

Case Report

Iatrogenic Penile Amputation Due to Circumcision Clamp in an Eight-Year-Old Boy

Amputasi Penis Iatrogenik disebabkan Penggunaan Klem Sirkumsisi pada Anak Laki-laki Berusia Delapan Tahun

Muhammad Baihaqy Ibnu Hakim, Taufiq Nur Budaya, Besut Daryanto
Department of Urology Faculty of Medicine Universitas Brawijaya Malang

ABSTRACT

The circumcision clamp has been the primary alternative to the traditional surgical circumcision procedure since its invention in 1934. The circumcision clamp has the following advantages such as improved wound healing, shorter operation time, and no stitch removal pain. However, the clamp technique has a disadvantage where the operator cannot visualize the glans penis. Many studies have already reported the incidence of trauma or psychiatric disorders related to penile amputation, but the case of circumcision clamp-related penile amputation in Indonesia had never been reported. An eight-year-old boy was taken to the emergency department with post-circumcision bleeding. The patient had been circumcised using an Anastomat® circumcision device in the clinic, two hours prior and then referred to the emergency department. We perform penile exploration, and a defect in the ventral part of the glans penis was found, with the source of bleeding coming from the glans penis, and the urethra remained intact. Penile degloving with urethral spatulation and catheterization with a 10 Fr 2-way foley catheter was installed, continued with penile reconstruction and skin closure. The operation lasted for about sixty minutes. After six months of follow-up, the patient could urinate normally and spontaneously without any clinical complaint. Even though circumcision using a circumcision clamp is considered a safe procedure and preferable to surgical circumcision nowadays, it is necessary to emphasize that the use of a circumcision clamp still has a risk rate for penile amputation.

Keywords: Circumcision clamp, penile amputation, penile reconstruction

ABSTRAK

Klem sirkumsisi telah menjadi alternatif utama untuk prosedur sirkumsisi tradisional sejak penemuannya pada tahun 1934. Klem sirkumsisi memiliki keunggulan seperti penyembuhan luka yang lebih baik, waktu operasi yang lebih singkat, dan tidak ada rasa sakit saat melepas jahitan. Namun teknik klem memiliki kelemahan dimana operator tidak dapat memvisualisasikan glans penis. Telah banyak penelitian melaporkan amputasi penis yang berkaitan dengan trauma atau gangguan kejiwaan, namun kasus amputasi penis yang diakibatkan klem sirkumsisi di Indonesia belum pernah dilaporkan. Seorang anak laki-laki berusia delapan tahun dibawa ke UGD dengan pendarahan setelah dilakukan sirkumsisi. Pasien telah dilakukan sirkumsisi menggunakan alat sirkumsisi Anastomat®, dua jam sebelumnya dan kemudian dirujuk ke UGD. Kami melakukan eksplorasi penis, ditemukan defek pada bagian ventral glans penis, dengan sumber perdarahan berasal dari glans penis, dan uretra tetap utuh. Dilakukan degloving penis dengan spatulasi uretra dan kateterisasi menggunakan kateter foley 10 Fr 2, dilanjutkan dengan rekonstruksi penis dan penutupan kulit. Operasi berlangsung sekitar enam puluh menit. Setelah enam bulan tindak lanjut, pasien dapat buang air kecil secara normal dan spontan tanpa keluhan klinis. Meskipun saat ini penggunaan klem sirkumsisi dianggap sebagai prosedur yang aman dan lebih disukai daripada pembedahan, perlu ditekankan bahwa penggunaan klem sirkumsisi masih memiliki risiko amputasi penis.

Kata Kunci: Amputasi penis, klem sirkumsisi, rekonstruksi penis

Correspondence: Muhammad Baihaqy Ibnu Hakim. Department of Urology Faculty of Medicine Universitas Brawijaya, Jl. Veteran Malang 65154 Tel. +6285691938943 Email: baihaqy.muhammad@gmail.com

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INTRODUCTION

Circumcision has been integral to Indonesian culture, religion, and social life. The first ever circumcision procedure was done in Egypt in the Sixth Dynasty, around 2345-2180 BC. The Jewish is believed to be the first religion to do circumcision as their ritual, as mentioned in the biblical account of Abraham. Besides the Jewish, Muslim communities also perform circumcision to follow the practice of Prophet Muhammad. In Africa, circumcision has been a big part of the culture and social life (1). The prevalence of circumcision is also high in Asian countries, such as the Republic of Korea and the Philippines, and in Asian Muslim countries, such as Indonesia, Malaysia, and Brunei (2).

Various techniques can be used for circumcision. Fahmy classifies the techniques into three major types or combinations: dorsal slit, clamp, and surgical excision. Recently, people have been searching for alternative techniques besides surgical excision. The shield and clamp technique utilize a device as an alternative to the knife and has quite favorable advantages over the surgical excision that has been widely performed (3). In a non-randomized study that compared the SmartKlamp® technique to the sleeve technique, the SmartKlamp® has a shorter procedure duration and also good haemostasis (2).

Penile injuries in children have various etiologies, including accidents, animal bites, zipper injuries, and iatrogenic trauma, such as a failed attempt at circumcision (4). Circumcision has become the most common cause of pediatric penile injuries, with a prevalence of 63%. Circumcision is supposed to be a simple and safe procedure with a low postoperative complication rate (0.2-0.6%). However, the complications can vary, including excess bleeding, iatrogenic hypospadias, fistula formation, lymphedema, and amputation of the glans penis. Penile amputation incidence is low and rarely fatal, but it has a massive impact on the physical and psychological aspects of the patient. The causes of acute penis amputation in adults differ slightly from those in children. Most adult penile injuries are caused by penile fractures, strangulation injuries, penetrating injuries, or self-mutilation in psychotic episodes of various psychological disorders (5,6).

CASE REPORT

An eight-year-old boy was taken to the emergency room with bleeding post-circumcision. The patient was referred to Saiful Anwar General Hospital from a clinic after a failed attempt at circumcision using a disposable anastomotic device for circumcision in the previous two hours. We perform a physical examination and found that there was an incised wound defect with the size of 1x2 cm in the ventral part of the glans penis, and became the source of active bleeding (Figure 2a). We also found that there was an amputated part of the glans penis (Figure 2b), without cavernosal or urethral defect from the wound. Upon arrival at the emergency room, fluid infusion, antitetanic injection, and 80mg Gentamicin injection were given as the prophylaxis antibiotic.



Figure 1. Visualization of disposable circumcision anastomotic device



**Figure 2a. A defect in the ventral of the glans penis
Figure 2b. Amputated part of glans penis**

Penile degloving was performed to see if there was a phallic defect or another source of active bleeding, followed by urethral spatulation, urethral catheterization using a 10 Fr 2-way foley, penile reconstruction of the glans penis using monofilament 5-0 absorbable sutures and skin closure (Figure 3). The operation lasted for about sixty minutes.



Figure 3. During the operation of penile exploration and reconstruction

Paracetamol syrup 5ml 3 times daily was given as a home remedy for 3 days and the urethral catheter was maintained for 7 days. After six months of follow-up, the patient could urinate normally and spontaneously without any other clinical complaint (Figure 4).



Figure 4. Clinical appearance of the penis after six months of follow-up

DISCUSSION

Classic circumcision techniques have lower and minimal risks of glandular and urethral injury but take longer time as they have more steps than other techniques. Thus, it leads to the invention of other alternative ways, including clamp and guillotine techniques. The newer techniques have fewer steps and are faster than the classic techniques but also have a greater risk of glanular, urethral, and corporal injuries if performed by inexperienced operators (7). Generally, the complications after circumcision are classified as intraoperative and postoperative. Intraoperative complication consists of bleeding (0.08-0.18%), inadequate skin removal (0.05%), and penile trauma that include partial or total amputation (0.04%). The postoperative complication is further divided into early and late postoperative. Early postoperative complication includes edema (2.5%), hematoma (1.6%), postoperative bleeding (0.8%), and urine retention (0.8%); meanwhile, adhesion (15.1%), fibrotic tissue formation (3.3%), and meatal stenosis (0.8%) usually happen as late postoperative complications (8-11).

The glanular trauma happens quite often in circumcision using the guillotine technique but rarely when using Gomco, Mogen, or other clamps designed to protect the glans penis (12). A case series published by Anindhawati *et al.*, reported three cases of traumatic penile glans amputation due to circumcision that were admitted to Cipto Mangunkusumo Hospital Jakarta from January 2011 to January 2012. All three cases performed circumcision using the guillotine technique (13). Another case series published by Satyagraha *et al.*, reported three cases of iatrogenic penile amputation that was also caused by circumcision with the guillotine technique at Saiful Anwar General Hospital Malang during the period of 2013-2018 (14). Meanwhile, for the clamp technique, there has not been any case report published yet in Indonesia.

Penile amputation is a time-dependent injury, meaning that the success rate of the reconstruction surgery is highly determined by the ischemia duration the amputated part has to endure. The amputated part should be put in a cold ischemic condition in gauze soaked with saline and a plastic bag filled with slushed ice (15,16). A previous study showed a high probability of successful penile reimplantation when the ischemic time was kept below 15 hours (5). In this case, the patient came to the emergency room of Saiful Anwar Hospital two hours after

the circumcision had been performed.

The British Association of Urological Surgeons (BAUS) proposes an algorithm for traumatic penile amputation management. Immediate management focuses on the patient's resuscitation and preparation for surgical replantation of the penis. Imaging for identifying associated injuries could be needed and should follow the Advanced Trauma Life Support (ATLS) guidelines. Based on the degree of contamination, intravenous co-amoxiclav 1.2 g is recommended for clean-contaminated injuries, while intravenous metronidazole 500 mg is recommended for patients with rectal injury or injury associated with anaerobic organisms. Administration of tetanus toxoid or antibiotic is recommended (6,17).

Partial amputation of the penis can be operated by primary suture of the cavernous corpora and urethra with some conditions: such as the distal and glans penis had to be viable, and there is no damage to the neurovascular structure. If there is an adequate stump, reconstruction using a split-thickness skin graft or primary closure with skin could be performed (17).

If the defect happens to be wide, grafting could be an option. Grafting is a very successful method, as the dorsal and urethral arteries could be a great resource of vascularization for the glans and corpus spongiosum (18). In our case, grafting was not performed as the patient needed primary skin closure instead of grafting. Primary skin closure is considered a superior option because no other tissue in the body has the same characteristics (color, texture, and elasticity) to match the genital skin, tunica albuginea, spongiosum, and cavernosum (19).

The aim of penile replantation includes recovering a directable urine stream and functional penis (reproductively and aesthetically). Proper postoperative care is needed to avoid long-term complications, such as infection, urethral injury, erectile dysfunction, and chronic pain. Postoperative management includes bed rest for 48 hours, catheter diversion, adequate hydration, a continuation of broad-spectrum antibiotics, and low-molecular-weight heparin/LMWH administration right after the surgery (should be given for at least a week). Monitoring of the anastomosis with Doppler ultrasound and assessing temperature, color, and capillary refill of the replanted penis should be done. The clinical assessment should be made every hour for the first 24 hours, then every 6 hours for the next 48 hours. Morrison *et al.*, in 2017 concluded that after the penile replantation procedure, most patients have normal urinary functions (97.4%), erections (77.5%), and sensation (68.4%). However, skin necrosis (54.8%) and congestion of the vein (20.2%) are the most common complication of penile replantation (6,8,20,21).

Iatrogenic penile amputation in pediatric patients has various etiologies. In this case, the penile amputation was caused by the non-proper position of the device which was slightly dorsal and the operator did not get a clear visualization of the glans penis when using disposable circumcision anastomotic device. The important thing in performing circumcision is to have a clear visualization of the glans penis and external urethral meatus during the procedure. Also when using a circumcision device, always note that the proper placement of the device and measurement of the preputial skin were very influential on the outcome and the complications.

This case is the first Indonesian documented case of penile amputation due to a circumcision clamp, so this case report could be used as a reference and a reminder that even though the usage of a circumcision clamp is

considered a safe procedure and preferable compared to traditional surgical circumcision, it is necessary to emphasize that the use of circumcision clamp has a risk for complications such as penile amputation.

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