

Frequency of Penile Fractures During the COVID-19 Pandemic

COVID-19 Pandemisi Döneminde Penis Fraktürleri

^{ID} Ahmet ARIMAN^a, ^{ID} Erkan MERDER^a, ^{ID} Eren Görkem KUTLUTÜRK^a

^aClinic of Urology, Prof Dr Cemil Taşcıoğlu City Hospital, İstanbul, TURKEY

ABSTRACT Objective: To examine patients with penile fractures who admitted our urological emergency outpatient clinic within 6 months from the beginning of the COVID-19 pandemic and to compare with the same period in 2019. **Material and Methods:** Patients who came to our urological emergency outpatient clinic during the pandemic period between April and October 2020 and non-pandemic period between April and October 2019 were compared. The reasons for admission to the hospital of these patients were examined and the diagnoses of the patients in both periods were compared statistically. Social life of patients with penile fracture and causes of penile fracture were evaluated. **Results:** During the pandemic period, the number of patients with penile fractures increased significantly. On the other hand, there was no significant change in the number of other patients. **Conclusion:** We believe that the number of penile fractures has increased due to the changes in the sexual desire and habits of the couples during the quarantine days.

ÖZET Amaç: COVID-19 pandemisi başlangıcından itibaren 6 aylık süre içinde ürolojik acil polikliniğimize başvuran penil fraktürlü hastaları irdelemek ve 2019 yılı içindeki aynı periyot ile karşılaştırmak. **Gereç ve Yöntemler:** Nisan ve Ekim 2020 arasındaki pandemi sürecinde ve Nisan ve Ekim 2019 arasındaki nonpandemi sürecinde ürolojik acil polikliniğimize gelen hastalar değerlendirildi. Bu hastaların, hastaneye geliş nedenleri irdelendi ve her iki süreçte gelen hasta tanıları istatistiksel olarak karşılaştırıldı. Penis fraktürlü hastaların, sosyal hayatları ve penis fraktürü oluş sebepleri değerlendirildi. **Bulgular:** Pandemi süreci içinde, penis fraktürlü hastaların sayısında belirgin bir artış oldu. Buna karşılık diğer hastaların müracaat sayısında anlamlı bir değişiklik olmadı. **Sonuç:** Pandemi süreci boyunca çiftlerin cinsel istek ve alışkanlıklarındaki değişikliklere bağlı olarak penis fraktürü sayılarında da artış olduğu kanaatindeyiz.

Keywords: Penile diseases; COVID-19; urologic diseases

Anahtar Kelimeler: Penis hastalıkları; COVID-19; ürolojik hastalıklar

The COVID-19 epidemic that emerged in China at the end of 2019 spread rapidly around the world and was declared a global pandemic by the World Health Organization.¹ Containment measures due to pandemic in the past months have caused extensive economic and social damage in many countries.^{2,3}

During the quarantine, serious changes occurred in the daily lives of families. People were forced to stay home more. Especially couples had to spend much more time sharing the whole day, and sexual life and habits have changed significantly in many countries due to restrictions.⁴

Fear, anxiety, and panic feelings may lead to negative psychological reactions such as adjustment disorder and depression.^{5,6} These mood changes may lead to a decrease in the couple's sexual interest.⁷⁻⁹ And may also lead to unexpected behavior.^{10,11} As a result, men and women who feel depressed may experience increased sexual interest and sexual response. Moreover, anxiety can facilitate sexual arousal in sexually active individuals.⁹ In addition, the ability to share more time of a partner without the stress of daily life can improve the quality of intimacy in couples.

Correspondence: Ahmet ARIMAN

Clinic of Urology, Prof. Dr. Cemil Taşcıoğlu City Hospital, İstanbul, TURKEY/TÜRKİYE

E-mail: ahmetariman1@gmail.com



Peer review under responsibility of Journal of Reconstructive Urology.

Received: 28 Dec 2020

Received in revised form: 30 Jan 2021

Accepted: 16 Feb 2021

Available online: 18 Feb 2021

2587-0483 / Copyright © 2021 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

So far, there are very few reports on the effects of COVID-19 on sexual health.^{12,13} In our study, we aimed to evaluate the changes in the sexual behavior of individuals during the quarantine due to the COVID-19 pandemic and the cases of penile fracture we encountered as a result.

MATERIAL AND METHODS

During the pandemic in the 6-month period between April 2020 and October 2020, 506 patients who applied to our urological emergency outpatient clinic for various reasons such as renal colic, acute urinary retention, hematuria, acute urogenital system infection, testicular torsion, urogenital trauma and penile fracture were documented in Group 1.

In addition, 532 patients who applied to our urological emergency outpatient clinic between April 2019 and October 2019 for the same reasons were also documented in Group 2.

It was evaluated if there was a statistically significant difference in the diagnosis of the disease between two different periods of time in the same months.

Since the distribution of patients who applied to our urological emergency outpatient clinic in 2018 and previous years did not differ from 2019, therefore we only compared the number of cases to 2019.

This patient group was evaluated retrospectively after the approval had been obtained from the ethics committee of Prof. Dr. Cemil Taşcıoğlu City Hospital (Date-No: 20.10.2020-403).

All studies involving the “human” were made in accordance with the Helsinki Declaration 2008 principles.

In order to examine penile fractures in all these cases, the age of these patients, whether they were married or not, their educational status, and the reason for penile fracture (intercourse position, masturbation) were questioned.

In addition, polymerase chain reaction (PCR) test was applied to all patients we operated due to penile fracture.

STATISTICAL ANALYSIS

Number Cruncher Statistical System Statistical Software (Utah, USA) program was used for statistical analysis. While evaluating the study data, in addition to descriptive statistical methods (mean, standard deviation, median, frequency, ratio), Shapiro-Wilk test and box plot graphics were used for the normal distribution of variables. Pearson’s chi-square test was used to compare qualitative data. Significance was evaluated at the $p < 0.05$ level.

RESULTS

During the pandemic period (1st April-1st October), 506 patients applied to our urological emergency outpatient clinic. The distribution of these patients is as follows; 120 patients with renal colic due to urinary stone, 84 patients due to acute urinary retention, 84 patients due to hematuria, 10 patients due to testicular torsion, 178 patients due to acute urogenital infection, 20 patients with urogenital trauma and 10 patients with penile fracture were applied.

In the non-pandemic period, 532 patients applied to our emergency urology outpatient clinic in the same months of 2019. Of them, 124 had renal colic, 82 had acute urinary retention, 70 had hematuria, 10

TABLE 1: Distribution of emergency urological patients.

	Pandemic period (Gr. 1)	Non-pandemic period (Gr. 2)	p value
	n=506	n=532	
Renal colic	120 (23.8)	124 (23.3)	0.863
Acute urinary retention	84 (16.6)	82 (15.4)	0.592
Hematuria	84 (1.6)	70 (13.2)	0.116
Testicular torsion	10 (2.0)	10 (1.9)	0.906
Urogenital infection	178 (35.2)	213 (40.0)	0.112
Urogenital trauma	20 (4.0)	30 (5.6)	0.207
Penile fracture	10 (2.0)	3 (0.6)	0.040*

Pearson chi-square test. * $p < 0.05$.

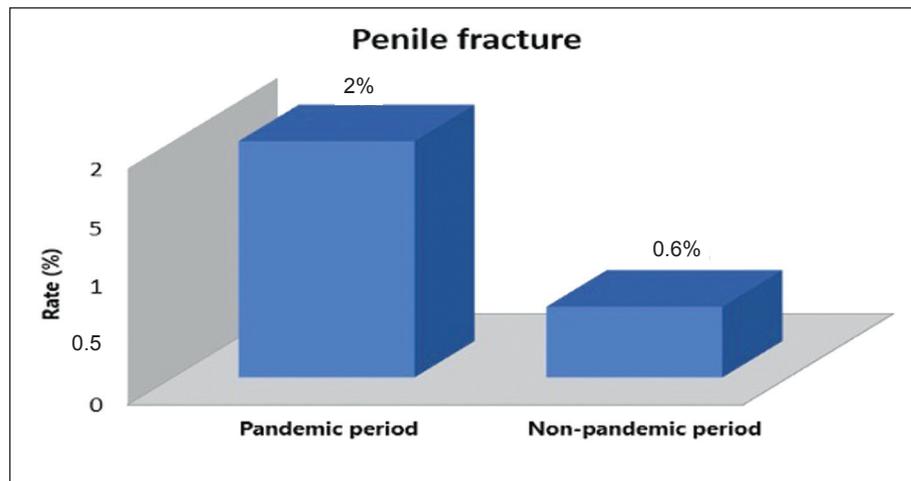


FIGURE 1: Distribution of penile fracture according to pandemic and non-pandemic period.

patients had testicular torsion, 213 patients had acute urogenital infection, 30 patients had urogenital trauma and 3 patients had penile fractures (Table 1).

Based on the complaints reported to the emergency urology outpatient clinic, the assessment of the pandemic period and the pre-pandemic period indicated that there was no statistically significant difference between the incidence rates of renal colic, acute urinary retention, hematuria, testicular torsion, urogenital infection and urogenital trauma ($p>0.05$).

Penile fracture incidence rates were found statistically significantly higher in the pandemic period than non-pandemic period ($p<0.05$). The Odds ratio is 3.562 (95% confidence interval: 1.075-13.01) and we can say that the risk has increased 3.5 times (Figure 1).

In addition, the demographic characteristics of our patients with penile fractures and the reasons for the fracture are documented in Table 2. Average age of our patients was 41.2 (between 25-65) and education level of 7 (70%) out of 10 patients was college or below and 3 (30%) was bachelor.

Patients did not have predisposing factors and medications that could cause penile fracture.

PCR test of all the patients we operated due to penile fracture was negative.

DISCUSSION

Social isolation, inability to meet relatives and friends can have a direct impact on the physical and psycho-

TABLE 2: Demographic characteristics of patients with penile fractures.

Characteristics	Pandemic Period Total n: 10 (%)	Non-pandemic Period Total n: 3 (%)
Age (years)		
25-49	6 (60%)	2 (66.6%)
50-65	4 (40%)	1 (33.4%)
Education level		
College or below	7 (70%)	3 (100%)
Bachelor	3 (30%)	-

logical health of individuals, and it can be assumed that couples who are quarantined together are closer to each other.¹⁴

However, during the pandemic period, it was reported that sexual desire and frequency of sexual intercourse decreased in many couples, whereas the frequency of masturbation and pornography use increased in many people.¹⁵

In our study, we found a significant increase in patients with penile fracture in the pandemic period, unlike other patient groups who applied for emergency reasons.

We believe that the increase in the number of penile fractures in our patient group will be due to the couples spending more time with each other during the quarantine days and the desire to try different sexual habits due to the psychological effect of the pandemic.

Penile fracture often occurs in dog-style position.^{16,17} In some studies, it has been reported that it is more common in positions where the partner is on top.¹⁷ Masturbation, turning in bed during erection, and the taqandan technique applied in some Middle Eastern countries are among the other reasons that lead to penile fractures.¹⁸

Our patients described the causes of penile fracture as follows; 5 cases described that the partner was on top. Three of our patients stated that they were turning in bed, 2 of our patients did not give a satisfactory history.

We have not identified significant relation between education level of patients and penile fracture.

A penile fracture typically occurs with hearing crackling sound followed by pain and detumescence in the penis. Then, ecchymosis and swelling occurs in the penis.¹⁹

Tunica albugenia resists intracavernosal pressure up to 1,500 mm Hg.²⁰ If the intracavernosal pressure increases with the bending of the erect penis, rupture of the tunica albugenia occurs.

If the diagnosis of penile fracture is confirmed, surgical repair should be done as soon as possible. The British Association of Urologic Surgeons recommends that the repair be done within 24 hours.²¹ While the complication rate as a result of early surgical repair was 7.6%, it was 68.7% in late surgical repair (between 24 hours and 4 days).

The incidence of penile fracture is unknown in Turkey and many countries. Its incidence in the United States has been reported as 1 in 175,000 male population. However, the incidence is higher in some Middle Eastern countries.²²

The data of penile fracture incidence in Turkey is insufficient. According to our hospital data, we see penile fracture incidence as 6-8 cases per year routinely

However, during the 6 months pandemic period, the number of patients with penile fracture showed an extraordinary increase.

CONCLUSION

In our study, we examined the patients who came to our urological emergency outpatient clinic during the COVID-19 pandemic. In the patient group, we observed that patients with penile fractures showed a significant increase compared to the non-pandemic period in the same months. We believe that this increase is due to the change in the sexual desire and habits of the patients during the pandemic period. The fact that patients with penile fracture do not show symptoms of COVID-19 and their PCR test are negative strengthens this opinion.

Larger case number is needed to support these results during the quarantine period.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Ahmet Arıman; **Design:** Ahmet Arıman; **Control/Supervision:** Erkan Merder; **Data Collection and/or Processing:** Eren Görkem Kutlutürk; **Analysis and/or Interpretation:** Ahmet Arıman; **Literature Review:** Eren Görkem Kutlutürk; **Writing the Article:** Ahmet Arıman; **Critical Review:** Erkan Merder.

REFERENCES

- World Health Organization (WHO) (11 March 2020) Coronavirus disease 2019 (COVID-19) Situation Report-51. [\[Link\]](#)
- McKee M, Stuckler D. If the world fails to protect the economy, COVID-19 will damage health not just now but also in the future. *Nat Med.* 2020;26(5):640-2. [\[Crossref\]](#) [\[PubMed\]](#)
- Singh RK, Rani M, Bhagavathula AS, Sah R, Rodriguez-Morales AJ, Kalita H, et al. Prediction of the COVID-19 pandemic for the top 15 affected countries: advanced autoregressive integrated moving average (ARIMA) Model. *JMIR Public Health Surveill.* 2020;6(2):e19115. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
- Cocci A, Presicce F, Russo GI, Cacciamani G, Cimino S, Minervini A. How sexual medicine is facing the outbreak of COVID-19: experience of Italian urological community and future perspectives. *Int J Impot Res.* 2020;32(5):480-2. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
- Zhang J, Wu W, Zhao X, Zhang W. Recommended psychological crisis intervention response to the 2019 novel coronavirus pneumonia outbreak in China: a model of West China Hospital. *Precis Clin Med.* 2020;1-6. [\[Crossref\]](#) [\[PMC\]](#)
- Kennedy SH, Dickens SE, Eisfeld BS, Bagby RM. Sexual dysfunction before antidepressant therapy in major depression. *J Affect Disord.* 1999;56(2-3):201-8. [\[Crossref\]](#) [\[PubMed\]](#)
- Cranston-Cuevas, M.A, Barlow DH. Cognitive and affective contributions to sexual functioning. *Annual Review of Sex Research.* 1990;1:119-61. [\[Link\]](#)
- Culha MG, Demir O, Sahin O, Altunrende F. Sexual attitudes of healthcare professionals during the COVID-19 outbreak. *Int J Impot Res.* 2021;33(1):102-9. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
- Ware MR, Emmanuel NP, Johnson MR, Brawmanmintzer O, Knapp R, Crawfordharrison M, et al. Self reported sexual dysfunctions in anxiety disorder patients. *Psychopharmacol Bull.* 1996;32(3):530. [\[Link\]](#)
- Bancroft J, Janssen E, Strong D, Carnes L, Vukadinovic Z, Long JS. The relation between mood and sexuality in heterosexual men. *Arch Sex Behav.* 2003;32(3):217-30. [\[PubMed\]](#)
- Lykins AD, Janssen E, Graham CA. The relationship between negative mood and sexuality in heterosexual college woman and men. *J Sex Res.* 2006;43(2):136-43. [\[Crossref\]](#) [\[PubMed\]](#)
- Yuksel B, Ozgor F. Effect of the COVID-19 pandemic on female sexual behavior. *Int J Gynaecol Obstet.* 2020;150(1):98-102. [\[Crossref\]](#) [\[PubMed\]](#)
- Jacob L, Smith L, Butler L, Barnett Y, Grabovac I, McDermott D, et al. Challenges in the practice of sexual medicine in the time of COVID-19 in the United Kingdom. *J Sex Med.* 2020;17(7):1229-36. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
- Micelli E, Cito G, Cocci A, Polloni G, Russo GI, Minervini A, et al. Desire for parenthood at the time of COVID-19 pandemic: an insight into the Italian situation. *J Psychosom Obstet Gynaecol.* 2020;41(3):183-90. [\[Crossref\]](#) [\[PubMed\]](#)
- Li G, Tang D, Song B, Wang C, Qunshan S, Xu C, et al. Impact of the COVID-19 Pandemic on partner relationships and sexual and reproductive health: cross-sectional, online survey study. *J Med Internet Res.* 2020;22(8):e20961. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)
- Barros R, Schulze L, Ornellas AA, Koifman L, Favorito LA. Relationship between sexual position and severity of penile fracture. *Int J Impot Res.* 2017;29(5):207-9. [\[Crossref\]](#) [\[PubMed\]](#)
- Haas CA, Brown SL, Spirnak JP. Penile fracture and testicular rupture. *World J Urol.* 1999;17(2):101-6. [\[Crossref\]](#) [\[PubMed\]](#)
- Zargooshi J. Penile fracture in Kermanshah, Iran: the long-term results of surgical treatment. *BJU Int.* 2002;89(9):890-4. [\[Crossref\]](#) [\[PubMed\]](#)
- Muentener M, Suter S, Hauri D, Sulser T. Long-term experience with surgical and conservative treatment of penile fracture. *J Urol.* 2004;172(2):576-9. [\[Crossref\]](#) [\[PubMed\]](#)
- De Rose AF, Giglio M, Carmignani G. Traumatic rupture of the corpora cavernosa: new physiopathologic acquisitions. *Urology.* 2001;57(2):319-22. [\[Crossref\]](#) [\[PubMed\]](#)
- Rees RW, Brown G, Dorkin T, Lucky M, Percy R, Shabbir M, et al; BAUS Section of Andrology and Genitourthral Surgery (AGUS). British Association of Urological Surgeons (BAUS) consensus document for the management of male genital emergencies - penile fracture. *BJU Int.* 2018;122(1):26-8. [\[Crossref\]](#) [\[PubMed\]](#)
- Mirzazadeh M, Fallahkarkan M, Hosseinicorresponding J. Penile fracture epidemiology, diagnosis and management in Iran: a narrative review. *Transl Androl Urol.* 2017; 6(2): 158-66. [\[Crossref\]](#) [\[PubMed\]](#) [\[PMC\]](#)