

# Determining External Genital Abnormalities with a Pre-Circumcision Examination in Previously Undiagnosed Male School Children

Erdal Turk,<sup>1</sup> Fahri Karaca,<sup>2</sup> Yesim Edirne<sup>2</sup>

<sup>1</sup> Department of Pediatric Surgery, Faculty of Medicine, Izmir University, Izmir, Turkey.

<sup>2</sup> Denizli State Hospital, Clinics of Pediatric Surgery, 20.100, Denizli, Turkey.

Corresponding Author:

Erdal Turk, MD  
Yeni Girne Bulvarı 1825 Sok.,  
No:12 Karsiyaka, Izmir, Turkey.

Tel: +90 232 399 5050  
Fax: +90 232 367 0559  
E-mail: eturk19@yahoo.de

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**Purpose:** We investigated whether children getting ready for circumcision under local anesthesia had any additional genital region abnormalities not detected before the circumcision.

**Materials and Methods:** We performed circumcision under local anesthesia for children with normal physical examination findings, and together with corrective surgery for those with other genital anomalies among the children aged 6 years old and over presenting at the pediatric surgery department of our hospital during the school break.

**Results:** Circumcision was planned under local anesthesia in a total of 1,695 cases aged between 6 and 17 years during the June to September 2010 and 2011 periods. We found an external genital anomaly in the pre-circumcision physical examination in 58 patients (3.4%), with a mean age of  $7.87 \pm 1.49$  years. These patients were operated on with corrective surgery while 1,637 children underwent circumcision under local anesthesia. The most common anomaly was inguinal hernia seen in 14 (24.1%), followed by hypospadias in 11 (18.9%), hydrocele in 9 (15.9%) and undescended testis in 8 (13.8%).

**Conclusion:** In countries where circumcision is traditional, an intervention room within the hospital to perform circumcision under local anesthesia can enable many children to be circumcised under hospital conditions and previously undetected genital abnormalities to be found with a pre-circumcision genital region examination.

**Keywords:** circumcision; disorders of sex development; male; genital diseases genitalia; child, preschool.

## INTRODUCTION

In Turkey, as in other Muslim countries, circumcision is a routine surgical procedure mainly performed for religious reasons. So, most Turkish boys are circumcised at some time from the eighth day after birth to the age of puberty. Circumcision should be considered as a surgical operation which requires maximum care and should be performed by licensed surgeons in sterile hospital conditions. Unfortunately, of 100 circumcision cases performed in our country, approximately 85% are performed by traditional circumcisers, 10% by health technicians and only 5% by licensed surgeons.<sup>(1,2)</sup> The ratio of circumcisions performed by surgeons is 5-10% in Pakistan 56.5% in Iran, and 85% in The United Arab Emirates and Saudi Arabia.<sup>(3,4)</sup>

Most parents are not aware of the normal anatomy of the genital region, leading to delays in the diagnosis of genital abnormalities. Families can feel ashamed of the condition and delay going to a physician. Inguinal and scrotal hernias and hydroceles are common pediatric congenital disorders.<sup>(5,6)</sup> Avoiding such problems requires early diagnosis and treatment. Unfortunately, regular screening for these programs in babies and children is not available in Turkey.

The aim of this study is to emphasize how important it is to have an intervention room within the hospital to perform circumcision under local anesthesia that can enable many children to be circumcised under hospital conditions and any previously undetected genital abnormalities can be found with a pre-circumcision genital region examination by specialists.

## MATERIALS AND METHODS

This study was conducted on a total of 1,695 children who were scheduled to undergo circumcision during the break in the school year in the years 2010-2011 at the Denizli State Hospital, Pediatric Surgery Outpatient Department. Children aged 6 years and over who presented at the hospital to undergo circumcision were scheduled at a rate of 5-15 circumcisions a day. The cases that came for the appointments underwent a detailed physical examination by 3 separate Pediatric Surgery specialists. Patients who had hypospadias, inguinal hernia, hydrocele, undescended testis or other genital region pathologies during the physical examination underwent the circumcision together with corrective sur-

gery after their families were informed.

## RESULTS

A total of 2,489 cases aged 0-17 years presented at the Pediatric Surgery Outpatient Department of our hospital for circumcision between June 1st and September 30th 2010-2011. The 326 cases (13%) that did not attend their appointment were not included in the study. Among the 2,163 remaining cases we planned to operate on the 1,695 cases aged 6-17 years (78.3%) under local anesthesia and the 468 cases aged 0-6 years (21.6%) under general anesthesia.

Further 58 children who were older than 6 years but were found to have additional abnormalities during the pre-circumcision routine physical examination underwent circumcision together with corrective surgery under general anesthesia after the family was informed, although local anesthesia was planned at first.

We found a genital region abnormality during the pre-circumcision physical examination in 58 patients aged 6-13 years with a mean age of  $7.87 \pm 1.49$  years. Table 1 presents the mean age in which these abnormalities were detected and the corrective surgery performed. The most common abnormality was inguinal hernia at 24.1%, followed by hypospadias at 18.9% (11 patients).

Minor complications developed in 11 (0.6%) of the children undergoing circumcision. These consisted of bleeding in 6 patients and this was stopped by local compress in 4 patients and suturing at the operating room in 2 patients. The hematoma developed in 3 patients and infection developed in 2 patients after the circumcision which recovered with conservative treatment. One patient was operated on under general anesthesia for penile chordee and presented 3 days later with marked bruising and swelling of the penis. The preoperative tests were normal but the complete blood count check revealed a thrombocyte count of  $6,000/\text{mm}^3$ . The child was therefore evaluated by the pediatric hematology specialist and treatment was started with a diagnosis of acute idiopathic thrombocytopenic purpura.

## DISCUSSION

Circumcision is unavoidable due to many religious and social reasons in Turkey and the incidence reaches 99% in the male population.<sup>(1,7)</sup> The ideal time and anesthesia are the 0-2 years age group and general anesthesia, but the rituals

**Table .** The general characteristics and operations of anomalous cases.

Genital Anomaly	No.	%	Age, year (range)	Operation
Inguinal hernia	14		7.85 ± 1.40 (6-10)	High Ligation
Right	9			
Left	5	24.1		
Hypospadias	11		8.54 ± 2.01(6-13)	
Glanular	7			Meatoplasty
Megameatus	4	18.9		Tubularized incised plate urethroplasty
Hydrocele	9		8.11 ± 1.16 (6-10)	High Ligation + fenestration
Right	6			
Left	3	15.6		
Undescended testis	8		7.62 ± 1.40 (6-10)	Orchiopexy
Right	4			
Left	4	13.8		
Buried penis	5	8.6	7.4 ± 1.34 (6-9)	Degloving and circumcision
Penile Chordee	5	8.6	8 ± 1.58 (6-10)	Chordee release and circumcision
Penile torsion	4	6.9	6.75 ± 0.95 (6-8)	Detorsion and circumcision
Cord cyst	2	3.4	7.5 ± 0.70 (7-8)	High Ligation
Right	2	100.0		
Left	----			
Total	58		7.87 ± 1.49 (6-13)	----

of Muslim countries in the rural areas usually mean that it is performed after the age of 5 years.<sup>(3,4,8)</sup> Approximately 600,000 male children are circumcised in our country every year and approximately 85% of these are performed by traditional circumcisers.<sup>(1,2,8)</sup> These figures are similar in other Muslim countries.<sup>(3,4)</sup> It seems unlikely that such a high demand for circumcision can be met with general anesthesia. We therefore circumcise children who present during school break when the demand increases under local anesthesia as most of these children are older than 6 years. Our hospital provides secondary health care services and the establishment of units where circumcision can be performed under healthy conditions with local anesthesia and also extending this to tertiary health care facilities may enable many patients to be circumcised under hospital conditions in countries where the procedure is traditionally performed at older ages.

Children need to be observed carefully in the newborn, preschool and school ages to prevent the development of late complications.<sup>(9,10)</sup> Screening tests to determine genital region abnormalities in children are therefore performed at

the school age in such countries.<sup>(6,10-13)</sup> We have 1200-1500 children a year who present at the hospital themselves without any symptoms and we select those with an abnormality through a physical examination. Our 3.4% ( $n = 58$  patients) rate in this study may seem to be low compared to the rates of 6.18-18.31% found in epidemiological studies of school age children previously.<sup>(6,10,11,13)</sup> However, the reasons are that our group had a limited age range of 6-13 years, female children were not included in the study and our study was limited to the external genital region.

The complication rates are 1-5% in children circumcised by physicians, 10% in those circumcised by health care technicians and up to 85% in children circumcised by traditional circumcisers.<sup>(1,2,14)</sup> Most of these complications are bleeding and hematoma that can be stopped by a simple intervention but serious complications such as amputation or death can also be encountered.<sup>(1,4,15-17)</sup> Circumcising many children at the same time means that children are circumcised rapidly, usually under conditions that are not very healthy and usually by traditional circumcisers or health care technicians.<sup>(1,2,7,8)</sup> Such procedures are legal in the England as long as

they are carried out by a physician.<sup>(18)</sup> It is known that the circumcision of many children together by traditional circumcisers in our country and other countries where circumcision is traditional increases circumcision complications. The most important reason for the very low percentage of 0.6% and only minor complications being observed in the 1,637 patients we circumcised in our study is that they underwent the procedure in a period of three months and by a specialist who operated on a limited number of patients daily. Increasing such applications will decrease circumcision complications and will also decrease the interest of the public in traditional circumcisers and mass circumcisions. The incidences of indirect inguinal hernias is approximately 1-5%, hypospadias between 0.8 and 8.2 per 1000 live male births, hydrocele in children older than 1 year of age probably less than 1% and undescended testis in full-term boys 1-2% in the general population.<sup>(6,11)</sup> Our rates were 0.82% for inguinal hernia, 0.65% for hypospadias, 0.53% for hydrocele and 0.47% for undescended testes. The reason for our lower prevalence than the general pediatric population could be that our patient group was generally aged 6-13 years and mostly 6-8 years. It is important to detect and treat genital system abnormalities to prevent the serious complications that can arise. All the problems we found should have been operated on at the age of 0-2 years but the mean age in our study was  $7.87 \pm 1.49$  years. However, this does not decrease the value of our study and we could say we were successful as we prevented the development of complications in these children who had not yet experienced a complication until school age.

## CONCLUSION

Units such as circumcision outpatients so that a large number of children can be circumcised under hospital conditions in communities where children are traditionally circumcised at school age will decrease complications by ensuring circumcision is performed under healthy conditions and also enable the detection of external genital abnormalities with a pre-circumcision physical examination of the potential patient population.

## CONFLICT OF INTEREST

None declared.

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