An Extreme Complication of Circumcision: Necrotizing Fasciitis

Sünnetin Beklenmeyen Bir Komplikasyonu: Nekrotizan Fasiit

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ABSTRACT Circumcision is one of the oldest surgical procedures. It is performed frequently for religious, prophylactic and immediate medical indications. It is a surgical procedure that requires maximum care and it must be performed by licensed surgeons in hospital conditions. Although it seems like a short and easy operation to perform, it can result with serious complications. In this study, we report a case with a near total penile shaft necrosis and necrotizing fasciitis and we want to take attention to this serious complication of circumcision.

Key Words: Circumcision, necrosis, fasciitis

ÖZET Sünnet en eski cerrahi prosedürlerden biridir. Sünnet sıklıkla dinsel, profilaktik ve acil medikal endikasyonlar nedeniyle uygulanır. Bu cerrahi prosedür iyi bir bakım gerektirir ve hastane koşullarında uzmanlaşmış cerrahlar tarafından yapılmalıdır. Buna rağmen sünnet kısa ve kolay bir operasyon gibi göründüğünden birçok komplikasyonla sonuçlanır. Biz bu çalışmada penis gövde cildinde tamama yakın nekroz ve nekrotizan fasiiti olan bir vakayı raporladık.

Anahtar Kelimeler: Sünnet, nekroz, fasiit

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Circumcision is one of the oldest surgical procedures and also it is the most frequent surgery performed in male children.[1-6] Today, 1/6 of the world male population is circumcised.[7] In USA, in 1992, circumcision was performed approximately in 1200000 children and this numbers are increasing day by day.[8] In our country, nearly 99% of the male population is circumcised.[9-11]

Circumcision is performed frequently for religious, prophylactic and immediate medical indications.[12] Religious beliefs are the most important etiologic factor for circumcision.[2,5,7,13] Medical indications for circumcision are pathological phymosis and recurrent balanitis.[12] In USA, 80% of the circumcisions are performed due to medical reasons.[14] Pathological phymosis is the most frequent medical indication for circumcision.[15]

Circumcision is usually performed in the first 5 years of life, only a small number is delayed until puberty.[5] Although, in Muslim countries, circumcision is carried out frequently in between 4 and 13 years of age, in Je-

wish society, it is done frequently in newborns and rarely delayed until late childhood.[9,13,16-18]

Circumcision is a routine and safe surgical procedure when performed by experienced surgeons.[4] However, the risk of short and long term complications increases when unqualified personel carry out the procedure.[1,7,9,16] Although the complications and results of circumcision are not documented with details in literature, hemorrhage, edema, hematoma, infection, urinary retention, incomplete or insufficient circumcision, shortening of the shaft skin, cyst formation, penile adhesion, meatal stenosis, urethrocutaneous fistula, improper scar, glanular injury can be listed as possible complications. Penile necrosis and partial or total loss of penis can be the most extreme complications of circumcision.[1,4,5,9,10,12,19,20]

In 1978, dorsal penile nerve block (DPNB) was first used for anesthesia during circumcision.[21-23] Although, dorsal penile nerve block (DPNB) is an accepted popular method for circumcision, there are complications reported about this way of anesthesia.[24]

In this study, we aimed to report a case with almost total necrosis on the skin of penile shaft and a situation resembling necrotizing fasciitis which was detected in a patient circumcised under penile nerve block anesthesia and also we aimed to review the literature findings about circumcision.

CASE REPORT

5 year old boy was presented to our outpatient clinic with the history of circumcision 4 weeks before under penile block anesthesia in hospital conditions. According to the anamnesis taken from the parents, edema and ecchymosis was developed immediately after the operation. It was stated that the viability of the glans was good in this period. It was learned that the patient was followed up as an out patient for 5 days, after then since edema and hyperemia was detected on scrotum and suprapubic region,he was hospitalized. Although treatment, since the general condition of the patient was not improved he was transferred to an advanced center. In this center, he was treated in the intensive care unit with the diagnosis of necrotizing fasciitis and given antibiotic treatment for nearly 1 week and after a stable general condition was achieved, patient was referred to our clinic due to penile skin necrosis. On physical examination, necrosis including approximately 2/3 of the penis shaft was detected (Figure 1). Necrosis was extending from radix of penis to the suprapubic region on dorsal aspect and on the volar side it was limited with scrotum. Purulent drainage was present and the wound site was hyperemic. Circulation of glans and the region distal to the shaft was good but they were quite edematous. There were small, superficial tissue defects on glans. Urination of the patient was normal. After the necessary preparations was finished and informed consent was taken from the parents, patient was taken to operation under general anesthesia. During the surgery, whole necrotic tissues on penile shaft and radix of penis were debrided. Since necrosis was extending to suprapubic region on fascial plane, debridement was continued until the necrotic tissues at suprapubic region were cleaned too (Figure 2). Flaps from the distal and proximal parts of the defect was elevated over the fascia and the defect was closed with the flaps. Urology consultation was taken immediately after surgery and the penil shaft length was confirmed as normal for the patient. After the surgery, patient was followed up with standard wound dressing principles. Reconstruction was carried out in a secondary operation after the regression of the necrosis and infection. The postoperative follow up was uneventful without any complication. On the postoperative 6 month, it was detected that the edema on glans was decreased and the penile length was acceptable (Figure 3). Postoperative follow up of the patient is still going on.

DISCUSSION

There are various articles supporting the circumcision.[25,26] Although some of the authors suggest circumcision due to its medical advantages, other authors are against due to the pain and possible psychologic effects caused by circumcision. Circumcision has medical benefits like decrease in the risk of penile cancer, sexually transmitted diseases

FIGURE 1: Preoperative view of the necrosis on penile shaft and radix of penis.

and urinary infections[27-29] However, it changes the penile anatomy, histology and function permanently and it has potential complications, some drawbacks are present too.[30,31]

Circumcision is a surgical procedure that requires maximum care and it must be performed by licensed surgeons in hospital conditions. Besides this knowledge, it is performed mostly by traditional circumcisers, drummers, local traditional barbers and health technicians.[1,4,5] In our country, approximately 85% of the circumcisions are carried out by circumcisers, 10% by health technicians and only 5% is performed by licensed surgeons.[9,19]

Complication rates and results of the complications of circumcision has not been documented well in the literature.[5] Although complication rates are low in developed countries, it can be as high as 85% in developing countries.[19] It was reported as 0.06% in best centers but there are reports with 55% complication rates too.[32,33] Complications can be detected with 85% in circumcision performed by traditional circumcisers, on the other hand this rate is 1.6-3.8% on average in hospital conditions and the most frequent complications are hemorrhage and infection.[9,12,19,34]

In their study, Atikeler et al. have compared the complications of the circumcisions performed by traditional circumcisers and the complications of circumcisions performed by themselves in hospital conditions. They have found out that complications were seen in 346 circumcisions out of 407 cases (85.01%) performed by traditional circumcisers and in 20 circumcisions out of 782 cases (2.56%) performed by their clinic. In both groups, the most frequent complication was hemorrhage and infection was the second leading one.[5]

Cathcart et al. have analysed the circumcision rates performed due to medical reasons and their

FIGURE 2: Penile view after the debridement during the first operation.

FIGURE 3: Postoperative view of the patient on the postoperative 6th month.

complications in between 1997 and 2003 in England. They have stated that 2.3 children out of 1000 was circumcised in each year. When all the cases were examined, they have found out that in 1.2%, complications were developed. Hemorrhage was the leading complication with 0.8%.[2]

The most frequent early complications of circumcision are hemorrhage and infection.[35] Hemorrhage is detected in approximately 50% of cases.[19] Besides this, infection secondary to suture materials, smegma particles and other foreign materials is a frequently seen situation too. Concealed penis, meatal stenosis, inclusion cysts, secondary chordee, penis tortion, penile adhesion, keloid formation, urethrocutaneous fistula, phymosis, lymphedema and iatrogenic hypospadias can be detected as late complications of circumcision.[7,19,36-38] In long term, most frequent complication is excessive residual foreskin and its estimated rate is in between 0.1% and 9.5%.[9,36,39] This situation can be resulted with true phymosis, wound contraction and poor cosmetic appearance.[7]

Yegane et al. have studied the long term complications in 3125 circumcised children and they have also stated that the most frequent late complication of circumcision was excessive residual foreskin. The other complications detected in their study were meatal stenosis, granuloma, penile rotation and chordee, and long term complication rate was reported as 7.3%.[4]

Circumcision can result with catastrophic complications.[21] 5 deaths were reported by National Institute of Children Health in 281 circumcisions performed by local barbers. Deaths were secondary to hemophilia in 2 cases, necrosis in 2 cases and septicemia in one case. Besides these, necrosis, necrotizing fasciitis, sepsis, meningitis and partial or complete amputations were reported as extreme complications too.[40] Although it is a rare complication, distal glans amputation was reported from Israel,[41] Turkey[11] and USA.[42]

Ahmed et al. have reported series complications in circumcisions performed by traditional circumcisers.[17] Besides uneducated and unexperienced staff, the serious complications of circumcision are related to the surgical technique and anesthesia too. For performing circumcision and preventing pain afterwards, caudal block or dorsal penile nerve block (DPNB) are frequently used.[13,23,24]

Dorsal penile nerve block (DPNB) was first used in 1978 for anesthesia during circumcision.[22,23] Although DPNB is an accepted way of anesthesia for circumcision, there are complications reported related to this technique.[24]

Complications of caudal anesthesia like motor block, delayed micturition, nausea and vomiting can be detected in between 12% and 37% of the cases.[43,44] With penile block, local hematoma, mild edema and systemic toxic effects can be detected.[45,46] Ischemia of the glans can be seen rarely related to arterial compression or usage of local anesthetics containing vasoconstrictor agents.[47,48] For this reason, local anesthetics which are not containing adrenalin, epinephrine and resembling vasoactive agents must be used for penile nerve block.[21]

Tzeng et al. have reported a case of penile ischemia developed after nerve block during circumcision.[49] Sara and Lowry have defined gangrene of glans skin after penile nerve block in 2 cases. In both cases, 0.5% bupivacaine was used as local anesthetic agent.[47]

Besides these, Emsen has reported a case of near total penile skin necrosis after a circumcision with penile block anesthesia and its reconstruction with local bipedicled scrotal flap.[4] Also Erk et al have reported a case of partial penile loss after circumcision and its penile reconstruction with full thickness skin graft.[1]

Likewise in our case, most probably the circulation of the penis, scrotum and suprapubic region was disturbed due to the anesthetic agent used for circumcision and the arterial compression secondary to the hemorrhage and as a result, this situation lead to the development of necrotizing fasciitis. Due to the near total circular necrosis on penile shaft, edema can develop on distal side of penile shaft and glans. As a result, it must be kept in mind that if it is carried out with local anesthetics containing vasoactive agents, this frequently performed procedure can be resulted with extreme complications that can be life threatening.

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