysis

Statistical analysis was performed using IBM SPSS Statistics for Windows v.21.0 (IBM Corp., Armonk, NY). Mean \pm standard deviation and median values were used to express quantitative measurements. Qualitative measurements were expressed as numbers and percentages. Mann-Whitney U test was used to compare numerical values between independent groups. The level of statistical significance was set at $P < 0.05$.

Results

A total of 193 participants including 127 male and 66 female patients were included in the study. The mean age of the patients was 45 ± 13 years. The mean duration of surgery was 69 ± 11.5 minutes. Seventy-nine (40.9%) right-, and 114 (59.1%) left-sided stones were operated. The mean stone volume was 720.2 ± 600.4 mm³ and the mean stone attenuation was 982.8 ± 327.7 HU. The mean preoperative hemoglobin level was 14.2 ± 1.7 mg/dL. The mean postoperative decrease in hemoglobin levels was 1.8 ± 1.3 g/dL. Sixty-six patients had previous stone surgery including

Table 1. Patient demographics, stone and operation characteristics

Variable	Total (n=193)	Primary PNL (n=127)	Previous ipsilateral renal surgery (n=66)	P value
Age (years)	45 \pm 13	44.4 \pm 13.2	46.3 \pm 12.6	0.34
Gender	Male	87	40	0.33
	Female	66	40	
BMI (kg/m ²)	27.5 \pm 3.5	27.6 \pm 3.6	27.4 \pm 3.4	97
Stone area(mm ²)	720.2 \pm 600.4	651.3 \pm 531.6	854.7 \pm 701.2	0.62
Stone attenuation (HU)	982.8 \pm 327.7	1018.2 \pm 339.7	915.2 \pm 294.3	0.02
Operative time (min)	69 \pm 11.5	68.4 \pm 11.6	70.1 \pm 11	0.41
Estimated blood loss (mL)	177.6 \pm 102.9	177.1 \pm 99.4	178.7 \pm 110	0.57
Preoperative hemoglobin (g/dl)	14.2 \pm 1.7	14.3 \pm 1.8	13.8 \pm 1.3	0.02
Postoperative hemoglobin (g/dl)	12.4 \pm 1.9	12.5 \pm 2.1	12.2 \pm 1.6	0.22
Hemoglobin decrease (g/dl)	1.8 \pm 1.3	1.8 \pm 1.4	1.7 \pm 1.2	0.5
Hospital stay (days)	3.5 \pm 1.5	3.6 \pm 1.5	3.4 \pm 1.4	0.56
Stone- free rates	87%	92.1%	77.3%	0.006

BMI: body mass index; HU: Hounsfield units; PNL: percutaneous nephrolithotomy

open stone surgery, PNL and retrograde intrarenal surgery (RIRS). There was no statistically significant difference between patients who had, and had not previously undergone renal stone surgery in terms of age, gender, body mass index and stone burden. Stone attenuation was significantly higher in primary PNL patients ($p=0.02$). Operative time, estimated intraoperative blood loss, postoperative decrease in hemoglobin levels and hospital stay were comparable between patients who had, and had not previously undergone renal stone surgery. Stone-free rate was significantly higher in primary PNL patients compared to patients with a history of renal stone surgery (92.1% vs 77.3%, $p=0.006$ (**Table 1**)).

Discussion

PNL is the choice of treatment of renal stones particularly larger than 2 cm. PNL is not without complications and achieving stone-free status depends on several factors as patient and stone characteristics and surgical experience. To date several studies have been conducted to determine the effects of previous renal surgeries on PNL outcomes [4–6]. Despite the immense literature available on this issue, relevant definitive recommendations are lacking.

In a study by Falahatkar et al. [7], researchers aimed to determine the effects of previous open renal surgery on PNL complications and related outcomes. The authors did not find any significant differences between mean hospital stay (85.88 ± 17.25 vs 80.2 ± 17.71 hours), mean operative time (75.4 ± 17.2 vs 67.4 ± 26.2 minutes), bleeding requiring transfusion (11.1% vs 11.8%), postoperative fever (33.3% vs 26.5%) and stone-free status (88.9 % vs 79.4%) who had and had not previously undergone ipsilateral open renal surgery. Similar to this study, we did not find any differences in various parameters except stone-free status between primary PNL patients and patients who had previously undergone renal stone surgery. Stone-free rate was significantly higher in our patient cohort.

In a recent study, Basnet et al. [8] investigated the effects of open renal surgery on PNL results. Their study included 512 patients who had undergone primary PNL and 106 patients who had ipsilateral open stone surgery, previously. There was no difference between those two groups in terms of patient characteristics (age gender, body mass index), and stone features like stone burden, density, location and being staghorn. They reported similar hospital stay (3.29 ± 1.21 vs 3.48 ± 1.05 days) and stone-free rates (83.33 % vs 82.08 %) between primary PNL and previous open surgery groups whilst higher complication rates in previous open renal surgery group (27.45 % vs 38.68%, $p=0.02$). The most frequent postoperative complications were fever and Clavien Grade < IV complications [8]. As mentioned before our stone-free rate in patients with previous renal stone surgery was 77.3% and significantly lower than that in primary PNL patients (87%).

Ozgor et al. [9] investigated the effect of both previous PNL or open renal surgery on PNL outcomes. Their study included 1529 patients who underwent primary PNL, 131 patients with a history of previous PNL and 410 patients with a history of open renal surgery. The authors reported the highest stone-free rate (81.6%) in primary PNL patients. They also found that

need of angioembolization following PNL was highest with a rate of 2.2% in patients with a history of open renal surgery. In contrast with the aforementioned studies, they reported similar hospitalization times, postoperative decreases in hemoglobin levels, and operative times. In concordance with Ozgor et al. [9] we did not find any difference between duration of hospital stay, operative time and postoperative hemoglobin decrease in our patient cohort.

In a meta-analysis by Hu et al. [10] including 17 retrospective studies involving 4833 procedures, it was concluded that PNL in patients with a history of open surgery was associated with greater hemoglobin decrease, higher risk of events requiring angiographic embolization and auxiliary procedures and also longer operative time.

Our study is not also without limitations. First of all, this is a retrospective study conducted with a relatively small number of patients. Retrospective nature of the study might subject to selection bias. Also, as a result of being a training and research hospital PNL surgeries were performed by several surgeons which might also affect surgical outcomes.

Conclusion

PNL has similar complication rates in patients who had and had not undergone kidney stone surgery. However, achieving stone-free status may be challenging in patients with a history of ipsilateral renal stone surgery.

Ethics Committee Approval: The study was approved by University of Health Sciences, Dr. Sadi Konuk Training and Research Hospital Ethical Committee, Bakirkoy, Istanbul, Turkey (Decision No: 2020/506).

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Current Approaches in Prostate Cancer Radiotherapy

Prostat Kanseri Radyoterapisinde Güncel Yaklaşımlar

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Abstract

Prostate cancer is one of the most common tumor in males. Radical prostatectomy, radiotherapy and watchful waiting are the main treatment options in localized disease. Radiotherapy together with hormone therapy is accepted as the standard of care in patients with advanced stages. Surgery or radiotherapy has comparable local control and survival outcomes in localized disease. During recent years a significant reduction in the rate of serious side effects has been achieved due to the development of modern radiotherapy techniques. With the use of these techniques such as Intensity-modulated radiotherapy (IMRT), Image-guided radiotherapy (IGRT), Stereotactic body radiotherapy (SBRT), high doses can be given safely and the rates of serious short-or long-term side effects have not exceeded 1 percent. Modern radiotherapy techniques allow dose escalation for the target volume, and due to its achievement of sharp dose gradient around the target volume and enable to increase radiation doses homogeneously within the target volume without exceeding the tolerance doses in organs at risk. In the last few years hypofractionation has gained popularity in the curative radiotherapy of prostate cancer.

Keywords: prostate cancer, radiotherapy, intensity-modulated radiotherapy, stereotactic body radiotherapy, hypofraction

Öz

Prostat kanseri erkeklerde en sık görülen tümörlerdendir. Lokalize hastalıkta radikal prostatektomi, radyoterapi ve aktif izlem ana tedavi seçenekleri olup, ileri evrelerde radyoterapi ile birlikte hormonoterapi kullanımı standart tedavi olarak kabul edilmektedir. Lokalize hastalıkta cerrahi ve radyoterapi birbirine eşdeğer lokal kontrol ve sağkalım sonuçları sunmaktadır. Son yıllarda modern radyoterapi tekniklerindeki gelişmeler ciddi yan etki oranlarında belirgin azalmaya neden olmuştur. Günümüzde kullanılan Yoğunluk ayarlı radyoterapi (IMRT), Görüntü kılavuzlu radyoterapi (IGRT), Stereotaktik vücut radyoterapisi (SBRT) gibi modern radyoterapi teknikleri ile yüksek dozlar uygulanabilmekte ve ciddi erken ve geç yan etki oranları %1'leri geçmemektedir. Prostat kanserlerinde yüksek teknoloji radyoterapi uygulaması, hedef volüme yüksek doz verilmesini sağlarken hedef volüm dışında keskin doz düşüşü özelliği ile çevre kritik organların tolerans dozlarını aşmaksızın, hedef volümün aldığı radyasyon dozlarını homojen bir şekilde arttırılmasına imkân verir. Son yıllarda lokalize prostat kanserinin küratif radyoterapisinde hipofraksiyone rejimlere ilgi giderek artmıştır.

Anahtar Kelimeler: prostat kanseri, radyoterapi, yoğunluk ayarlı radyoterapi, stereotaktik vücut radyoterapisi, hipofraksiyone



Introduction

Prostate cancer is one of the most common cancers in men, and in the treatment of prostate cancer; active surveillance, radical prostatectomy, radiotherapy, hormone therapy and chemotherapy are the treatment modalities used according to the stage and risk group of the disease. Intensity-modulated radiotherapy (IMRT), Volumetric modulated arc therapy (VMAT), Stereotactic body radiotherapy (SBRT), brachytherapy (BT), proton therapy are used in radiotherapy treatment as a result of developments in recent years [1].

Among these options, multiple treatment modalities can be equally effective with desirable clinical outcomes [2,3]. Clinical results obtained with intensive modulated and image-guided radiotherapy (IG-IMRT) used in the treatment of prostate cancer are also being achieved in our clinical practice.

The National Comprehensive Cancer Network (NCCN) prostate cancer guidelines include a variety of radiation therapy modalities as part of the standard of care for the definitive treatment of prostate cancer [4]:

Very low risk patients (T1c, Gleason score ≤ 6 , PSA <10 ng/mL, fewer than 3 positive prostate biopsy cores, $\leq 50\%$ cancer in each core, PSA density <0.15 ng/mL/g) with a life expectancy of ≥ 20 years, external beam radiation therapy (EBRT) or (BT); Low risk patients (T1-T2a, Gleason score ≤ 6 , PSA <10 ng/mL) with a life expectancy of ≥ 10 years, EBRT or BT;

Intermediate risk patients (T2b-T2c or Gleason score 7 or PSA 10 – 20 ng/mL), EBRT ± 4 to 6 months of androgen deprivation therapy (ADT) \pm BT or BT alone;

High-risk patients (T3a or Gleason score 8 – 10 or PSA > 20 ng/mL) EBRT + 2 to 3 years of ADT, or EBRT + BT ± 2 to 3 years of ADT.

Indications for adjuvant EBRT following prostatectomy are: extracapsular tumor extension or invasion into the seminal vesicles (pT3), positive margins, Gleason score 8-10, seminal vesicle involvement, or detectable PSA.

Patients who have an undetectable PSA after prostatectomy with a subsequent detectable PSA that increases on two or more occasions without detectable distant metastases should be offered salvage EBRT [4,5].

Over the past decade radiation techniques have been improved to allow better coverage of tumor volumes with better sparing of adjacent normal structures. A smaller margin around the target means less radiation dose to the rectum, bladder and penile structures means a lower incidence of bowel, urinary and sexual side effects.

3D Conformal Radiotherapy (3D CRT)

Computed tomography (CT)-based EBRT planning was introduced in the 1980s. CT planning allows the radiation oncologist to delineate the anatomical structure of the prostate and organs at risk in axial images. It also enables multiple-shaped beams to be oriented and shaped around the target to reduce high doses to organs at risk. The 3D conformal radiotherapy, homogeneous in PTV while providing dose distribution in dose limiting organs (bladder, rectum and femoral head) is a highly protective treatment method.

Intensity-modulated Radiation Therapy (IMRT)

There are a large number of dose escalation studies in prostate cancer radiotherapy. These studies have confirmed that 74- to 81-Gy doses provided a 15-20% improvement in biochemical control compared with conventional doses of <70 Gy [6]. IMRT is an improved version of three-dimensional CRT. It can be described as its shape. IMRT provides a sharp dose reduction outside the target volume. It is possible to increase the doses (up to 86 Gy) delivered to the target volume without exceeding the tolerance doses of critical organs (Figure 1).

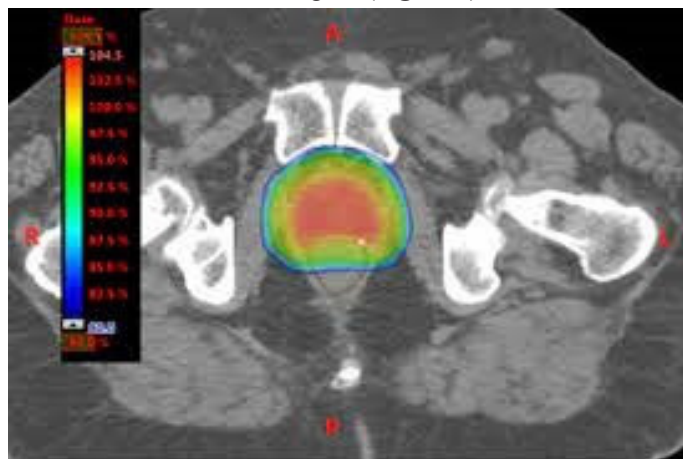


Figure 1. IMRT plan treating the prostate

One of the most important advantages of prostate IMRT, is a reduction in rectal toxicity. In IMRT applications, multi-leaf collimators continuously adapt to the target volume and thus the dose density of concave shaped areas (such as the rectum) is optimum.

Volumetric Modulated Arc Therapy (VMAT)

Volumetric modulated arc therapy (VMAT) has attracted increasing attention because of its greatly improved delivery efficiency over fixed-field IMRT. VMAT is a novel form of IMRT optimization that allows the radiation dose to be delivered in a single gantry rotation of up to 360 degrees (Figure 2). VMAT is not expected to be superior to standard IMRT in terms of

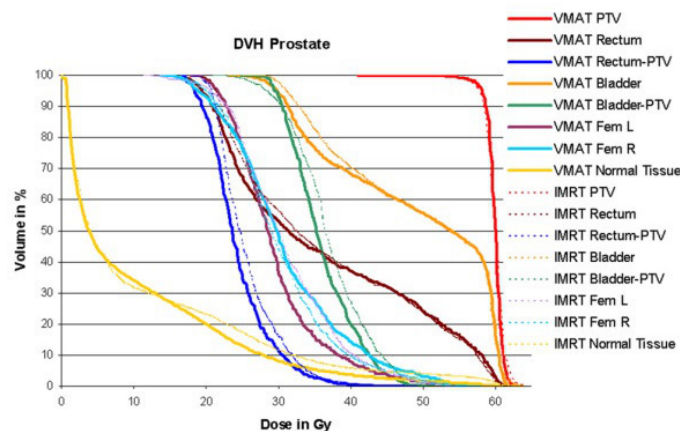


Figure 2. Dose volume histograms for prostate cancer

prostate cancer control, but is widely used because it can deliver each fraction in a shorter time (2–5 minutes). This technique is more convenient for the patient, and reduces the risk of mobility of tumour and organs at risk during treatment [7,8].

Hypofractionated Radiotherapy

Hypofractionation has gained popularity in the curative radiotherapy of prostate cancer. The rationale for hypofractionation is the low α/β ratio for prostate cancer which is even lower than that of the surrounding organs at risk. By hypofractionation isoeffective doses can be delivered to prostate in much shorter treatment time without increasing the side effects thus providing therapeutic gain. Hypofractionated EBRT delivers equivalent or greater total doses in a shorter overall treatment time than conventional fractionation, which delivers higher doses per fraction. Prostate cancer is more sensitive to hypofractionation and it allows patients to complete treatment more quickly. Data from randomised trials assessing this approach for localised disease shows that hypofractionation will be well tolerated [9]. There are two types of hypofractionation: moderate (daily delivery of 2.4–4.0 Gy per fraction, over 4–6 weeks) and extreme (the delivery of >4-10 Gy per fraction, ≤5 fractions to a total dose of 35-50 Gy).

Stereotactic Body Radiation Therapy (SBRT)

SBRT is a highly conformal method of delivering ultra-high dose radiation therapy. Also called Stereotactic Ablative Radiation Therapy (SABR), this technique will ablate malignant tissue in just few treatments delivered over 1-2 weeks. [7]. This accelerated scheduling is appealing to patients due to its convenience to patients over the traditional course of radiation that takes 5 to 8 weeks of daily treatments [10]. Extreme hypofractionation is delivered using SBRT. Randomized trials showed that moderate hypofractionation gives similar clinical and biochemical failure-free survival and toxicity rates as conventional fractionation. Although the results of phase I/II SBRT studies produced similar biochemical control and toxicity rates long term results must be evaluated. Phase III randomized trials will provide clear evidence (Figure 3).

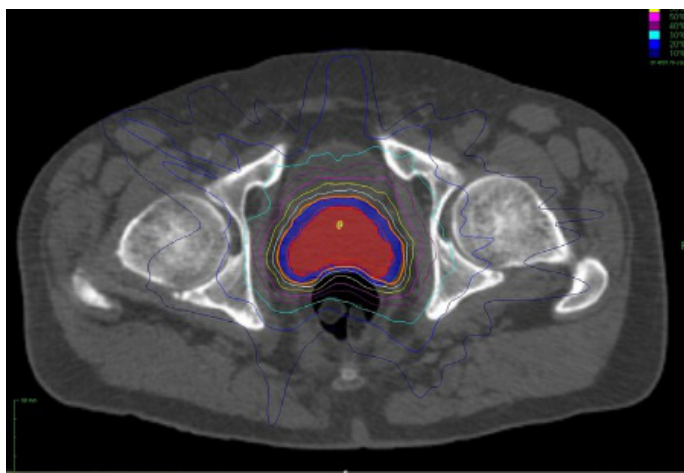


Figure 3. Prostate SBRT treatment

Brachytherapy (BT)

An alternative to EBRT with either X-rays or protons is the use of radioactive sources implanted directly into the prostate gland (BT) [11]. This technique was introduced at Washington University. There are two general approaches to prostate BT, low-dose rate (LDR) permanent radioactive seed implant and highdose rate (HDR) temporary radioactive seed implant [12]. Both approaches utilize real time ultrasound image guidance to assure accurate implantation of sources into the prostate while avoiding delivering high doses to the rectum, urethra and bladder. In addition, CT or MR imaging of the implant is performed following the procedure. This imaging allows quality assessment of the implant. In some cases of high risk prostate cancer, a combination of external beam radiation therapy and brachytherapy will be recommended. A recent Canadian study, the ASCENDERT trial, has reported superior biochemical control compared to external beam radiation alone. Of the 398 participants, 200 were assigned to the EBRT and 198 to the LDR boost. Compared with the 78 Gy EBRT boost, men randomized to the LDR boost were twice as likely to be free of biochemical failure at a median follow-up of 6.5 years ($P=0.004$). The 5-, 7-, and 9-year Kaplan-Meier biochemical progression-free survival estimates were 89%, 86%, and 83% for the LDR boost versus 84%, 75%, and 62% for the EBRT boost ($p=0.124$). The 5-year prevalence of grade 3 gastrointestinal toxicity was lower than the cumulative incidence for both arms (1.0% vs 2.2%, respectively). Because of the improved biochemical progression-free survival, there is an increased interest in the radiotherapy community to boost intermediate- and high- risk patients with brachytherapy. Brachytherapy also has the advantage of shortening the treatment duration [13].

Proton Beam Radiation Therapy

Proton therapy provides advantages compared to photon radiotherapy. High- energy protons generated from a cyclotron are used in radiotherapy. The accelerated charged particles goes at a constant dose until it reaches a certain depth limit and most of its energy is discharged at a distance of 0.5-1 cm (Bragg peak). The normal tissue outside this area is preserved (Figure 4). This modality is especially attractive when

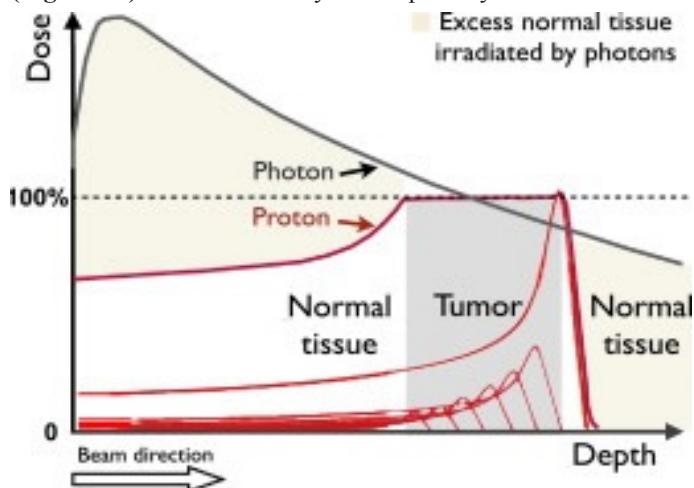


Figure 4. Proton therapy for prostate cancer

tumors are in close proximity to organs at risk. Massachusetts General Hospital and the Harvard Medical School researchers are conducting a randomized clinical trial of IG-IMRT versus proton beam radiation in men with low- and intermediate- risk prostate cancer. The PARTIQoL trial is seeking to measure and compare relative impact of the two modalities on patient quality of life after treatment [14].

Conclusion

Radiotherapy is an integral part of the modern multidisciplinary management of prostate cancer. There have been advances in prostate cancer radiotherapy in recent years due to technological developments which enable achievement of higher doses in tumor volume while providing lower doses in organ at risk (OARs) Image-guided IMRT or VMAT is now the standard treatment modality that maximises the dose delivered to the target while sparing normal tissues.

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Alternative Treatment Methods for Refractory Overactive Bladder

Refrakter Aşırı Aktif Mesane İçin Alternatif Tedavi Yöntemleri

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Abstract

Overactive bladder is a serious condition that can significantly impair quality of life. Antimuscarinic agents are recommended as second-line therapy in patients who do not benefit from behavioral therapy. However, the therapeutic efficacy of antimuscarinic agents is limited. Alternative treatment methods to medical treatment have been developed due to its limited effectiveness and frequent side effects. Posterior tibial nerve stimulation (PTNS), transcutaneous tibial nerve stimulation (TTNS), sacral neuromodulation (SNM), intravesical Botulinum toxin-A (BoNT/A) are prominent among these minimally invasive treatment methods in refractory OAB. All these methods have been demonstrated to be effective in the literature. BoNT/A and SNM are more effective, but have been reported to cause more side effects. In refractory OAB, any of these methods can be applied by considering the medical condition and request of the patient.

Keywords: refractory overactive bladder, mimal invasive, treatment

Öz

Aşırı aktif mesane (AAM), yaşam kalitesini önemli ölçüde bozabilecek ciddi bir durumdur. AAM’de davranış tedavisinden fayda görmeyen hastalarda ikinci basamak tedavi yöntemi olarak önerilen antimuskarinik ajanların terapötik etkinliği sınırlıdır. Sınırlı etkinliği ve yüksek yan etkileri nedeniyle tıbbi tedaviye alternatif tedavi yöntemleri geliştirilmiştir. Dirençli AAM’de bu minimal invaziv tedavi yöntemleri arasında posterior tibial sinir stimülasyonu (PTNS), transkutanöz tibial sinir stimülasyonu (TTNS), sakral nöromodülasyon (SNM), intravezikal Botulinum toksin-A (BoNT/A) öne çıkmaktadır. Tüm bu yöntemlerin literatürde etkili olduğu gösterilmiştir. BoNT/A ve SNM daha etkilidir, ancak daha fazla yan etkiye neden olduğu bildirilmiştir. Refrakter AAM’de hastanın durumu ve isteği göz önünde bulundurularak bu yöntemlerden herhangi biri uygulanabilir.

Anahtar Kelimeler: refrakter aşırı aktif mesane, minimal invaziv, tedavi

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Introduction

The term overactive bladder (OAB) is a symptomatological definition in which urgency is the main complaint and usually presents with symptoms accompanied by increased urination frequency and nocturnal urination and does not have any local pathological or metabolic reason to explain these symptoms [1]. The incidence of OAB ranges between 12-17% and increases with age [2]. In the literature, its incidence rates have ranged between 6.5% and 15.8% in men and 9.3-32.6% in women [3]. Each of the complaints included in the definition of OAB can seriously affect the quality of life.

Normal bladder contraction occurs when the muscarinic receptors in the detrusor muscle are stimulated with acetylcholine. Although the pathogenesis of OAB is not fully explained; sensitization of afferent nerves, deactivation of inhibitory mechanisms, and the emergence of contractions similar to primitive voiding reflexes are shown as pathogenetic mechanisms. Another hypothesis is that the number of intercellular connections among detrusor myocytes increase and these cells are spontaneously stimulated [4]. In addition to the fact that the etiopathogenesis cannot be explained clearly and due to the intense relationship with the autonomic nervous system, undesirable systemic side effects are common in treatments applied [2]. Although many methods are used in the treatment of OAB, antimuscarinic agents constituted the most commonly used treatment method. In randomized placebo-controlled studies, it was observed that antimuscarinic agents provided an improvement in complaints at a rate of 50-60% [2]. Therefore, alternative treatment methods to medical treatment have been developed due to its limited effectiveness and highly frequent side effects.

Posterior Tibial Nerve Stimulation (PTNS)

Sacral S2-S4 segments, which provide neural control of the bladder, are the segments where the posterior tibial nerve, which is a peripheral nerve, also originates. Through this relationship, it is thought that the posterior tibial nerve is stimulated with electrical stimulation and provides neuromodulation of detrusor innervation. Although the mechanism of action of PTNS is not clear, it is thought that inhibition of preganglionic motor neurons of the bladder is achieved through afferent stimulation of the sacral cord [5]. In the literature, it was observed that improvement in symptoms of more than 50% in patients with refractory OAB whose complaints do not relieve using antimuscarinic agents and/or beta 3 agonists for at least 8 weeks [6–8]. Sherif et al. compared PTNS and botulinum toxin A (BoNT/A) in patients with refractory OAB in their study and found that BoNT/A was more effective [9]. However, they stated that side effects are seen more frequently in BoNT/A. Also, in the review of Tubaro et al., BoNT/A was reported to be more effective than PTNS [10]. No significant difference was found in studies comparing the effectiveness of PTNS and TTNS [11,12].

Transcutaneous Tibial Nerve Stimulation (TTNS)

TTNS was introduced after PTNS, and found widespread use because it was not invasive and less painful for the patient. Besides, its effectiveness has been demonstrated in many studies

in the literature [6,13–15]. The only difference between these procedures having the same mechanism of action is that PTNS uses direct electrical stimulation delivered through transdermal surface electrodes. The procedure has no side effects and the pain is very low. Also, TTNS should not require regular patient visits at clinics and usually is self-administered at home. Studies in the literature have reported that they have similar efficacies with PTNS in refractory OAB [11,12].

Sacral Neuromodulation (SNM)

Sacral neuromodulation is a minimally invasive method involving the implantation of a programmable pulse generator that provides low amplitude electrical current delivered through the S3 foramen. Today, it is also used in interstitial cystitis, chronic pelvic pain syndrome, and neurogenic bladder in addition to refractory OAB [16–19]. Although it is a minimally invasive method, the disadvantages of the procedure include the difficulty of application, the possibility of infective complications, and the need for replacement dependent on the battery life. There are several studies in the literature comparing SNM with other minimally invasive treatment methods in refractory OAB. Richter et al. revealed that SNM is more effective than BoNT/A [20]. Amundsen et al. reported that there was no significant difference between efficacies of SNM and BoNT/A [21]. Again, Al-Azzawi et al. reported that there was no significant difference between efficacies of SNM and BoNT/A [22]. Bertapelle et al. stated that SNM is a more cost-effective method than BoNT/A [23].

Intravesical Botulinum Toxin-A (BoNT/A)

Intravesical Botulinum toxin-A application is the injection of the toxin of clostridium botulinum, a gram-negative anaerobic bacterium, into the detrusor muscle of the bladder [24]. BoNT/A acts by inhibiting neuromuscular acetylcholine release. BoNT/A inhibits both afferent and efferent pathways. This method of treatment is usually applied cystoscopically under anesthesia. It is generally applied as 100 units into the detrusor or suburothelial layer [25,26]. It has been shown in the literature that injection into the detrusor muscle is more effective than suburethral injection [27,28]. One of the most important advantages of the treatment is that its effect starts within a short time in the postoperative period. Its disadvantage is that its effectiveness last only 6-12 months. In the literature, it has been reported that a reduction in symptoms is achieved by more than 70% of the cases [29,30]. In this application, which has a high success rate, the complications are less but more than other minimally invasive methods. Major complications have been reported as respiratory depression and death. However, these are extremely rare. More frequently urinary infections and residual urine are seen. If residual urine is excessive, temporary clean intermittent catheterization is recommended [31]. In comparative studies in the literature, it has been reported that BoNT/A is more effective than PTNS [10,11]. It has also been reported that SNM and BoNT/A have similar efficiency [21,22]. However, Richter et al. found that SNM is more effective than BoNT/A [20].

Conclusion

Studies have demonstrated the significant benefits of all alternative minimally invasive treatments in the treatment of refractory OAB. Although BoNT/A and SNM have been associated with greater number of side effects, they are very effective treatment modalities. Also, there is no 3rd step treatment method recommended as the gold standard in current guidelines. In refractory OAB, any of these methods can be applied by considering the medical condition and request of the patient.

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A Cause of Recurrent Urinary Retention in Pregnancy; Retroverted Uterus: Case Report

Gebelikte Tekrarlayan Üriner Retansiyon Nedeni; Retrovert Uterus: Olgu Sunumu

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Abstract

Acute urinary retention is one of the most common situations encountered in urological emergencies. It is more frequently seen in older men. Acute urinary retention in pregnant women is a rare condition but it may cause abortus, preterm labor and rarely uterine ischemia. It is very difficult to reveal the causes of acute urinary retention in pregnant women. One of them is acute urinary retention due to retroverted uterus which is observed in 11% of pregnant women. In this case, we discussed a young pregnant patient who presented to our outpatient clinic with complaints of recurrent urinary retention due to retroverted uterus.

Keywords: urinary retention, pregnancy, retroverted uterus

Öz

Akut üriner retansiyon ürolojik aciller içerisinde en sık karşılaşılan durumlardan biridir. Daha sık olarak ileri yaş erkeklerde görülür. Gebelerde ortaya çıkan akut üriner retansiyon ise çok daha nadir karşılaşılan bir durum olsa da, abortus, erken doğum ve nadir olarak uterin iskemi gibi komplikasyonlar ortaya çıkarabilmesi açısından önemlidir. Gebelerde ortaya çıkan akut üriner retansiyonun nedenlerini ortaya koymak oldukça güçtür. Bunlardan bir tanesi de gebelerde %11 oranında gözlenen retrovert uterusu bağlı gelişen akut üriner retansiyondur. Biz de bu olguda retrovert uterus nedeniyle ortaya çıkan tekrarlayan üriner retansiyon şikayetleri ile polikliniğimize başvuran genç gebe bir hastayı tartıştık.

Anahtar Kelimeler: üriner retansiyon, gebelik, retrovert uterus

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Introduction

Urinary retention can be described as an inability to urinate, which occurs due to any cause that needs urgent intervention. It is often seen as a result of obstruction due to benign prostatic hyperplasia and urethral stenosis, especially in adult men. Urinary retention is more rare in women and can potentially occur due to anatomical, pharmacological, neurological, infective, myopathic and psychogenic etiologies [1].

A rare cause of urinary retention is the retroverted uterus, which mechanically obstructs the bladder during pregnancy. Retroverted uterus occurs in approximately 11% of first trimester pregnancies, of which only 1% have urinary retention that requires treatment [2]. Urinary retention in pregnant women is important to prevent complications by revealing the underlying causes.

Case Presentation

A pregnant woman at her 13th gestational week with gravida 2, parity 1 at the age of 28 was admitted to the urology outpatient clinic with abdominal pain and inability to urinate. The patient's complaints of difficult urination continued intermittently for about 1 week and she was admitted to emergency department due to the development of vesical globe. Urethral catheter was inserted several times. Patient's medical history did not reveal any known neurological or urological condition. The patient's first pregnancy was also associated with similar complaints and the patient told that urethral catheterization had been performed previously.

The physical examination showed that the abdomen had a natural appearance. Abdominal palpation was partially painful, and there was no sign of abdominal defense or rebound. Suprapubic pain and a feeling of fullness were present. Urinary ultrasonography (USG) showed grade 2 hydronephrosis in both kidneys and vesical globe (**Figure 1**). The patient underwent urethral catheterization and the bladder was emptied intermittently. Leukocytes (+) were found in microscopic



Figure 1. Retroverted uterus with image of vesical globe and 13-week-old fetus

analysis of urine samples. Blood urea and creatinine values were 62 mg/dl and 1.4 mg/dl, respectively. Results of other biochemical tests were within normal limits. There was no bacterial reproduction in urine culture. A retroverted uterus and a 13-week-old fetus were observed in the patient's pelvic USG.

Other anatomical structures were natural. The patient's urethral catheter was removed, but due to the development of urinary retention again, urethral catheterization was applied. The patient was advised to undergo urodynamic tests but the patient refused. The general evaluation of the patient showed no pathology other than retroverted uterus.

The same complaints in the first trimester of her first pregnancy and the disappearance of the symptoms completely with the termination of pregnancy and the occurrence of urinary retention during the second pregnancy starting from the 13th gestational week were evaluated as urinary retention caused by the retroverted uterus. The patient underwent clean intermittent catheterization training 6 times a day and the urethral catheter was removed. Grade 1 hydronephrosis in the right kidney and natural left kidney were evaluated. It was decided that minimal pelvicalyceal ectasia in the right kidney was thought to be related to pregnancy. The creatinine value of the patient was 0.9 mg / dl. Her urine culture was sterile. She had a normal vaginal birth at the 38th gestational week and the need for clean intermittent catheterization was completely eliminated within 2 months after delivery. There was no pathological finding in urodynamic tests performed at postpartum 3rd month.

Discussion

Urinary retention can occur due to anatomical, pharmacological, neurological, infective, myopathic and psychogenic etiologies [1]. Acute and/or recurrent urinary retention in pregnant women without previous lower urinary tract symptoms; may occur due to ovarian masses that cause external compression to the urethra, leiomyoma, uterine prolapse, retroverted uterus, abdominal pregnancies and Fowler syndrome [3].

Retroverted uterus can cause urinary retention. Anterosuperior displacement of uterus caused by mechanical pressure pushes the uterus towards the bladder neck and under the bladder [4]. Retroverted uterus is seen in approximately 11% of first trimester pregnancies and almost entire uterine fundus enters into abdomen at the end of 3rd month without causing lower urinary tract symptoms. Very rarely it causes urinary retention only in 1.4% of pregnant women with retroverted uterus which most frequently occurs between 10 and 16 weeks of gestation [5]. Our case was a 28-year-old patient with retroverted uterus who presented to our outpatient clinic due to recurrent urinary retention developed at 13th gestational week and had no pathology to explain urinary retention. The utility of urodynamic studies in these patients has not been demonstrated [2]. If left untreated, urinary retention may become permanent and cause complications such as spontaneous or septic abortion, uterine rupture, bladder rupture, chronic neuromuscular dysfunction, and even maternal death [6]. Therefore, detailed physical examination and pelvic ultrasonography should be performed after the patient's urinary retention has been removed. Our patient was recommended to perform clean intermittent catheterization during pregnancy and no complications were encountered during the controls. Although we described the

retroverted uterus that causes urinary retention in our case, high post-mictional residual volumes have been shown in the literature without urinary retention [7]. In cases of incarcerated retroverted uterus, the position of the uterus may be changed from posterior to anterior direction during vaginal examination performed with the patient in the knee- elbow or dorsal lithotomy position. However, during this maneuver, fetal and maternal complications may occur as placenta separation, rupture, etc. [5]. In the literature, Sacco et al. reported a pregnant woman treated with urethral catheterization, manual reduction and antibiotherapy for urinary retention due to retroverted uterus [2]. In this case, which may be encountered although rarely; continuous urethral catheterization, clean intermittent catheterization, and suprapubic catheterization can be used to reduce bladder compression. However, especially complications should be avoided in pregnant women caused by suprapubic catheterization [6].

Urinary retention is a urological emergency and should be treated priorily. Although urinary retention in pregnant women is very rarely caused by retroverted uterus, it is an important entity in terms complications it leads to such as uterine ischemia, abortion, uterine rupture. It should be considered that retroverted uterus may cause this condition together with other pathological conditions especially in the first trimester in pregnant women presenting with urinary retention. Patients may receive continuous and/or clean intermittent catheterization. In addition, the patient should be informed that this condition may recur in later pregnancies.

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Management of Giant Retroperitoneal Liposarcoma: A Case Report

Dev Retroperitoneal Liposarkomun Yönetimi: Bir Olgu Sunumu

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Abstract

Retroperitoneal liposarcoma (RPLS) is a rare tumor. Early diagnosis and treatment are difficult due to absence of specific clinical presentations. We report a case of a 66-years-old woman who successfully underwent complete surgical resection for a giant retroperitoneal liposarcoma. The complete surgical resection is the most important predictor of local recurrence and overall survival. We believe that complete surgical resection involving adjacent organs is a curative treatment to increase overall survival, especially in the presence of invasion of large tumors.

Keywords: retroperitoneal, liposarcoma, large tumor, surgery

Öz

Retroperitoneal liposarkom (RPLS) nadir görülen bir tümördür. Belirgin klinik bulguların olmaması nedeniyle erken tanı ve tedavi zordur. Biz 66 yaşında kadın hastada dev bir retroperitoneal liposarkomun başarılı bir şekilde tam cerrahi rezeksiyon olgusunu sunuyoruz. Tam cerrahi rezeksiyon, lokal nüksün ve genel sağ kalımın en önemli prediktörüdür. Komşu organları içeren tam cerrahi rezeksiyonun, özellikle büyük tümörlerin invazyonu varlığında genel sağ kalımı artırmak için önemli bir tedavi olduğuna inanıyoruz.

Anahtar Kelimeler: retroperitoneal, liposarkom, büyük tümör, cerrahi

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Introduction

Retroperitoneal sarcomas represent 10-15% of all soft tissue sarcomas. The most common histological type of sarcomas is liposarcoma, accounting for 20-45% of cases [1]. Retroperitoneal liposarcoma (RPLS) usually occurs in 40-60 year-old patients, with a male /female ratio of 1:1 [2]. Because of the largeness of retroperitoneal area, liposarcomas are usually asymptomatic. When initially diagnosed, the sarcoma has reached a large size and often invades adjacent organs [3]. If needed a negative surgical margin should be provided by resection of adjacent organs to improve survival. However, the 5-year survival rate is 20% in the well-differentiated and 83% in the undifferentiated subtypes [4]. We report the management of a rare case of a giant 25 cm retroperitoneal liposarcoma.

Case Presentation

A 66-year-old female was admitted to our clinic with abdominal pain. On physical examination a hard, non-mobile mass extending from the bottom of the left costal margin towards the inguinal region was palpated. Contrast-enhanced abdominal computed tomography (CT) was performed. A 25x16 cm sarcoma mass surrounding the left kidney was detected on CT, and the operation was planned (**Figure 1**). The patient was operated through a left semi-chevron incision. It was observed that the left kidney was completely surrounded by the mass. The mass and the left kidney were removed together (**Figure 2**). The operation time was 170 min and the estimated blood loss was 250 ml. No perioperative complication occurred. The patient was discharged on the 4th postoperative day. The histopathological evaluation revealed a well-differentiated liposarcoma with a size of 25x16x12 cm (**Figure 3**). Neoadjuvant and/or adjuvant radiotherapy and chemotherapy were not given

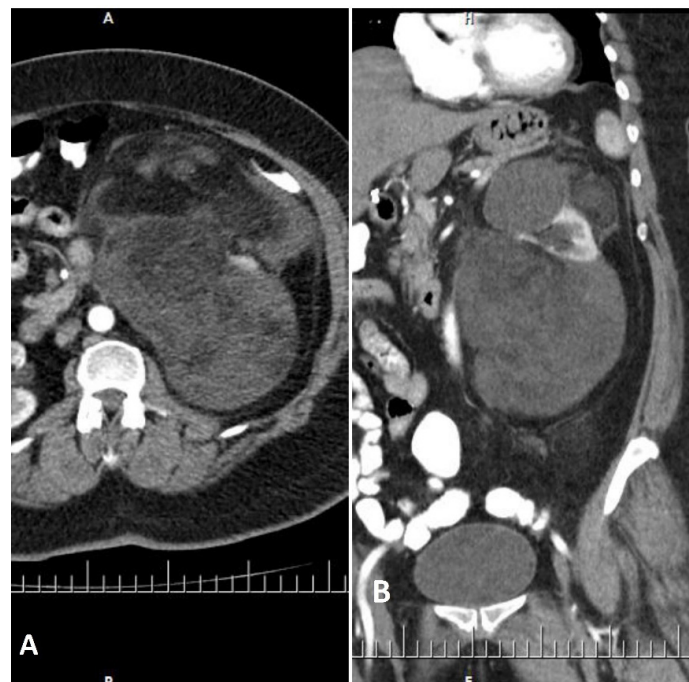


Figure 1. A- Contrast-enhanced abdominal computed tomography (CT) in the axial plane showing a large tumor in the abdomen B- Contrast enhanced CT scan in the coronal plane showing large tumor surrounding the left kidney

to the patient. No recurrence or distant metastasis was detected in the postoperative 12 months of follow-up.

Discussion

RPLS is a rare tumor accounting for less than 0.2% of all malignancies. However, it is the most common type of retroperitoneal tumor. RPLS does not manifest typical symptoms, so it is difficult to make a diagnosis at an early stage. When clinical symptoms occur, the liposarcoma usually becomes large in size and compresses the adjacent organs [5]. Liposarcomas can be of different sizes and weights. Retroperitoneal liposarcomas

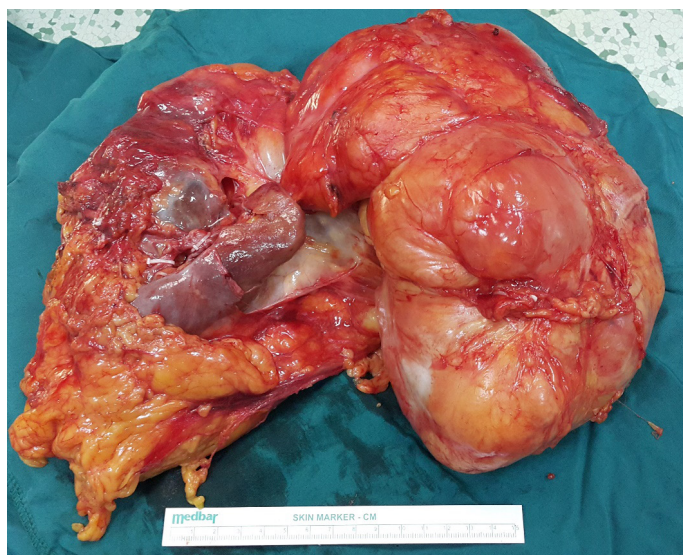


Figure 2. Gross appearance of the liposarcoma, 25x16x12 cm in size

that weigh more than 20 kg are called giant liposarcomas and are extremely rare [2].

The most common diagnostic method for RPLS is CT. On CT imaging, liposarcomas appear as a large encapsulated mass containing different amounts of fat and soft tissue components. CT also helps in detecting tumor size, adjacent organ invasion, and distant metastases [6]. In our case, we used contrast-enhanced abdominal CT as a diagnostic test.

The definitive diagnosis of RPLS is established by histopathological examination. RPLS histologically (undifferentiated, pleomorphic, well-differentiated, myxoid/round cell RPLS) is divided into 4 groups [7]. Undifferentiated, pleomorphic types are high-grade carcinomas, and the rate of metastasis and recurrence is high. On the other hand, well-differentiated and myxoid / round cell types are low-grade carcinomas with a good prognosis [4]. Gronchi et al. reported overall 5-year survival rates for well-differentiated, myxoid/round cell, undifferentiated and pleomorphic, as 90%, 60 - 90%, 75% and 30 - 50%, respectively [8].

Complete surgical resection is the most important point of treatment. Successful complete resection of retroperitoneal liposarcoma has been shown to increase the 5-year survival rate from 16.7% to 58% [9]. It has been shown that approximately 80% of RPLS patients are eligible for complete surgical

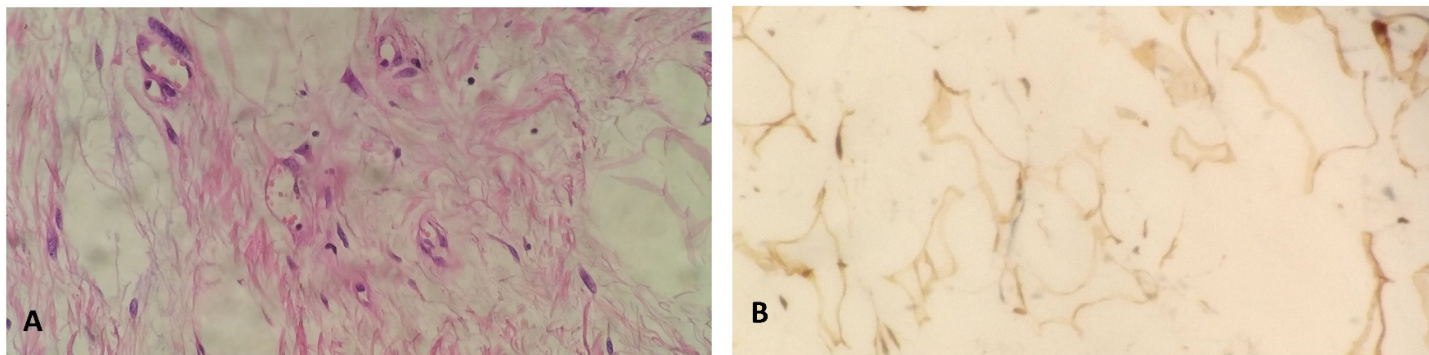


Figure 3. Histopathologic findings A- Well- differentiated liposarcoma (original magnification X100, H&E staining) B- Atypical lipocytes with strong s-100 positivity are observed

resection and that this treatment prolongs the median survival time by 83 months and these patients have a 5-year disease-free survival rate of 60%. In another study, 3 and 5-year survival rates of patients who underwent complete resection were reported as 73% and 60%, respectively [10]. Long-term prognosis is poor in patients without complete resection and 5-, and 10-year survival rates are 16.7% and 8%, respectively [11].

To achieve complete removal of the tumor, 57.0 - 83.0% of patients with RPLS require resection of adjacent organs such as kidney, adrenal gland, ureter, colon, small intestine, omentum and spleen [10]. In addition, complete resection involving resection of organs adjacent to the tumor has been shown to be useful for the prevention of local recurrence. In RPLS cases, the most common resected organ during complete resection is the kidney [12]. Radical nephrectomy performed in cases of RPLS located near the kidney has a beneficial effect on disease-free survival [13]. In our case, a giant 25 cm liposarcoma located in the left retroperitoneal region was found to surround the left kidney. The mass and the kidney were removed all together to increase survival rates and achieve a negative surgical margin. Indeed, in our case surgical margin negativity was obtained. No local recurrence or distant metastasis was detected in CT at postoperative 3th, 6th, and 12th months.

The benefits of using adjuvant chemotherapy and radiotherapy to improve survival in RPLS patients are controversial [10]. Adjuvant chemotherapy has been shown to benefit very few patients in a limited number of studies [13,14]. However, chemotherapy has been suggested, but it has worsened patient's prognosis [10]. The effectiveness of postoperative radiotherapy has been inquired in local control rather than overall survival [11]. Ballo et al. also stated that radiotherapy was ineffective in RPLS cases and radiotherapy applied may cause neuropathy, hydronephrosis, fistula and ileus [15]. It should not be ignored that radiotherapy to be applied to the retroperitoneal area may damage the visceral organs such as kidney, liver and intestines [15]. In our case of RPLS, we performed complete resection. Adjuvant radiotherapy and chemotherapy were not performed because the surgical margin was negative and histological subtype was well-differentiated liposarcoma.

In conclusion, RPLS is a rare tumor with a high rate of relapse without any typical symptoms. The large size of the mass at the time of diagnosis can make surgery difficult. Complete resection of the mass (resection of adjacent organs

may also be required) is the most important step for treatment. In addition, histopathologic subtypes are important in survival. RPLS should be treated with a multidisciplinary approach and a long-term follow-up examination should be performed.

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Isolated Adrenal Gland Injury After Blunt Trauma

Künt Travma Sonrası İzole Böbrek Üstü Bezi Yaralanması

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A 36-year-old male patient was admitted to the emergency department with abdominal and left side pain 1.5 hours after an in-vehicle traffic accident. The patient had no history of comorbidity or surgery. The patient did not receive any anticoagulant or antiplatelet therapy prior to the trauma. Vital signs of the patient were stable (Blood pressure 145/100 mmHg, pulse 98 beats/min, and temperature 37.2°C). Physical examination revealed no additional pathology except left side pain and left upper quadrant tenderness in deep palpation. White blood cells were found to be 17.330/mm³, hemoglobin level 17.34 mg/dL, and hematocrit 48.83% in the complete blood count examination. There was no abnormality in the biochemical analysis. An evaluation focused on sonography for trauma (FAST) in the emergency department was negative. Contrast-enhanced thoracoabdominal computed tomography (CT) scan was performed. Abdominal CT revealed a 44x42 mm

left central hyperdense and peripheral hypodense adrenal mass (63 Hounsfield unit) and periaadrenal fat strands. Additionally, a cortical cyst was observed in the upper pole of the left kidney (**Figure 1**). The lesion was evaluated as an adrenal hematoma. No other injuries were detected, especially no injury to the spleen or kidney. No rib or spine fractures were observed. The patient was treated conservatively with bed rest, parenteral fluid, antibiotherapy, and analgesics. Hemoglobin and biochemical parameters remained constant. Endocrinology consultation was requested for adrenal insufficiency. Endocrinological evaluations revealed no pathology. The control abdominal CT performed 7 days later showed that the hematoma did not progress (40x37 mm, central density is prominent) (**Figure 2**). The patient was discharged without any problems. An abdominal CT scan was planned to evaluate the resolution of the adrenal hematoma 1 month later. The patient was asymptomatic during the follow-



Figure 1. A- Left adrenal hematoma 44x42 mm attenuated central hyperdense and peripheral hypodense round mass in the adrenal gland, B- Periaadrenal fat stranding, C- Left kidney upper pole simple cortical cyst (Axial view of enhanced abdominal CT scan)

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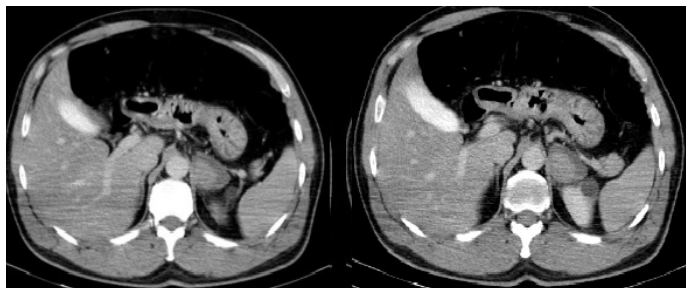


Figure 2. Control abdominal CT; regression of hematoma and increased appearance of central hyperdensity (Axial view of enhanced abdominal CT scan)

up. No abscess or infection format was observed. Informed written consent was obtained from the patient for this report.

Adrenal gland injury is a rare clinical picture caused by motor vehicle accidents, sports injuries, or blunt abdominal trauma after falling [1–3]. Isolated adrenal gland injury is rare due to its small size, deep retroperitoneal position on the upper abdomen, and presence of full-fat tissue around it. Most adrenal gland injuries are associated with multiple adjacent skeletal and organ injuries [4].

Adrenal gland injuries have been reported in approximately 2-3% of all thoracoabdominal injuries [5]. Unilateral adrenal injuries occur 5 times more on the right side than on the left (77% versus 15%), and bilateral adrenal injuries occur in 8% of cases in trauma [4].

Being usually silent and self-limiting, it does not require major operative intervention. However, it may be potentially life-threatening in some cases. The most common symptom is pain; other clinical presentations vary greatly, and it does not produce any specific symptoms or biomarkers. Abdominal pain, side pain, nausea, vomiting, hypotension, hypertension, a palpable side mass, agitation, mental status changes, and low-grade fever may occur [6]. The emergency physician should be aware of the possibility of organ damage associated with adrenal injury and the potential for adrenal insufficiency especially if an unusual complaint is presented after blunt trauma (unexplained hypotension, electrolyte disorder, and pain that does not go away despite analgesics) [3].

Although ultrasonography is noninvasive, easily accessible, and inexpensive, it is dependent on the person and can sometimes be inadequate when evaluating retroperitoneal organs. CT is the gold standard for detecting adrenal gland injury as in all trauma cases [7]. CT scan findings of adrenal gland injury include hyperdensity, periadrenal fat stranding infiltration, and ipsilateral diaphragmatic crural thickening [4,8]. Furthermore, the need to monitor and rule out an underlying adrenal neoplasm should be taken into account in these patients due to possible bleeding to a pre-existing adrenal mass [9].

Surgery (adrenalectomy) and interventional radiologic procedures (embolization) may be needed although most adrenal gland injuries are treated conservatively. Treatment depends on the hemodynamic condition of the patient, the severity of the gland damage, bilateral gland involvement, and the extent of bleeding within the gland [10].

Keywords: adrenal, blunt trauma, bleeding, hematoma

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An Unexpected Emergency Room Visit: Penile Strangulation with Rubber Band

Acil Servise Beklenmedik Bir Başvuru: Lastik Bant ile Penil Strangülasyon

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A 74-year-old male patient was admitted to the emergency department reaching a depth of 1 cm surrounding the penis body, bleeding, and discoloration of the penis skin. It was observed that there were white-yellow rubber bands in the incision area in the examination of the patient (**Figure 1**). Laboratory examinations revealed no pathology. The patient was consulted at the urology clinic. It was learned that he underwent urethral surgery after trauma and he had continuous urinary incontinence and compressed his penis with these rubber bands to prevent it. 18 Fr urethral Foley catheter was inserted. It was observed in the exploration that the rubber bands lacerated the penis skin laterally and dorsally to tunica albuginea, and ventrally to corpus spongiosum and urethra level. Five rubber bands were cut and removed (**Figure 2**). It was observed that corpus spongiosum-urethra and corpus cavernosa were intact in exploration. The penile skin was left for secondary healing after



Figure 1. Preoperative appearance



Figure 2. Removed rubber bands



Figure 3. Postoperative appearance

sterile cleansing of the skin and subcutaneous tissue (**Figure 3**). Penis was wrapped with a Coban bandage after the medical dressing. The urethral catheter was removed on the first day after the operation. The patient was prescribed broad-spectrum antibiotherapy, analgesic, anti-inflammatory, and duloxetine for continence. Kegel exercises were practically explained. The patient was referred to the psychiatric clinic before discharge. It was observed in the follow-up one week later that the penis healing was good except for mild edema and the wound healed completely (**Figure 4**). The penis was found to be completely normal except for skin pigment change in several areas a month later (**Figure 5**). The patient stated that there was intermittent continence. Written informed consent form was obtained from the patient.

Penile strangulation with a foreign material is a rare condition and was first reported by Gauthier in 1755. To date, only a few case series have been published in the literature with fewer than 100 case reports. Penile strangulation is a condition that needs to be intervened urgently, and it can lead to complications such as gangrene and amputation of the penis if not treated as soon as possible [1,2].

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Figure 4. Control appearance after 1 week



Figure 5. Control appearance after 1 month

Foreign materials used for strangulation can be classified as soft and hard. In the literature, the most common hard materials for strangulation were metallic rings (49.0%), metallic tubes (14.8%), plastic bottles (12.1%), rings (9.4%) and plastic products (6.7%) and the most common soft materials for strangulation were rubber bands (67.9%), rubber strings (13.2%), threads (13.2%) and vinyl products (1.9%). The most common causes to use foreign material for penile strangulation were pranks, sexual intercourses, treatments of incontinence, and treatments of phimosis [3].

Complications related to penile strangulation injuries are skin erosion, laceration, infection, urethral transection, penile gangrene, and autoamputation [4]. Bhat et al. developed a grading system for penile strangulation injuries due to constructive objects around the penis and divided them into five categories from penis edema to gangrene. Grade I causes edema only, whereas Grade II involves penile paresthesia. Grade III includes skin and urethral damage but does not include urethral fistula. Grade IV includes the urethral fistula. It involves Grade V injury, gangrene, necrosis, or complete amputation [5].

The management of the patients is different according to the type of foreign body and the clinical findings of each case. There is not a standard surgical approach [6]. The treatment mainly aims to remove the constricting object as soon as possible to restore venous and lymphatic drainage and arterial flow by preserving

the anatomy and functionality of the organ [7]. Thin non-metallic constricting objects are easy to remove in the treatment of penile strangulation. Successful results can be obtained by cutting such objects with simple surgical scissors or a scalpel. Orthopedic surgical instruments or non-medical instruments may be needed in metal objects or in patients with severe edema after penile strangulation [8]. In addition, psychological and psychosexual evaluation of these patients is a part of the treatment.

Keywords: penile strangulation, rubber band, urologic emergency

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Urological Research and Education in Covid-19 Pandemic

COVID-19 Pandemisinde Ürolojik Araştırma ve Eğitim

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The new coronaviruses outbreak caused by SARS-CoV-2 (COVID-19) originated from the Chinese region of Wuhan in the last quarter of 2019 affected approximately 75 million people all around the world and caused over 1.6 million deaths [1]. COVID-19 is a highly contagious viral infection and its main routes for transmission are the person to person contact, touch, and aerosol. While it has detrimental effects on respiratory and cardiovascular systems it also can be found in digestive and urinary systems. The frequently experienced symptoms are fever, dry cough, dyspnea, fatigue, and loss of appetite [2]. With an ongoing effort, several researchers focused on investigating a drug or vaccine to end the pandemic. Currently, despite there is no drug specifically approved for COVID-19 treatment, there has been more than one vaccine from different nations to prevent the virus spread.

Prior to the COVID-19 pandemic, virology research constituted less than 2% of all biomedical research. But this rate has been increased to 10-20% which represents the incredible adaptation potential of the research community. By the way, the COVID-19 pandemic led to a massive influx of publication not only by virologists and infectious health specialists but also by almost all medical disciplines. To facilitate early dissemination of knowledge prior to any peer-review, many articles have been uploaded preprint services [3]. It is not realistic to assume that a qualified and strict peer-review process could compensate for the high number of submissions. Moreover, someone must be aware that those non-peer-reviewed materials could be picked up by the media and spread to the population.

Social distancing and transmission issues have also led to

travel and social restrictions that resulted in many trials to be suspended or delaying in patient recruitment [4]. It is well-known that generally large-scale randomized trials were not set up in time in the previous pandemic. However, the use of modern information technologies in combination with old-fashioned randomization might lead to the rapid gain of viable results nowadays. Countries might be encouraged to establish clinical-trial networks to activate and arrange large multi-center studies [5].

COVID-19 pandemic deeply affects not only urological patient care but also urology residency education. Work hours modified and residences redeployed to serve in pandemic services in many countries. This situation came along with the problem of interrupted urologic training and unmet minimal case requirements. Generally, online learning curricula have been well-adopted by urologists. However, recent studies have been shown that such changes caused emotionally and physically stressful situations for trainees [6].

In conclusion, it is obvious that Coronavirus will continue to be in our daily life for a while. Thus, maintaining research and education is vital in all disciplines of medicine. Contributing to the scientific area with respect to essential requirements and ethics will support the development of all humanity in this crisis. Hereby, We would like to congratulate you on the first issue of your journal planned to be released in such a difficult time and wish you to have significant contributions to the field of urology in a strictly scientific manner.

Sincerely yours.



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