



Rarely seen complications of circumcision, and their management

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ABSTRACT

Objective: Circumcision, performed for religious or medical reasons is the procedure of surgical excision of the skin covering the glans penis, prepuce in a certain shape and dimension so as to expose the tip of the glans penis. Short- and long- term complication rates of up to 50% have been reported, varying due to the recording system of different countries in which the procedure has been accepted as a widely performed simple surgical procedure. In this study, treatment procedures in patients presented to our clinic with complications after circumcision are described and methods to decrease the rate of the complications are reviewed.

Material and methods: Cases that presented to our clinic between 2010 and 2013 with early complications of circumcision were retrospectively reviewed. Cases with acceptedly major complications as excess skin excision, skin necrosis and total amputation of the glans were included in the study, while cases with minor complications such as bleeding, hematoma and infection were excluded from the study.

Results: Repair with full- thickness skin grafts was performed in patients with excess skin excision. In cases with skin necrosis, following the debridement of the necrotic skin, primary repair or repair with full- thickness graft was performed in cases where full- thickness skin defects developed and other cases with partial skin loss were left to secondary healing. Repair with an inguinal flap was performed in the case with glans amputation.

Conclusion: Circumcisions performed by untrained individuals are to be blamed for the complications of circumcision reported in this country. The rate of complications increases during the “circumcision feasts” where multiple circumcisions were performed. This also predisposes to transmission of various diseases, primarily hepatitis B/C and AIDS. Circumcision is a surgical procedure that should be performed by specialists under appropriate sterile circumstances in which the rate of complications would be decreased. The child may be exposed to recurrent psychosocial and surgical trauma when it is performed by incompetent individuals.

Keywords: Circumcision; complication; treatment

Introduction

Circumcision which has been applied for religious, and medical indications is surgical excision of the foreskin (ie. prepuce) covering the glans penis in a certain form, and length so as to uncover the distal end of the penis.^[1-3] This procedure is a simple, and uncomplicated procedure if applied by experts. However if it is performed under unsuitable conditions by inexperienced persons who did not receive the required training under unsuitable conditions, then unwanted complications develop.^[3,4]

In Western society it is performed by medical experts more frequently with medical indications during the neonatal period, while in underdeveloped societies, it is carried out outside the medical centers by individuals devoid of surgical training.^[4]

In the literature incidence rates of short-, and late-term complications climbing up to 50% have been reported for this widely performed, and acceptedly simple procedure. Serious short-term complications including even penile amputation, and also long-term complications as skin bridge, and urethracutaneous fistula (UCF) can be seen.^[4,5] Circumcision performed by people devoid of medical experience, and knowledge frequently under unsuitable conditions has higher post-circumcision complication rates.^[5,6]

In this study we investigated ways of decreasing rates of treatment, and complications in patients who consulted to our clinic with emergent complications.

Material and methods

Patients who came to our clinic with short-term complications of circumcision between

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the years 2010, and 2013 were retrospectively investigated. Six patients with major complications as skin excision, and necrosis, and total amputation of glans penis were included in the study, while cases who developed minor complications as bleeding, hematoma, and infection were excluded from the study. All patients included in the study gave their informed consent forms. From patient files patient's age at circumcision, and his circumciser were determined. Excess foreskin excision was repaired with full thickness skin grafts (Figures 1, 2). In cases with skin necrosis following debridement of the necrotic skin, primary repair or reconstruction with full-thickness graft dependent on the extent of the defect was performed, and other cases of partial skin loss were left to secondary healing (Figures 3, 4). In cases with glans amputation repair with an inguinal flap was performed.

Statistical analysis

Due to scarce number of patient population (n=6), any statistical analysis was not performed, and evaluations were based on median values.

Results

Median age of the patients was 6 (2-9) years. All circumcisions were performed by individuals designated as "circumcisers" who were not health care professionals. Excess excision was detected in two patients (Figure 1) whose defects were repaired using full-thickness skin grafts (Figure 2). One patient presented with total amputation which was not amenable to replantation because of the presence of 3rd degree cautery burn. Then, skin on the amputated part was dysepitheled, and a Foley catheter was inserted, and embedded in the inguinal region. When inguinal flap was separated 3 weeks later, any circulatory problem was not observed. Necrotic

penile skin was detected in 2 patients (Figure 3). One patient was followed up with regularly performed dressings. The other patient underwent primary repair following debridement of the necrotic tissue (Figure 4). In one patient penile skin, and preputial skin were accidentally cut. This defect was repaired using full-thickness graft.

We didn't observe any postoperative complication after our surgical interventions. In a patient with total penile amputation, excepting esthetic concerns, any erectile and urinary dysfunction were not observed.

Discussion

Frequency, and variations in the complications of circumcision which is the most prevalent, and the oldest surgical procedure differ depending on the ambient circumstances. In developed countries, complication rates differ between 0.2, and 5%, mostly related to the anesthetic procedure applied.^[5,6] In developed countries, these rates climb to 95% when it is applied by untrained individuals or after circumcision feasts.^[6,7] All of the patients included in our study was circumcised by trained surgeons.

Circumcision-related short-, and long-term complications can become manifest During immediate postoperative period bleeding, wound site infection, secondary phimosis, urethral or glandular injuries, urinary retention can be observed. However in the long-term frequently meatal stenosis, in addition to excess or inadequate excision of the foreskin, concealed penis, adhesions between penile skin to glans penis, penile deformities, secondary hypospadias, bad wound healing, and granuloma, skin bridges, and psychological disorders developed after untimely circumcisions or circumcision feasts.^[7,8]



Figure 1. Post-circumcision appearance of the penis after excess excision of the foreskin during



Figure 2. Appearance of penis following penile reconstruction



Figure 3. Necrotic penile skin

Among short-term complications most frequently bleeding, penile hematoma, and wound site infection are encountered. Post-circumcision bleeding is the most prevalent complication seen in circumcisions performed by untrained hands in inappropriate places. Its frequently observed cause is, as is seen in circumcision feasts, hasty manipulation which do not respect proper hemostatic rules, and inability to evaluate the patient before the circumcision which misses preexisting bleeding diathesis. Bleeding, and penile hematoma frequently necessitate reoperation. Besides, local anesthesia used exposes the child, and the family to the adverse effects of psychological trauma.^[6,9]

Short-, and long-term complications seen in our study were excess excision of the foreskin, amputation of the glans penis, necrosis of the penile skin, and excision of preputium together with penile skin in order of decreasing frequency. Complications seen in our study were in compliance with relevant literature findings.

In cases with skin loss, dependent on the extent of the defect, primary repair or reconstruction with full-, and partial thickness skin grafts, fasciocutaneous, and musculocutaneous flaps can be used.^[9,10] In our study, we planned reconstruction process in compliance with an established algorithm. Priorly primary repair was planned. In cases where defective tissue can not be reconstructed with primary repair, skin graft was used. When compared with partial thickness skin grafts, repair with full-thickness grafts with lower secondary contraction rates was preferred for indicated cases.

Fasciocutaneous, and musculocutaneous flaps are preferred for the repair of larger defects so as to obtain more successful esthetic, and functional outcomes.^[9,10] in only one of our cases for the reconstruction of the defective area flap was used.



Figure 4. Postoperative appearance of the penis

Excess or irregular excision of the foreskin is seen as an outcome of inappropriate circumcision techniques.^[7,9,10] Excess skin can be seen in various amounts. If during circumcision excess penile skin, and very little preputial mucosa are excised, then post-circumcision phimosis can be observed. This post-circumcision phimotic glans can be encountered as concealed penis, and micropenis. In these conditions glans penis can not be taken out. In order to prevent this complication coronal sulcus should be marked with a permanent pen on the skin, foreskin should be completely freed from the glans, and mucosal layer should be controlled.^[8,10]

The most serious complication of circumcision is amputation of the penis or its glandular part. Inappropriate circumcision technique is its most important cause.^[10] Level of the amputation carries utmost importance in the selection of appropriate treatment method. In cases with proximal amputation microsurgical anastomosis should be performed. In amputations of glans, and distal penis can be sutured using a composite graft.^[11,12] As a treatment alternative in cases where microsurgical repair is not feasible following dysepithelization, penis is embedded in the inguinal region so as to maintain vitality of the penis.^[12]

Another important complication of circumcision is urethrocutaneous fistula (UCF). Despite such a high incidence of circumcision, only a few cases of UCF have been reported.^[10-13] The most important cause of UCF is a careless suturing of the frenulum during hemostasis.^[9,13] This suture causes necrosis of the urethral wall leading to urethrocutaneous fistula. However some of these UCFs are due to ischemic, and traumatic injuries caused by clamping of ventral aspect of penis, and urethral wall in depth during hemostatic control.^[13]

One of the important issues encountered during circumcision is problems related to local or general anesthesia. In Western soci-

eties circumcisions are frequently performed during the neonatal period, and under general anesthesia, and complications seen are mostly related to general anesthesia.^[11,14] However in developing countries circumcision is mostly performed by untrained individuals called “circumcisers” under local anesthesia, and so complications observed are related to local anesthesia. Cases of methemoglobinemia, and associated fatal outcomes caused by a local anesthetic, prilocaine have been occasionally reported.^[13,14] Besides development of ischemia, and necrosis of the penile skin induced by adrenaline contained in local anesthetics has been also reported.^[15]

Most of the complications of circumcision reported in our country are caused by untrained so called “circumcisers.” During circumcision feasts complication rates increase. Apart from surgical complications, predisposition to contamination with various diseases mainly hepatitis B/C, and AIDS is seen.

Circumcision is a surgical procedure with fewer complication if performed by competent experts in the hospital under sterile conditions. If performed by incompetent persons, the child may be exposed to recurrent psychosocial, and surgical traumas.

Ethics Committee Approval: The study was designed as a retrospective, cases were identified retrospectively scanned records. Therefore, there is no ethical approval.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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References

1. Walsh PC. Campbell Üroloji. In: Alan R, Darracott V, Alan W, ed. M.Kadri Anafarta (Çeviren). 1. Baskı, Ankara: Güneş, 2005;281-94.
2. Ozdemir E. Significantly increased complication risks with mass circumcisions. *Br J Urol* 1997;80:136-9. [\[CrossRef\]](#)
3. Aydur E, Gungor S, Ceyhan ST, Taiimaz L, Baser I. Effects of childhood circumcision age on adult male sexual functions. *Int J Impot Res* 2007;19:424-31. [\[CrossRef\]](#)
4. Rizvi SA, Naqvi SA, Hussain M, Hasan AS. Religious circumcision: a Muslim view. *BJU Int* 1999;83:13-6. [\[CrossRef\]](#)
5. Yapanoğlu T, Aksoy Y, Atmaca AF, Ziypak T, Cesur M, Özbet İ. Complication of circumcision in our region. *Turk J Urol* 2003;30:441-5.
6. Brisson PA, Patel HI, Feins NR. Revision of circumcision in children: report of 56 cases. *J Pediatr Surg* 2002;37:1343-6. [\[CrossRef\]](#)
7. Atikeler MK, Onur R, Gecit I, Senol FA, Cobanoğlu B. Increased morbidity after circumcision from a hidden complication. *BJU Int* 2001;88:938-40. [\[CrossRef\]](#)
8. Benli E, Koca O. Circumcision research in Bingol province. *The New J Urol* 2011;6:22-5.
9. Yıldırım İ, Bedir S, Ceylan S, Seçkin B, Erduran D. Evaluation of circumcision in Turkey. *Journal of Ankara Medical School* 2003;25:127-32.
10. Hashem FK, Ahmed S, al-Malaq AA, AbuDaia JM. Successful replantation of penile amputation (post- circumcision) complicated by prolonged ischaemia. *Br J Plast Surg* 1999;52:308-10. [\[CrossRef\]](#)
11. Kavakli K, Aledort LM. Circumcision and haemophilia: a perspective. *Haemophilia* 1998;4:1-3.
12. Ince B, Gundeslioglu AO. A salvage operation for total penis amputation due to circumcision. *Arch Plast Surg* 2013;40:247-50. [\[CrossRef\]](#)
13. Tabel Y, Sandikkaya A, Güngör S, Ünsal Ö. Methemoglobinemia after injection of prilocaine for pre-medication of circumcision. *Dicle Medical Journal* 2009;1:53-5.
14. Tzeng YS, Tang SH, Meng E, Lin TF, Sun GH. Ischemic glans penis after circumcision. *Asian J Androl* 2004;6:161-3.
15. Turk E, Karaca F, Edirne Y. A clinical and epidemiological study on the age of circumcision in Turkey. *J Ann Eu Med* 2013;1:27-30.