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Comparative Assessment of Urological Emergency Cases Before and After the COVID-19 Outbreak

COVID-19 Pandemisi Öncesi ve Sonrası Ürolojik Acil Olguların Karşılaştırmalı Değerlendirmesi

Selçuk Sarıkaya[1], İbrahim Kılıççalan[2], Selim Can Peker[3], Selahattin Bedir[1]

[1]University of Health Sciences Türkiye, Gülhane Training and Reseacrh Hospital, Clinic of Urology, Ankara, Türkiye
[2]İstanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine, Department of Emergency Medicine, İstanbul, Türkiye
[3]University of Health Sciences Türkiye, Gülhane Faculty of Medicine, Ankara, Türkiye

Abstract

Objectives: Coronavirus disease-2019 (COVID-19) pandemic originated from China and has affected all countries in the world as well as Türkiye. In our study, we aimed to evaluate the effects of COVID-19 pandemic on urological emergency admissions.

Materials and Methods: Urological emergency admissions between March 2019-February 2020 and March 2020-February 2021 periods were noted and evaluated in detail. The admissions were divided into two groups as non-traumatic and traumatic admissions for both periods. Traumatic and non-traumatic admissions were analyzed in detail and statistical analysis was performed in order to analyse the differences in terms of admission type and gender.

Results: Two thousand two hundred fifty-two cases were evaluated (1,096 before the pandemic, 1,156 after the pandemic). The renal traumas, ureteral traumas, bladder traumas, penile traumas, scrotal traumas, simultaneous penile and scrotal traumas and other trauma types were evaluated in detail. Non-traumatic urological emergencies were also investigated for the same time periods. Testicular torsions, acute scrotum, urinary tract infections, fournier gangrenes, hematuria, urolithiasis, glob vesicale, pregnants with urological complaints, priapism and other urological conditions were seen and evaluated in detail. Statistically significant difference has been observed between the periods.

Conclusion: Emergency admissions have been affected by the COVID-19 pandemic. The deferred complaints changed the emergency admission conditions. Most of the people delayed their routine outpatient clinic follow-ups or their first admissions due to the disease transmission concerns. These factors have resulted in changes and mostly caused late diagnosis and treatment.

Keywords: COVID-19, pandemic, outbreak, urological emergency, emergency

Öz

Amaç: Çin kaynaklı koronavirüs hastalığı-2019 (COVID-19) pandemisi, Türkiye'nin yanı sıra tüm dünya ülkelerini etkisi altına aldı. Çalışmamızda COVID-19 salgınının ürolojik acil başvurulara etkilerini değerlendirmeyi amaçladık.

Gereç ve Yöntem: Mart 2019-Şubat 2020 ve Mart 2020-Şubat 2021 dönemleri arasındaki ürolojik acil başvuruları kayıt edilerek detaylı olarak değerlendirildi. Başvurular her iki dönem için de travmatik ve travmatik olmayan başvurular olarak iki gruba ayrıldı. Travmatik ve travmatik olmayan başvurular ayrıntılı olarak incelendi ve istatistiksel analiz yapıldı. İstatistiksel analiz, başvuru nedenlerine ve cinsiyete göre farklılıkları ortaya koymak için yapıldı.

Bulgular: İki bin iki yüz elli olgu değerlendirildi (pandemiden önce 1096, pandemiden sonra 1156). Böbrek travmaları, üreter travmaları, mesane travmaları, penis travmaları, skrotal travmalar, eş zamanlı penil ve skrotal travmalar ve diğer travma türleri detaylı olarak değerlendirildi. Aynı

Address for Correspondence/Yazışma Adresi: Selçuk Sarıkaya
University of Health Sciences Türkiye, Gülhane Training and Reseacrh Hospital, Clinic of Urology, Ankara, Türkiye
E-mail: drselcuksarikaya@hotmail.com **ORCID ID:** orcid.org/0000-0001-6426-1398

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zaman dilimlerinde travmatik olmayan ürolojik aciller de araştırıldı. Testis torsiyonları, akut skrotum, idrar yolu enfeksiyonları, fournier gangren, hematüri, ürolitiazis, glob vesikale, ürolojik şikayeti olan gebeler, priapizm ve diğer ürolojik patolojiler detaylı olarak değerlendirildi. Dönemler arasında istatistiksel olarak anlamlı farklılıklar gözlenmiştir.

Sonuç: Acil servis başvuruları COVID-19 salgınından etkilendi ve ertelenen şikayetler acil başvurularını değiştirdi. Çoğu kişi hastalık bulaşma endişesi nedeniyle rutin poliklinik takiplerini ya da ilk başvurularını erteledi. Ertelenen başvurular çoğunlukla geç tanı ve tedaviye neden olmuştur.

Anahtar Kelimeler: COVID-19, pandemi, salgın, ürolojik acil, acil

Introduction

Coronavirus disease-2019 (COVID-19) epidemic, which has been accepted as pandemic since March 2020 in the world, has brought many problems (1). While these problems increase the workload for hospitals and doctors, it has also affected the communication between patients and healthcare professionals. However, the reduction of hospital capacities due to the COVID-19 epidemic has limited the treatment of other pathological conditions, especially the emergent pathologies. In addition, it is thought that the diagnosis and treatment of urological emergencies, which have an important place in urology practice, have been affected as well as the other emergent conditions. Urological emergencies to the emergency department have been evaluated in our study by dividing them into two groups as non-traumatic and traumatic. Traumatic urological emergencies were classified as kidney trauma, ureter trauma, bladder trauma, penile trauma and scrotal trauma. Non-traumatic urological emergencies were classified as testicular torsion, acute scrotum, urinary tract infections, Fournier's gangrene, hematuria, urolithiasis, glob vesicale (acute urinary retention), hydronephrosis, pregnants urological complaints, priapism (2). In our study, it was aimed to examine the possible differences between the emergency admissions to our hospital in terms of urological emergency conditions between the pre-pandemic period and the pandemic period. In our study, it was aimed to determine the possible changes in the frequency of urological emergencies depending on the pandemic period, possible changes in the frequency order of urological emergencies, the underlying causes of urological emergencies, if any, and detailed analysis for these conditions. In this context, the frequency of urological emergencies and the distribution of admissions were examined by including the urological emergency applications made to the Gülhane Training and Research Hospital, Department of Urology between March 2019-February 2020 and March 2020-February 2021.

Materials and Methods

In our study, the data of patients who admitted to the emergency department during the pre-pandemic period (March 2019-February 2020) and the pandemic period (March 2020-February 2021) were compared. The study protocol was first registered in the data of the Turkish Republic Ministry of Health Scientific Research Committee and then approved by the Committee on the Scientific Research Ethics of the University of Health Sciences Türkiye, Gülhane Faculty of Medicine (date: 03.06.2021, number: 2021/11). The design of the study was retrospective record review. Urological emergencies were evaluated with statistical analysis in terms of emergency types, period and gender. Emergency patients that were consulted to urology deperatment with adequate records have been included in the study. Non-emergent patients and the patients with missing data were excluded from the study.

In the study, urological emergencies were basically divided into two main groups as traumatic and non-traumatic urological emergencies. Traumatic urological emergencies were grouped as renal traumas, ureteral trauma, bladder trauma, penile trauma and scrotal trauma. Non-traumatic urological emergencies were classified as testicular torsion, acute scrotum, urinary tract infections, Fournier's gangrene, hematuria, urolithiasis, glob vesicale (acute urinary retention), hydronephrosis, pregnants urological complaints and priapism.

Statistical Analysis

Statistical Package for the Social Sciences version 22.0 software (IBM Corp., Armonk, NY, USA) was used for statistical analysis of the data obtained within the scope of the study. Pre-pandemic and pandemic period records were examined retrospectively in detail as traumatic and non-traumatic. Admissions before and during the pandemic period, traumatic emergencies, non-traumatic emergencies and the data of patients in terms of gender were evaluated separately. The normality status of the variables were evaluated with using Kolmogorov-Smirnov and Shapiro-Wilk tests. Pearson chi-square test was used for statistical comparison of the variables. Within the scope of all statistical analyzes, the value of $p<0.05$ was accepted as statistically significant. In addition, the values for each emergency types and the ratios were also examined and presented.

Results

The number of urological emergency admissions and the details were evaluated in our study. The admissions were analysed in terms of admission types and gender. While evaluating the

urological emergency admissions, it was observed that; 1,096 of the cases were in the pre-pandemic period and 1,156 of them were in the pandemic period. A statistically significant difference was observed between these groups (p<0.05). The number of cases were evaluated in detail (Figure 1, and Tables 1, 2).

Non-traumatic and traumatic male patient patients for pre-pandemic and pandemic periods were compared and no statistically significant differences were observed (p=0.243, p=0.227). Non-traumatic and traumatic female patient patients for pre-pandemic and pandemic periods were compared and no statistically significant differences were observed (p=0.213, p=0.261).

Two thousand two hundred fifty-two patients that evaluated as urological emergencies and were consulted to urology department. One thousand and ninety-six cases were admitted in pre-pandemic and 1,156 admitted during pandemic periods (p<0.05). There was a statistically significant increase for the pandemic period.

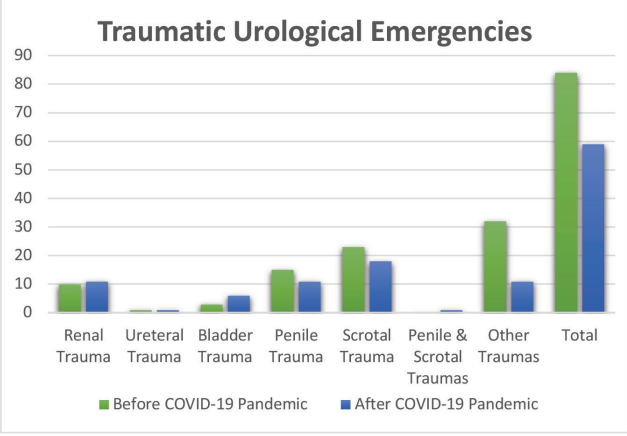

Figure 1: Traumatic urological emergencies
COVID-19: Coronavirus disease-2019

Pre-pandemic traumatic urological emergency admissions were 84 (73 male, 11 female), pandemic traumatic urological emergency admissions were 59 (53 male, 6 female). However the difference was not statistically significant (p=0.236). Traumatic urological emergencies decreased during the pandemic period. In addition, traumatic urological emergency admissions were significantly higher in males than females for both periods (pre-pandemic 6.63 times and pandemic 8.83 times). The differences were not statistically significant. There was no statistical significant difference for traumatic male and female patient admissions in terms of periods (p=0.243, p=0.261) (Tables 3, 4).

- **Renal Trauma:** For pre-pandemic period, 7 cases were male, 3 were female (M/F=2.33) (11.9% of all traumas). For pandemic period, 10 cases male and 1 female (M/F=10) (18.6% of all traumas) (Figures 2, 3).
- **Ureteral Trauma:** One case for each periods were observed. And both were female (pre-pandemic 1.1% and pandemic 1.69% of all traumas) (Figures 2, 3).
- **Bladder Trauma:** Pre-pandemic 1 male and 2 female patients were observed (M/F=0.5). Pandemic 5 male and 1 female patients were observed (M/F=5) (pre-pandemic 3.5% and pandemic 10.1% of all traumas) (Figures 2, 3).
- **Penile Trauma:** Fifteen pre-pandemic, 11 pandemic cases were observed (pre-pandemic 17.8% and pandemic 18.6% of all traumas) (Figures 2, 3).
- **Scrotal Trauma:** Thirty-two pre-pandemic, 18 pandemic cases were observed (pre-pandemic 27.3% and pandemic 30.5% of all traumas) (Figures 2, 3).

Pre-pandemic non-traumatic cases were 1,012 (641 male, 371 famele), Pandemic non-traumatic cases were 1,097 (754 male, 347 famele). The number of cases were increased in the pandemic period but not statistically significant (p=0.089). In addition, non-traumatic urological emergency admissions were observed to be significantly higher in males than females for both periods (pre-pandemic 1.72 times, pandemic 2.17 times).

Table 1: Distribution of traumatic urological emergencies by gender, before and after the pandemic

Urological emergency admissions	Before COVID-19 pandemic			COVID-19 pandemic		
	Male	Female	Total	Male	Female	Total
Traumatic						
Renal trauma	7	3	10	10	1	11
Ureteral trauma	0	1	1	0	1	1
Bladder trauma	1	2	3	5	1	6
Penile trauma	15	0	15	11	0	11
Scrotal trauma	23	0	23	18	0	18
Penile and scrotal traumas	0	0	0	1	0	1
Other traumas	27	5	32	8	3	11
Total	73	11	84	53	6	59

COVID-19: Coronavirus disease-2019

No statistically significant non-traumatic male and female admission differences for pre-pandemic and pandemic periods p=0.229, p=0.243. Non-traumatic urological emergencies were more common in males and no statistically significant difference observed for non-traumatic male patient admissions during the pre-pandemic and pandemic periods (p=0.231). Also no statistically significant outcomes were observed for females (p=0.243).

Table 2: Distribution of non-traumatic urological emergencies by gender, before and after the pandemic

Urological emergency admissions	Before COVID-19 pandemic			COVID-19 pandemic		
	Male	Female	Total	Male	Female	Total
Non-traumatic						
Testicular torsion	5	0	5	10	0	10
Acute scrotum	167	0	167	160	0	160
Urinary tract ınfection	35	39	74	62	46	108
Fournier gangrene	3	2	5	2	1	3
Hematuria	116	55	171	120	45	165
Urolithiasis	176	125	301	243	134	377
Glob vesicale	45	8	53	61	12	73
Hydronephrosis	17	12	29	32	16	48
Pregnants urological complaints	0	96	96	0	62	62
Hematuria and urolithiasis	9	9	18	10	3	13
Urolithiasis and hydronephrosis	2	8	10	1	1	2
Acute scrotum and hematuria	2	0	2	1	0	1
Urinary tract infection and hematuria	3	3	6	1	5	6
Urinary tract infection and urolithiasis	1	4	5	6	5	11
Urinary tract infection and glob vesicale	0	1	1	0	0	0
Hematuria and hydronephrosis	5	0	5	0	1	1
Acute scrotum and glob vesicale	1	0	1	0	0	0
Urolithiasis and glob vesicale	1	0	1	0	0	0
Urinary tract infection and hydronephrosis	1	1	2	2	3	5
Hematuria and glob vesicale	2	2	4	0	0	0
Urinary tract infection, hematuria and hydronephrosis	0	1	1	3	0	3
Priapism	8	0	8	6	0	6
Other urological conditions	42	5	47	34	9	43
Total	641	371	1012	754	343	1097

COVID-19: Coronavirus disease-2019

Table 3: Statistical analysis in terms of period, gender and admission type

Period		Before pandemic			
	Gender and type	Non-traumatic female	Non-traumatic male	Traumatic female	Traumatic male
Before pandemic	Non-traumatic female	-	p=0.229	p=0.213	-
	Non-traumatic male	p=0.229	-	-	p=0.243
	Traumatic female	p=0.213	-	-	p=0.213
	Traumatic male	-	p=0.243	p=0.213	-
Period		After pandemic			
	Gender & type	Non-traumatic female	Non-traumatic male	Traumatic female	Traumatic male
After pandemic	Non-traumatic female	-	p=0.243	p=0.261	-
	Non-traumatic male	p=0.243	-	-	p=0.227
	Traumatic female	p=0.261	-	-	p=0.261
	Traumatic male	-	p=0.227	p=0.261	-

Table 4: Statistical comparison of the total number of patients			
Trauma type	**Traumatic admissions**		
Period/Gender	**Male patients**	**Female patients**	**Total**
Before the pandemic vs during the pandemic	p=0.243	p=0.261	p=0.236
Trauma type	**Non-traumatic admissions**		
Period/Gender	**Male patients**	**Female patients**	**Total**
Before the pandemic vs during the pandemic	p=0.231	p=0.243	p=0.089

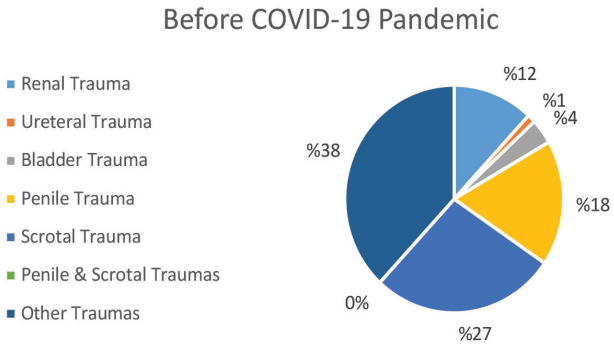

Figure 2: Distribution of traumatic urological emergencies before the COVID-19 pandemic
COVID-19: Coronavirus disease-2019

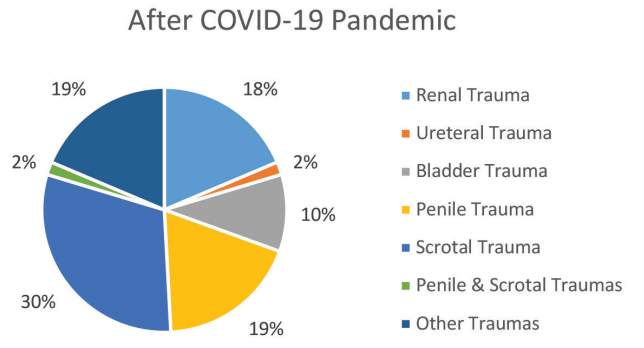

Figure 3: Distribution of traumatic urological emergencies after the COVID-19 pandemic
COVID-19: Coronavirus disease-2019

• **Testicular Torsion:** Five pre-pandemic, 10 pandemic cases were observed (pre-pandemic 0.49% and pandemic 0.91% of all non-traumatics). Admissions increased 1.85 times in the pandemic period.

• **Acute Scrotum:** One hundred and sixty-seven pre-pandemic, 160 pandemic cases were observed (pre-pandemic 16.5% and pandemic 14.5% of all non-traumatics). Admissions were similar for both periods.

• **Urinary Tract Infections (Pyelonephritis, Urethritis, Urosepsis):** For pre-pandemic period, 35 cases were male, 39 were female (M/F=0.89) (7.3% of all non-traumatics). For pandemic period, 62 cases male and 46 female (M/F=1.3) (9.84% of non-traumatics).

• **Fournier's Gangrene:** For pre-pandemic period, 3 cases were male, 2 were female (M/F=1.5). For pandemic period, 2 cases male and 1 female (M/F=2).

• **Hematuria:** For pre-pandemic period, 116 cases were male, 55 were female (M/F=2.1) (16.8% of all non-traumatics) For pandemic period, 120 cases male and 45 female (M/F=2.6) (15.04% of all non-traumatics).

• **Urolithiasis:** For pre-pandemic period, 176 cases were male, 125 were female (M/F=1.4) (29.7% of all non-traumatics). For pandemic period, 243 cases male and 134 female (M/F=1.8) (34.3% of all non-traumatics).

• **Glob Vesicale (Acute Urinary Retention):** For pre-pandemic period, 45 cases were male, 8 were female (M/F=5.6) (5.2% of all non-traumatics). For pandemic period, 61 cases male and 12 female (M/F=5.08) (6.6% of all non-traumatics).

• **Hydronephrosis:** For pre-pandemic period, 17 cases were male, 12 were female (M/F=1.4) (2.8% of all non-traumatics). For pandemic period, 32 cases male and 16 female (M/F=2) (4.3% of all non-traumatics).

• **Pregnants Urological Complaints:** Ninety-six pre-pandemic, 62 pandemic cases were observed (pre-pandemic 9.4% and pandemic 5.6% of all non-traumatics). Admissions during pandemic period decreased by 1.67 times compared to pre-pandemic period.

• **Priapism:** Eight pre-pandemic, 6 pandemic cases were observed (pre-pandemic 0.7% and pandemic 0.5% of all non-traumatics).

Discussion

COVID-19 pandemic period has changed hospital admissions. When the results were evaluated in detail, it was clearly observed that urologic emergency admissions have increased with statistically significance during the pandemic period. When the results were investigated in terms of gender, traumatic urological emergency admissions were significantly higher in males than females for both periods. There were also differences in terms of gender and admission type between periods but most of the results were not statistically significant.

In a retrospective study of Bašković et al. (3), 15-month periods before and after pandemic were compared, emergent

pediatric surgical consultations that were evaluated as urological emergencies were examined. The cases were grouped as abdominal pain, acute scrotum, upper extremity injuries and lower extremity injuries. The surgeries were grouped as total surgery cases (emergency + elective), appendectomy, scrotal exploration, surgical fracture repair. A significant decrease in examinations was observed for pandemic period and no significant difference was observed for the number of operations (3). In a study, by Motterle et al. (4), cases in a 36-day period after the onset of the COVID-19 pandemic, in a single center, who applied to emergency department and were evaluated as urological emergencies. Comparison was made with urological emergencies in the same period of the previous year and significant decrease was observed for pandemic period (4). In the study of Grasso et al. (5), the cases that applied to the emergency service during the first 3-months after the onset of COVID-19 pandemic at four centers were evaluated. Urological emergencies were compared with 2018 and 2019. Significant decrease was detected for pandemic period (5). In our study, statistically significant increase was observed. This condition would be observed due to the geographical differences and the limited number of patients that have been examined in the urology outpatient clinics during the pandemic period.

However an increase was observed for emergency cases during the pandemic period, there was a decrease for traumatic cases. This is an interesting result as there are limited number of studies investigating these admission types. This would be due to the limitation for working hours and being outside home during that period. Traumatic and non-traumatic admissions were evaluated in detail with analysis results in our study.

Renal trauma is divided as penetrating and blunt traumas. Blunt traumas are the most common (90-95%) (6,7). It constitutes 1-5% of all traumas (7). It is observed three times more frequently in men (7). In our study, there is a decrease in the number of traumatic urological emergencies in the pandemic period and the increased rate of renal traumas among traumatic cases in our center.

Ureteral trauma is rare and usually occurs iatrogenic (8). Penetrating trauma is the most common etiology after iatrogenic injuries (8). Its incidence has been reported as 3 in 10,000 (9). These data reveal the low rates of ureteral trauma among traumatic emergencies.

Bladder injuries are rare injuries with high mortality and morbidity (10-22%), which are divided into two main groups as extraperitoneal and intraperitoneal (10). Extraperitoneal injuries often occur with pelvic fractures (11). Intraperitoneal traumas occur due to exposure of the bladder to high-energy traumas (11). Bladder traumas usually present with pelvic pain and macroscopic hematuria (12). Treatment depends on its type. While conservative approach (with catheter drainage) is mainly considered for extraperitoneal injuries, surgical treatment is usually performed for intraperitoneal injuries (10).

Penile traumas are rare traumas that can occur due to penetrating and non-penetrating traumas. Diagnosis mainly depends on history and physical examination. Non-penetrating injuries can cause fibrosis and erectile dysfunction by causing hematomas within the cavernous tissues (13). Therefore, emergent treatment is important.

Scrotal trauma is a rare trauma that mostly occurs due to blunt trauma. Scrotal traumas are observed due to traumatic urological emergencies. Coexistence of penile and scrotal traumas can also be observed. There was no coexistent penile and scrotal trauma in our center during the pre-pandemic period and there was only 1 case during the pandemic period.

Testicular torsion is the clinical condition that occurs when one or both testicles rotate around the spermatic cord and blood flow cannot be provided. It is observed at a rate of 1/4,000 in young men under the age of 25 (14). Testicular torsion shows a bimodal distribution in terms of age. It makes its first peak in the newborn period, while the second peak is in the puberty period. Extravaginal torsion is usually observed during the neonatal period and intravaginal torsion is usually observed in the puberty period. Testicular torsion accounts for 10-15% of acute scrotal diseases in children (15). The orchiectomy rate in these patient groups is 42% (15). It is important to exclude testicular torsion in patients presenting with acute scrotum, since it is seen with increased frequency and high rate of orchiectomy. The diagnosis of testicular torsion is usually made clinically. Patients often present with common acute unilateral scrotal pain, nausea and vomiting. When testicular torsion is detected, manual detorsion must be performed during the acute period. If the testis cannot be detorted, surgical detorsion must be applied. Delay in treatment can lead to the decrease in fertility potential (15). It may also require orchiectomy (15). Contrary to our study, in the study by Norton et al. (16) among the pediatric group, a decrease in testicular torsion cases was detected in the first 3-month period after the onset of the pandemic compared to the same period of the previous year. In the study by Littman et al. (17), no significant difference was observed for pre-pandemic and pandemic periods. In our study, unlike the related studies, admissions increased 1.85 times during the pandemic period.

Acute scrotum is a group of diseases that can occur for various reasons. It often presents with acute onset of scrotal swelling, pain, and redness. Clinical, physical examination and radiological imaging are used in the diagnosis. Doppler ultrasonography plays an important role in diagnosis (18). Differential diagnosis is made by monitoring the central arterial circulation and venous drainage of the testicles with Doppler ultrasound. Testicular torsion accounts for approximately

25% of acute scrotum cases and needs to be quickly exclusion (18). In a study of Bašković et al. (3), decrease in the number of acute scrotum cases for pandemic period was observed but not statistically significant. This result supports the data we obtained in our study.

Urinary tract infections are among the most common infections in the community and hospitals. Urinary tract infections are more common in women (19). In the study of Kuitunen et al. (20) in Finnish children, it was reported that the incidence of cystitis and pyelonephritis decreased in children aged 1-6 years after the COVID-19 pandemic. However, in a study conducted in the USA, it was determined that there was a decrease in the number of urinary tract infection cases during the period of social restriction (21). In our study, the number of cases increased in and this result is similar to a study in a tertiary hospital in Italy (22).

Fournier's gangrene is a rare, surgically treated, fulminant, necrotizing soft tissue infection that usually involves the anoperineal region and external genitalia (between genitals and rectum) (23). Fournier's gangrene has high mortality rate and often affects men (24). Risk factors can be listed as diabetes, alcoholism, malignancy, immune system suppression (25). Clinically, there are findings such as edema, fever and crepitus in the relevant region. Various radiological imaging methods are used for diagnosis. However the diagnosis is usually made clinically, radiodiagnostic imaging is also used to support the diagnosis (23). In the treatment, hemodynamic stabilization is provided, broad-spectrum antibiotics are preferred and surgical debridement is applied (24). Early surgical debridement is the primary component of treatment (24,26). If surgical treatment is delayed, the prognosis is negatively affected (26). In our study, the number of cases decreased during the pandemic period.

Hematuria is the presence of erythrocyte cells in the urine. It is examined in two main groups as macroscopic and microscopic hematuria. In a patient presenting with hematuria, first of all, it should be evaluated whether the patient is hemodynamically stable. In the evaluation of hemodynamic stability; physical examination findings, hemoglobin/hematocrit values, clinical findings of the patient are used (27). The causes of hematuria that cause hemodynamic instability are intraperitoneal bladder rupture, ureteroarterial fistula, hemorrhagic cystitis, traumas (27). In our study, the number of patients are similar for both periods.

Urolithiasis is a common disease with an increasing incidence globally (28). Urinary system stone formation and the chemical composition of the stone depend on age and gender (29). The incidence of urinary stones increases with age. However, besides age, obesity, dietary habits, lifestyle habits, diseases are risk factors for urinary stone formation. Urinary system stones can be classified according to their chemical components: calcium stones (80%), uric acid stones (9%), struvite stones (10%), cystine stones (1%) (30). Calcium stones are the most common among urinary system stones. Urinary system stones, with the exception of infection stones, are more common in men than in women (28). History taking, physical examination and radiology are the main tools for diagnosis. Radiologically, the gold standard diagnostic method is non-contrast computerised tomography (31). In our study, an increase was observed during the pandemic period.

Glob vesicale (acute urinary retention) is a common non-traumatic urological emergency that often affects men (32). Patients often presents withs suprapubic or lower abdominal pain and difficulty in spontaneous voiding (33). Obstructive causes are divided into intrinsic and extrinsic causes. Benign prostatic hyperplasia (BPH) is common among the intrinsic obstructive causes (32,34). In addition to BPH, intrinsic causes include lower urinary tract malignancies, hematoglob and bladder stones (33). Extrinsic causes; abdominal or pelvic tumors, phimosis and paraphimosis would be seen among men, pelvic organ prolapses would be seen among women. The main treatment for glob vesicale is to decompress the bladder and eliminate the underlying cause (33,35). The number of patients increased during pandemic period in our study.

Hydronephrosis is bilateral or unilateral dilatation of the renal pelvis and calyces (36). If ureteral dilatation is also present, it is called hydroureteronephrosis. The most common cause of unilateral hydronephrosis is obstruction of the ureteric calculi or idiopathic ureteropelvic junction obstruction (36). Bilateral hydronephrosis often occurs in men secondary to BPH. In a study conducted in 1994, hydronephrosis was observed in 7% of patients with BPH. Renal failure was observed in 33% of these patients with hydronephrosis (37). Hydronephrosis may present as a manifestation of ipsilateral renal pain, acute kidney injury, nausea, vomiting, hematuria and sepsis (38). The number of patients increased during pandemic period in our study.

Physiological hydronephrosis is observed in 50-90% of pregnant women in the last trimester (39,40). However, surgical treatments in pregnancy also have risks. Symptomatic urolithiasis is the most common indication for surgical treatment in pregnancy (41).

Priapism is a condition in which a penile erection lasts longer than 4 hours without sexual stimulation (42-44). Priapism; it is divided into three main types as ischemic, non-ischemic and stuttering (recurrent or intermittent). Ischemic type priapism is the most common (43). Ischemic-type priapism is considered a urological emergency (44). The number of patients decreased during pandemic period in our study.

COVID-19 pandemic was thought to have major effects on health center admissions and emergency admissions but as it was observed in our study, there were not major differences.

Only the increase in urological emergency admission during the pandemic period was statistically significant. There were limitations in both outpatient clinic admission numbers and the number of surgical operations during the pandemic period. The delays in surgical operations and health center admissions would cause more severe health problems.

Study Limitations

The limitations of our study is that our study was conducted in a single center with a limited number of cases. In addition there were lack of detailed analyzes of the patients according to age, complaints, comorbid diseases and treatment methods. Also the classification of urological emergencies, making a holistic comparison by gender and distribution analyses, comparison of large patient groups and comparison of longer time intervals would reveal more valuable outcomes. Multi-center studies can be carried out in the future and the evaluation of time intervals with a wider range are important in terms of obtaining more reliable data.

Conclusion

Our study revealed that emergency cases, contrary to expectations, increased during the pandemic period ($p<0.05$). Also a decrease was observed for traumatic cases and an increase for non-traumatic cases during the pandemic period. Urological emergencies are observed more frequently in men before and after the pandemic.

Ethics

Ethics Committee Approval: The ethical approval was obtained from the Committee on the Scientific Research Ethics of the University of Health Sciences Türkiye, Gülhane Faculty of Medicine (date: 03.06.2021, number: 2021/11).

Informed Consent: This was a retrospective study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: S.S., S.B., Concept: S.S., S.B., Design: S.S., S.B., Data Collection and/or Processing: İ.K., S.C.P., Analysis and/or Interpretation: İ.K., S.C.P., Literature Search: S.S., İ.K., S.C.P., Writing: S.S.

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