

# Surgical pathologies in children presenting for non-medical circumcision

Tıbbi endikasyon dışı sünnet için başvuran çocuklarda cerrahi patolojiler

David Terence THOMAS

## ABSTRACT

**Objectives:** Circumcision is the most commonly performed surgical procedure in the world. In this study, we determined the frequency of additional surgical pathologies in patients presenting for non-medical circumcision.

**Material and Method:** Children presenting to a secondary healthcare facility between June 2013 - June 2014 for non-medical circumcision were included in this study. Patients' ages, presenting at outpatient clinics were noted together with the results of physical examinations.

**Results:** A total of 2088 children presented for non-medical circumcision. Their average age was 5.2 years. 56.3% of patients presented to the Pediatric Surgery outpatient clinic, 25.3% presented to the Urology outpatient clinic and 18.3% presented to the General Surgery outpatient clinic. Additional surgical pathologies were noted in 3.9% of patients and these were: phimosis (n=36), inguinal hernia/hydrocele (n=12), buried penis (n=10), undescended testis (n=9), retractile testis (n=5), hypospadias (n=3), megameatus (n=2), umbilical hernia (n=2) and varicocele (n=2). The surgical plans for 37 (1.8%) patients changed due to the findings at examination.

**Conclusion:** Changes in surgical plans were required for 1.8% of patients. It is therefore important that all patients, including those presenting with a request for circumcision, have a detailed physical examination.

**Keywords:** Circumcision, Physical examination, Incidence

## ÖZ

**Amaç:** Sünnet, dünyada en sık yapılan cerrahi işlemdir. Bu çalışmada amacımız, sünnet isteği ile başvuran hastalarda ek cerrahi hastalık görülme sıklığını incelemektir.

**Gereç ve Yöntem:** Haziran 2013 - Haziran 2014 tarihleri arasında, sünnet isteği ile bir ikinci basamak hastanesine başvuran hastaların dosyaları retrospektif olarak tarandı. Hastaların yaşları, başvurdukları poliklinikler ve muayenede saptanan cerrahi hastalıklar not edildi.

**Bulgular:** Toplam 1 yıllık dönemde sünnet isteği ile başvuran hasta sayısı 2088 olarak saptandı. Hastaların ortalama yaşı 5,2 yıl idi. Hastaların %56,3'ü Çocuk Cerrahisi, %25,3'ü Üroloji, %18,3'ü ise Genel Cerrahi polikliniklerine başvurduğu izlendi. Ek cerrahi patoloji sıklığı %3,9 olarak saptandı. Hastalarda izlenen ek cerrahi patolojiler sıklık sırasına göre fimozis (n=36), inguinal herni/hidrozel (n=12), gömülü penis (n=10), inmemiş testis (n=9), retraktıl testis (n=5), hipospadias (n=3), megameatus (n=2), umbilikal herni (n=2) ve varikosel (n=2) idi. Bu patolojiler nedeniyle ameliyat planı değişecek olan hasta sayısı 37 (%1,8) olarak saptandı.

**Sonuç:** Çalışmaya dahil edilen hastaların %1,8'inde cerrahi plan değişikliği gerektiği saptanmıştır. Sünnet için başvuran hastaların detaylı olarak muayene edilmesi önem arz etmektedir.

**Anahtar kelimeler:** Sünnet, Fizik muayene, İnsidans

## Introduction

With its origins dating back several thousand centuries, male circumcision is the most commonly performed surgical procedure throughout the world. It is reported that 1 in 3 to 1 in 6 males are circumcised due to medical or cultural/religious reasons [1,2]. A policy statement published by The American Academy of Pediatrics [3] in 2012 reported the benefits of circumcision to be reduction in the risk of urinary tract infections in infants and subsequent reduction

David Terence Thomas (✉)

Department of Pediatric Surgery, Faculty of Medicine, Maltepe University,  
Ataturk Cad. Cam Sok. No 3, Maltepe, Istanbul, Turkey  
e-mail: dthomas@maltepe.edu.tr

Submitted/Gönderme: 22.02.2016

Accepted/Kabul: 02.04.2016

This study was presented at the 32nd National Turkish Association of Pediatric Surgeons Congress, Trabzon, 2014.

in the risk of heterosexual acquisition of HIV and other sexually transmitted diseases. The statement also noted that the health benefits of elective circumcision outweigh the risks of the procedure itself. Opponents of circumcision put forward substantial complication rates and reduced penile sensation [1].

Medical professionals can be under great pressure when dealing with circumcision requests. This is especially the case in countries where nearly all boys are circumcised for religious or cultural reasons. This may lead to missed diagnosis of other pathologies, including surgical pathologies that may require the child to undergo another general anesthesia.

In this study, we evaluated the presence of additional surgical pathologies in children presenting for circumcision and calculated the incidence of these pathologies in the study population.

### Patients and Method

This retrospective study was conducted at a secondary health care institution in Istanbul, Turkey. The medical files of children (0-18 years) presenting for circumcision between June 2013 and June 2014 were reviewed. Patients' ages, presenting at outpatient clinics (General Surgery, Pediatric Surgery, Urology) were noted together with the results of clinical examination findings. When medical files were reviewed, patients who have applied to the outpatient clinic for a different pathology other than circumcision, were excluded from this study.

Data is presented using descriptive statistics that were calculated using Google Sheets (Google Inc, Ann Arbor, MI 48105, USA).

### Results

During the aforementioned time period, 2088 children presented for medical or cultural/religious circumcision. The average age of children was 5.2 years. While 56.3% of these patients presented to the Pediatric Surgery clinic, 25.3% presented to the Urology and 18.3% presented to the General Surgery clinics. Physical examination revealed surgical pathologies in 3.9% (n=81) patients. These pathologies were pathological phimosis in 44.4% (n=36), inguinal hernia or communicating hydrocele in 14.8% (n=12), buried penis in 12.3% (n=10), undescended testis in 11.1% (n=9), retractile testis in 6.2% (n=5), hypospadias in 3.7% (n=3), megameatus in 2.5% (n=2), umbilical hernia

in 2.5% (n=2) and varicocele in 2.5% (n=2) patients. The incidence of these pathologies in this study are shown in Table I. One patient with varicocele had surgical treatment indication and both patients with umbilical hernia were <2 years of age, requiring further follow-up but not surgical treatment. With these findings, the surgical plans for 37 (1.8%) patients changed and further follow-up was required for 12 (0.6%) patients.

**Table I.** Incidence of surgical pathologies in patients applying to a secondary medical institution for non-medical circumcision

Pathology	(n)	Incidence in Population (per thousand)
Inguinal hernia / Communicating hydrocele	12	5.7
Buried Penis	10	4.8
Undescended testicle	9	4.3
Hypospadias	3	1.4
Megameatus	2	1.0
Umbilical Hernia	2	1.0
Varicocele	2	1.0

### Discussion

Worldwide, circumcision for medical or cultural/religious reasons is reported to be performed in one of 6 to one of 3 children [1,2]. This rate is much higher in the Muslim or Jewish populations. In many countries, circumcisions are performed by medical professionals, and the high number of circumcision requests can lead to pressure on these professionals and their institutions.

Medical indications for circumcision include phimosis, paraphimosis, balanoposthitis and balanitis. Absolute indications of circumcision are recurrent balanoposthitis and phimosis secondary to balanitis xerotica obliterans. These pathologies occur in 1% and 1.5% of boys respectively [4]. In this study, we included all children who presented for circumcision. Forty-four children were found to have pathological phimosis, representing 2.1% of the population, slightly higher than that reported in literature [4].

This study found that 37 (1.8%) patients had pathologies that would have required another general anesthesia and surgery, had they not been diagnosed during the physician visit for circumcision. These pathologies were inguinal hernia or communicating hydrocele in 12, buried penis in

10, undescended testis in 9, hypospadias in 3, megameatus in 2, and varicocele in 2 patients. One patient with varicocele did not have indication for surgical intervention.

The incidence of inguinal hernia is reported to be 0.8 - 4.4% in the general pediatric population [5]. The incidence varies according to gender and age and is reported to be 3% - 5% in term neonates [6]. Boys are up to 10 times more likely to have an inguinal hernia when compared to girls [5]. In this study, that included only males, the incidence of inguinal hernia was found to be 5.7%.

Buried penis is defined as the condition of the penile shaft being buried below the surface of the prepubic skin. Matsuo et al., reported its incidence to be as high as 3.7% in Japanese newborn male patients with this incidence decreasing to 0.3% at 4-5 years of age [7]. To our knowledge, there is no other study reporting the incidence of buried penis in the pediatric population. This study found the incidence of buried penis to be 0.48% in children with an average age of 5.2 years, much similar to the findings of Matsuo et al [7].

This study found the incidence of undescended testicle to be 0.43%. Literature reports this rate to be between 1 - 1.6% at 1 year of age, decreasing as age increases [8,9]. This study group consisted of older boys which explained the finding of a low rate.

Hypospadias is seen in approximately 3-4 of 1000 live births [10]. This study found its incidence to be 0.14%. This is most likely due to this pathology being diagnosed and treated at much younger ages. The undiagnosed cases at higher ages are very rare. Megameatus is reported to make up 5% of hypospadias patients. Once again, the low incidence of under 1% is most probably due to undiagnosed cases at older ages being rare.

Umbilical hernias are seen in up to 10-30% of children, effecting boys equally as girls, with most spontaneously resolving by 3 years of age. This study found umbilical hernias in less than 1%. This can be attributed to the high average age of the study population.

Varicoceles are rarely seen in children under 10 years of age with its incidence rising to 15% in adult men [11]. This study also found very low incidence of varicocele in the pediatric population.

This study found that 3.9% of patients presenting for circumcision had surgical pathologies and 1.8% of patients would require a change in the surgical plan. Had these children been undiagnosed, they would have required additional surgery under general anesthesia at a later date. The previous studies have evaluated genital abnormalities

in children presenting for traditional circumcision. Yesildag et al [12] evaluated 944 boys with an average age of 6.5 years, admitted for circumcision between July 2009 and January 2015, and found 9% to have a penile anomaly. In a group of 1695 children with an average age of 7.9 years, due to undergo circumcision, Turk et al [13] found genital anomalies in 3.4% of patients. In both of these studies, the authors did not report any pathological findings of other systems. In this context, this study is the first to report concurrent surgical pathologies of all systems in children due to undergo circumcision.

There is no consensus on the best age for non-medical circumcisions. The average age of patients presenting for circumcision in this study is 5.2 years. In separate studies on the same population, the average age of presentation for non-medical circumcision was found to be 6.5 years by Yesildag et al [12] and 7.9 years by Turk et al [13]. There are two considerations when discussing the best time for circumcision; "medically" and the "ethical dilemma of letting the child or adult decide on their own wishes" for circumcision. It is suggested that circumcision for nonmedical reasons be postponed during the "phallic period" (2 - 6 years old). Awareness of the phallic structures and gender identity develops and it is reported that circumcision during this period may affect the psychological status of the child and eventually cause psychological and behavioral disturbances [14]. Several studies have reported the negative psychological consequences of circumcision during this period [15-17]. On the other hand, there are also reports to the contrary [18]. Further studies with a higher level of evidence are required for the determination of the best time for circumcision. The average age of presentation of patients for circumcision in this study was during the phallic phase.

This study has several limitations, the most important being its retrospective design. Physical examination findings were not therefore standardized. It is possible that some children presenting for circumcision had further missed diagnoses. All calculations of incidence were made using patients that presented for circumcision. Although, nearly all males in the general population of this study group underwent circumcision, it was not possible to completely generalize the study group to the general population. In any case, the large number of subjects makes the findings of value.

Circumcision is the most common surgical procedure performed throughout the world. Haste during the pre-circumcision examination of these children can lead to missed diagnoses of pathologies that would require a further

general anesthesia in the future. This study found that, such pathologies are present in two of every 100 children presenting to outpatient clinics for circumcision. Care must be taken to identify these pathologies in children presenting for circumcision.

## References

1. Malone P, Steinbrecher H. Medical aspects of male circumcision. *BMJ* 2007;335:1206-9. doi: 10.1136/bmj.39385.382708.AD
2. Morris BJ, Waskett JH, Banerjee J, et al. A “snip” in time: what is the best age to circumcise? *BMC Pediatr* 2012;12:20. doi: 10.1186/1471-2431-12-20
3. {American Academy of Pediatrics Task Force on Circumcision}, Circumcision policy statement. *Pediatrics* 2012;130: 585-6. doi: 10.1542/peds.2012-1989
4. Castellsagué X, Bosch FX, Muñoz N, et al. Male circumcision, penile human papillomavirus infection, and cervical cancer in female partners. *N Engl J Med* 2002;346 :1105-12. doi: 10.1056/NEJMoa011688
5. Karabulut B. One surgeon experiences in childhood inguinal hernias. *J Korean Surg Soc* 2011;81:50-3. doi: 10.4174/jkss.2011.81.1.50
6. Wang KS. Assessment and management of inguinal hernia in infants. *Pediatrics* 2012;130: 768-73. doi: 10.1542/peds.2012-2008
7. Matsuo N, Ishii T, Takayama JI, et al. Reference standard of penile size and prevalence of buried penis in Japanese newborn male infants. *Endocr J* 2014;61: 849-53. doi: 10.1507/endocrj.EJ14-0069
8. Scorer CG. The descent of the testis. *Arch Dis Child* 1964;39:605-9. doi: 10.1136/adc.39.208.605
9. Barthold JS, González R. The epidemiology of congenital cryptorchidism, testicular ascent and orchiopexy. *J Urol* 2003;170: 2396-401. doi: 10.1097/01.ju.0000095793.04232.d8
10. Karabulut R, Turkyilmaz Z, Sonmez K, et al. Twenty-four genes are upregulated in patients with hypospadias. *Balkan J Med Genet* 2013;16: 39-44. doi: 10.2478/bjmg-2013-0030
11. Oster J. Varicocele in children and adolescents. An investigation of the incidence among Danish school children. *Scand J Urol Nephrol* 1971;5:27-32. doi: 10.3109/00365597109133569
12. Yesildag E. It is not “Just Circumcision”. *Pak J Med Sci Q* 2015;31: 975-9. doi: 10.12669/pjms.314.7689
13. Turk E, Karaca F, Edirne Y. Determining external genital abnormalities with a pre-circumcision examination in previously undiagnosed male school children. *Urol J* 2014;11: 141-4.
14. Yilmaz E, Batislam E, Basar MM, et al. Psychological trauma of circumcision in the phallic period could be avoided by using topical steroids. *Int J Urol* 2003;10:651-6. doi: 10.1046/j.1442-2042.2003.00722.x
15. Cansever G. Psychological effects of circumcision. *Br J Med Psychol* 1965;38:321-31. doi: 10.1111/j.2044-8341.1965.tb01314.x
16. Kennedy H. Trauma in childhood. Signs and sequelae as seen in the analysis of an adolescent. *Psychoanal Study Child* 1986;41:209-19.
17. Yorke C. Reflections on the problem of psychic trauma. *Psychoanal Study Child* 1986;41:221-36.
18. Armagan A, Silay MS, Karatag T, et al. Circumcision during the phallic period: does it affect the psychosexual functions in adulthood? *Andrologia* 2014;46:254-7. doi: 10.1111/and.12071