


Circumcision Complications: Our Eight-Year Experience

Sünnet Komplikasyonları: Sekiz Yıllık Deneyimimiz

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Abstract

Background: Most circumcision practices in our country are still carried out by medical officers or circumcisers. The present study aims to determine the types of circumcision complications, their frequencies and possible causes.

Materials and Methods: A total of 103 patients between 0-18 years of age, who were admitted to the Pediatric Surgery Clinic of our hospital due to circumcision complaints between January 2012 and December 2019, were included in the study. The demographic data, treatments, and clinical follow-up of the patients were obtained from file records retrospectively.

Results: The mean age of the patients was 3.9 ± 3.8 years. Of the circumcisions, 58 (56.3%) were performed at home or in a health cabin, while 45 (43.7%) were conducted in a hospital setting. Of these, 68 (66%) were performed by a circumciser or health officer, and 35 (34%) by a physician. The most common early circumcision complication was penile hemorrhage or hematoma (25.2%) and the most common late circumcision complication was inadequate circumcision and glans adherent skin bridges (17.5%). The major complications were glans penile amputation, necrosis, and excessive incision of the penis skin in 7 (6.7%) patients. Of these patients, 6 (85.7%) were circumcised by a health officer or circumciser.

Conclusions: Circumcision is a surgical procedure that should be performed by specialist physicians where the necessary conditions for the surgical procedure are met. As society becomes more aware of this issue, the frequency of circumcision complications and the risk of severe complications will decrease.

Key Words: Child, Circumcision, Complication, Surgery

Öz.

Amaç: Sünnet, dünyada en sık yapılan cerrahi işlemdir. Ülkemizde halen sünnetlerin büyük bir kısmı sağlık memurları veya sünnetçiler tarafından yapılmaktadır. Amacımız sünnete bağlı komplikasyon türlerini, sıklığını ve olası nedenlerini belirlemek.

Materyal ve Metod: Çalışmaya Ocak 2012 ile Aralık 2019 tarihleri arasında sünnete bağlı şikayetler nedeni ile hastanemiz Çocuk Cerrahisi Kliniği'ne başvuran ve sünnet komplikasyonu saptanan 0-18 yaş arasında toplam 103 hasta alındı. Hastaların demografik verileri, uygulanan tedaviler ve klinik izlemleri retrospektif olarak dosya kayıtlarından elde edildi.

Bulgular: Hastalarının yaş ortalaması $3,9 \pm 3,8$ yıl saptandı. Sünnetlerin 58'i (%56,3) ev veya sağlık kabininde, 45'i (%43,7) hastane koşullarında yapıldı. Bunların 68'i (%66) sünnetçi veya sağlık memuru tarafından, 35'i (%34) doktor tarafından yapıldı. En sık erken dönem sünnet komplikasyonu penil kanama veya hematoma (%25,2), en sık geç dönem sünnet komplikasyonu yetersiz sünnet ve glansa yapışık cilt köprüleri (%17,5) olduğu saptandı. Hastaların 7'sinde (%6,7) majör komplikasyon (glans amputasyonu, penis cildinde nekroz ve sünnet derisinin fazla kesilmesi) saptandı. Bu hastaların 6'sı (%85,7) sağlık memuru veya sünnetçi tarafından sünnet edildi.

Sonuç: Sünnet, cerrahi işlem için gerekli şartların sağlandığı koşullarda uzman doktorlar tarafından yapılması gereken cerrahi bir işlemdir. Bu konuda toplumun bilinçlenmesi ile sünnete bağlı hem komplikasyonların sıklığı hem de ağır komplikasyon riski azalacaktır.

Anahtar kelimeler: Cerrahi, Çocuk, Komplikasyon, Sünnet

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Introduction

Circumcision, as applied to males, is one of the most common surgical procedures in the world. Apart from medical reasons, circumcision is performed to protect against sexually transmitted diseases, as well as mostly for traditional and religious reasons (1,2). Surgical removal of the foreskin partially or completely to reveal the head of the penis is defined as circumcision. This surgical procedure is applied in almost every region of the world, although its frequency varies by region. Around 37-39% of males in the world are circumcised and this rate is much higher in Islamic countries (3,4). In Western society, circumcision is performed more frequently in the neonatal period due to medical indications, while in developing countries; circumcision is performed outside medical centers for traditional or religious reasons, mostly by people who have not received surgical training (5). Complications related to factors such as anatomical anomalies, clinical comorbidities, surgical methods used, and age of patients are seen in 1-4% of all circumcision procedures. When circumcision is performed without sufficient experience and in inappropriate conditions, the risk of complications increases even more (2,3). Circumcision complications are classified as early and late complications. Mild complications such as pain, bleeding, edema, and inadequate skin excision may occur in the early period, while infection, the formation of skin bridges between the penis shaft and the glans penis, urinary retention, meatal stenosis, meatal ulcer, and fistulas can be seen in the late period (2,6). Serious complications such as death and glans amputation may also occur, but rarely (5). In this study, the types and frequency of complications and their possible causes were investigated in relation to patients who were admitted to our hospital with circumcision complaints and who were determined to have complications related to circumcision.

Materials and Methods

A total of 103 patients, aged 0-18 years, who applied to our Pediatric Surgery Clinic in relation to complaints due to circumcision between January 2012 and December 2019, were included in this cross-sectional retrospective study. The age upon application of the patients, those who performed the circumcision, the centers and environments in which it was performed, the type of anesthesia applied, types of complications, the treatment applied, and the clinical follow-up of the patients were obtained from file records. Information about the method of circumcision applied could not be obtained. The study was carried out with the approval of the Ethics Committee for Non-Drug Clinical Research of Harran University Medical School (Dated 30.06.2020 /No 24204)

For the treatment of complications, surgical excision was applied for epidermal granuloma, inclusion cysts, poor

wound healing; repair for acquired hypospadias; antibiotic therapy and dressing for infections; reimplantation for glans penis amputation (Figure 1); surgical revision for acquired phimosis, inadequate circumcision, and skin bridges adherent to the glans, penile curvature, and hemostasis; revision for penile hemorrhage or hematoma; meatoplasty for meatal stenosis; placement of a skin graft for necrosis in the penile skin, and excessive cutting of the foreskin (Figure 2); a dorsal slit application for plastibell induced strangulation of the glans, and bladder decompression for urinary retention.



Figure 1. a) Total glans amputation view after circumcision, b) View after the reimplantation of penile glans.



Figure 2. a) Insufficient epithelial view at the incision site after circumcision due to excessive cutting of the foreskin, b) View after replacement of the excessively cut foreskin with skin grafts

Results

The mean age of the 103 patients was 3.9 ± 3.8 years. Of the patients, 58 (56.3%) were circumcised at home or in a health cabin and 45 (43.7%) under hospital conditions, while 68 (66%) were circumcised by a circumciser or health officer, and 35 (34%) by a physician. Of those who were circumcised by a physician, 6 (17.1%) were circumcised by

the family physician and 29 (82.9%) by a specialist physician. A total of 9 (8.7%) patients circumcised by a specialist physician were circumcised under operating-room conditions, and the remaining patients were circumcised under local anesthesia.

Table 1. Circumcision complications and treatments

Complication	Number of Patients n (%)	Treatment
Epidermal granuloma and inclusion cyst	8 (7.8%)	Surgical excision
Acquired hypospadias	2 (1.9%)	Surgical repair
Infection	9 (8.7%)	Antibiotherapy and dressing
Glans penis amputation	2 (1.9%)	Reimplantation
Acquired phimosis	9 (8.7%)	Surgical revision
Bleeding or hematoma	26 (25.2%)	Hemostasis and revision
Bad wound healing	8 (7.8%)	Surgical excision
Meatus stenosis	4 (3.9%)	Meatoplasty
Necrosis in the skin of the penis	2 (1.9%)	Skin grafting
Plastibell induced strangulation of the glans	7 (6.8%)	Dorsal slit application
Excessive cutting of the foreskin	3 (2.9%)	Skin grafting
Inadequate circumcision, and skin bridges adhering to the glans penis	18 (17.5%)	Surgical revision
Penile rotation	4 (3.9%)	Surgical revision
Urinary retention	1 (1%)	Bladder decompression
Total	103	

The complications observed were epidermal granuloma and inclusion cyst in 8 (7.8%), acquired hypospadias in 2 (1.9%), infection in 9 (8.7%), glans penile amputation in 2 (1.9%) (one total, one partial), acquired phimosis in 9 (8.7%), penile bleeding or hematoma in 26 (25.2%), poor wound healing in 8 (7.8%), meatal stenosis in 4 (3.9%), necrosis of the skin of the penis in 2 (1.9%), plastibell induced strangulation of the glans in 7 (6.8%), excessive skin cuts in 3 (2.9%), inadequate circumcision and glans-adherent skin bridges in 18 (17.5%), penile rotation in 4 (3.9%), and urinary retention in 1 (1%) patient (Table 1).

The major complications were glans penile amputation, necrosis, and excessive incision of the penis skin in 7 (6.7%) patients. Of these patients, 6 (85.7%) were circumcised by a health officer or circumciser. Necrosis developed in 2 patients who underwent reimplantation after glans penile amputation.

Discussion

Although it is a surgical procedure, it is evident that circumcision is widely applied today by health officers, who are not surgically trained, or by untrained people called circumcisers (7). In this eight-year cross-sectional retrospective study, it was found that the majority of circumcision complications were seen in circumcision procedures performed under unfavorable conditions by health officers and circumcisers, and almost all of the severe complications occurred after circumcisions performed by them. In addition,

the most common early circumcision complications were bleeding and hematoma and late complications were inadequate circumcision, and skin bridges adhering to the glans penis.

In many studies, it was reported that circumcision was a surgical procedure with a low complication rate (8,9). In the study by Tuncer *et al.*, the complication rate was reported as 1% in 2062 patients who were circumcised (10). However, as in our country, circumcision procedures are carried out by health officers and circumcisers in many countries. Bhat *et al.* reported that 59 patients, who presented with circumcision complications in India, were circumcised by non-specialists (11). Similarly, Ceylan *et al.* reported that 45 (94%) of 48 patients, who were admitted with circumcision complications between 1995 and 2004 in Turkey, were circumcised by circumcisers (12). Özdemir *et al.* reported that 5% of circumcision complications were due to circumcisions performed by physicians, 10% due to circumcisions performed by health officers and 85% due to circumcisions performed by circumcisers (13). In the present study, however, it was found that 66% of the cases were circumcised by health officers or circumcisers. In addition, 56.3% of circumcisions were made at home or in a health cabin. It is thought that the reason for the relatively low number of circumcisions performed by health officers or circumcisers as compared to the figures cited in the literature is that increasing levels of societal awareness have led to a preference for hospitals.

The most serious complication of circumcision is amputation of the penis or glans penis, with an inappropriate circumcision method the most significant cause (14). In a series of 6 patients with major circumcision complications such as excess circumcision, penile necrosis, and penile amputation, Ince *et al.* reported that all patients were circumcised by circumcisers (15). Similarly, in the present study, 85.7% of the major complicated cases were circumcised by circumcisers.

Numerous studies have reported that bleeding is the most common complication in the early post-circumcision period. As with mass circumcision feasts, it is often seen as a result of hasty manipulations that do not comply with appropriate hemostatic rules or a lack of evaluation for pre-circumcised bleeding diathesis. Bleeding and penile hematoma often require revision (16,17). In a study by Gold *et al.*, bleeding was the most common complication in 167 patients admitted to the emergency department due to circumcision (18). Çeçen *et al.* reported that 1.65% of 2,220 patients, who were circumcised, had bleeding complications and this was the most common early complication (19). In the present study, similar to the literature, the most common early circumcision complication was found to be bleeding.

Although there are various types of complications in the late period after circumcision, 84.6% of complications were

reported to be inadequate circumcision and skin bridges adhering to the glans penis in a study by Kim *et al.*(20). Similarly, in a study by Talini *et al.*, it was reported that the most common complication was adherent skin bridges between the foreskin and the glans penis (21). In the present study, similar to the literature, the most common late period circumcision complication was inadequate circumcision, and skin bridges adhering to the glans penis.

Plastibell clamp, a fast and easy method for circumcision which is frequently preferred, has been used since 1956 and many studies have found complications related to its use (22,23). In a study by Bastos Netto *et al.*, 32 of 119 patients circumcised using a plastic ring were found to have complications, and 6 (5.4%) of these complications were associated with the direct plastibell clamp. It was reported that the plastibell clamp caused severe pain in 5 and in glans penis strangulation in 1 of these patients (24). Gold *et al.* reported that 58.7% of complications related to circumcision procedures performed outside a hospital developed due to the use of the plastibell clamp (18). In the present study, 4 of the 7 patients, circumcised by physicians, had plastibell-induced strangulation of the glans penis. It is thought that larger studies are needed with respect to complications related to the use of the plastibell clamp in circumcision procedures.

As per the literature, complications can be seen in circumcision revisions also. In a study by Brisson *et al.* it was reported that 1.8% of complications developed in circumcision revisions (25). In the present study, in accordance with the studies in the literature, necrosis developed in 2 patients who underwent glans penis reimplantation.

The major limitations of our study are its retrospective design. In addition, we do not have data on the number of patients circumcised by each group. One of the important steps to reduce complications is to standardize the procedure of circumcision. The ideal age of circumcision is one of the most discussed issues in this sense. While circumcision is widely carried out in the newborn period in western society, it is performed at a later age in our country (26). In order to gain the licence to perform circumcision, which training a medical staff shall receive should be determined according to the medicolegal regulations of that country's surgical boards. Similar standards have been set in USA by the American Urological Association (27) as well as The American Academy of Pediatrics and The American College of Obstetricians and Gynecologists.

Conclusion

Circumcision is the most common surgical procedure applied to males both in our country and globally. It is an important procedure that should be performed by physicians and trained people at an appropriate age, via the use of an appropriate surgical method in a hospital setting and with adequate equipment. However, it often involves undesirable

complications, as it is practiced in non-sterile environments by untrained health officers or circumcisers. Most of these complications can be avoided by the use of specialists where appropriate surgical and postoperative care are taken.

Ethical Approval: The study was carried out with the approval of the Ethics Committee for Non-Drug Clinical Research of Harran University Medical School (Dated 30.06.2020 /No 24204)

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