

# EXTERNAL GENITALIA

## Modalities to Treat Penile Glans Amputation: Case Series

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**Background:** In Indonesia, a country with Muslim population as a majority, circumcision is the most common operation performed in males. However, since circumcisions are also commonly performed by inexperienced individuals and during communal circumcision event, we frequently come across complications. One of the most severe complications is amputation of the penile glans. There are several techniques that can be used to treat this complication. In this paper we present some which have been used in our division and the result.

**Patient and Methods:** We report three cases of traumatic penile glans amputation as a complication of circumcision that has been admitted to Cipto Mangunkusumo Hospital during January 2011 – January 2012. In first case we performed full thickness skin graft, in the second one we performed groin flap, and scrotal flap to reconstruct the third case. We evaluate the result for several months.

**Results:** The three techniques showed no complication, good result in function and also aesthetically acceptable for patient and the family. Choice of technique that has been used to repair the amputated penis depended on the patient condition, and surgeon's choice.

**Summary:** The three techniques each has advantages and disadvantages, but all of them are acceptable, functionally and aesthetically.

**Keywords:** Scrotal flap, medial tube groin flap and skin graft.

**Latar Belakang:** Indonesia sebagai negara dengan mayoritas penduduk Muslim, sirkumsisi merupakan prosedur operasi yang paling sering dilakukan. Akan tetapi karena prosedur sirkumsisi banyak dikerjakan oleh orang yang tidak berpengalaman atau dilakukan pada suatu kegiatan sosial (sunatan massal), maka komplikasi dapat terjadi. Salah satu komplikasi terburuk adalah terpotongnya penis. Terdapat beberapa teknik yang dapat digunakan untuk merekonstruksi penis, pada makalah ini kami menghadirkan 3 macam teknik yang pernah digunakan di center kami.

**Pasien dan Metode:** Di laporkan tiga kasus amputasi glans penis akibat sirkumsisi yang datang ke RS. Ciptomangunkusumo selama Januari 2011 – Januari 2012. Pada kasus pertama dilakukan rekonstruksi dengan skin graft, pada kasus kedua menggunakan groin flap, sedangkan pada kasus ketiga menggunakan scrotal flap. Observasi hasil dilakukan selama beberapa bulan.

**Hasil:** Ketiga teknik tidak menunjukkan adanya komplikasi, dan menunjukkan hasil yang baik secara fungsional dan secara estetik. Pilihan teknik yang dapat digunakan dalam merekonstruksi penis akibat sirkumsisi, tergantung kepada keadaan pasien dan pilihan dari operator itu sendiri.

**Ringkasan:** Ketiga teknik memiliki kelebihan dan kekurangan masing-masing, akan tetapi secara keseluruhan ketiga teknik tersebut memberi hasil yang baik, secara fungsional maupun estetik.

**Kata Kunci:** scrotal flap, medial tube groin flap and skin graft.

In Indonesia, a country with Muslim population as a majority, circumcision is the most common surgery performed in males. However, since circumcisions are also commonly performed by inexperienced individuals and during communal circumcision event, we frequently come across complications of circumcision. One of the most severe

complications is amputation of the penis. Totally amputated penis requires microsurgery technique for replantation, but it can only be performed under certain conditions. There are several techniques that can be used to reconstruct the penis. Which technique should be chosen, or what are the things we should be concerned about, are questions usually hangs in

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**Figure 1.** Case 1: Totally amputated distal part of penis



**Figure 2.** Case 1: Full-thickness Skin Graft



**Figure 3.** Case 2: Pre-operative pictures

our mind. We like to share our experience in that kind of cases, the technique that we use and the result

## PATIENTS AND METHODS

### Case 1

An 8-year-old child with the history of penile amputation during circumcision was admitted to Cipto Mangunkusumo Hospital. The circumcision procedure was done using electrocautery with guillotine technique. The distal part of the penis was totally amputated until the corona (Figure 1), and the amputee was preserved in a plastic bag that contained ice and ringer lactate solution. In this patient we performed full thickness skin graft from the left inguinal to cover the distal penis to fashion a glans. The urethra was anastomosed to the distal portion of the full-thickness graft to form a meatus. We performed the procedure directly in the emergency operating theatre (Figure 2). After several days the child was discharged from the hospital. The catheter was removed after 2 weeks.<sup>1,4</sup>

### Case 2

A 6-year-old child was admitted to after his penile was being amputated during the circumcision. The circumcision was using electrocautery with guillotine technique. The distal penis was totally amputated until the sulcus coronarius, but the amputee was not preserved properly. The penis was primarily sutured and reconstruction done later (Figure 3).

We performed medial tubed groin flap. The dominant pedicle used in this flap was the superficial circumflex iliac artery and vein that lies beneath the deep fascia of the medial groin. This technique requires two stages. Stage one was flap elevation and tubing. The skin of the lateral groin was elevated as a flap extending between the femoral vessels and the posterior iliac spine.

The long axis of the flap is centered over a line, parallel, and 3 cm inferior to the inguinal ligament with a flap width of 6 cm. After flap was elevated, the urethra was sutured to the flap by tunneling through a hole on the flap



**Figure 4.** Intra-operative pictures, penile reconstruction using medial tube groin flap (Case 2)



**Figure 5.** Post-operative pictures, 4 month after the surgery (Case 2)



**Figure 6.** Pre-operative view (Case 2)

skin. The flap was sutured to freshened cut edge of the penis forming a tube. Then the donor site was closed by primary suture (Figure 4). The second stage was flap division and insetting after 3 weeks. In this stage we can also fashion the flap so it appears as normal as can be. Four months after surgery, the result was good and no sign of complication. It was acceptable by patient and family, functionally and aesthetically (Figure 5). The catheter was removed 3 weeks after the operative procedure. With this technique, we can restore the length of the penis, but we cannot restore the erectile function because there were no nerve transferred in this flap.<sup>2,3</sup>

### Case 3

A 9-year-old boy was admitted to Cipto Mangunkusumo Hospital after his penis was cut at the communal circumcision. They used

electrocautery to perform the guillotine procedure to circumcise. The penile glans was totally amputated (Figure 6). The amputee was placed onto the stump as a composite graft, but after several days the graft failed. Finally we decided to perform a scrotal flap to reconstruct the glans.

The scrotal flap was elevated from the medial raphe of scrotum as a random flap, then button-holed and sutured circumferentially to the distal of the penis. The urethra was exteriorized and stitched to the flap button-holed skin with simple interrupted suture (Figure 7). Cystostomy was performed to maintain the urine flow and prevent the leakage of urine. After 3 weeks the flap was separated from the donor, and two weeks later, the catheter was removed (Figure 8). Three months after the surgery the penis had acceptable cosmetic appearance with



**Figure 7.** Intra-operative pictures, penile reconstruction using scrotal flap (Case 3)



**Figure 8.** Post-operative pictures, 3 months after the surgery (Case 3)

satisfactory function. During the healing process, there was problem of shrinkage of the tissue which is commonly occurred in graft or flap tissue. To avoid urethral stricture and urine obstruction, urethral dilatation is planned when the patient complains of a reduced urine flow.

## RESULT

A medial tubed groin flap is a technically simple and safe flap. The technique gives good color match, shape and texture. The donor scar is also easily concealed. With this technique we can also restore the length of the penis. Skin graft was even easier than flap and can be performed as soon as possible, even in the emergency setting and requires less time to perform. Full thickness skin graft provides elasticity of the skin better than the other two techniques, and elasticity of the skin is very important for postoperative sexual function. That is why we used semi-erect state during the surgery in order to tailor the graft appropriately.<sup>1</sup>

The scrotal flap has a good color match as well as texture and the shape. The patient's erection showed no significant changes. But technique also cannot restore the penile length, glans sensation, and requires a two-stage procedure.

Overall, among the three techniques discussed, medial tubed groin flap demonstrated a superior result aesthetically because this technique represents the natural three dimensional shape of penis which is in this case is the glans.

## DISCUSSION

The variety of techniques available for glans reconstruction makes it difficult to choose the right one for particular patient. The first purpose was to construct a penis which retains its shape and contour in the long term. The second priority is the reconstruction of the neourethra, which has been notoriously difficult. The use of a vascularized portion of the main flap or a separate flap has been advocated for this purpose. However, the advantage of this method over the more conventional full-thickness skin graft urethra reconstruction remains theoretical. The third priority in penile reconstruction is to provide a protective and erogenous sensation to the neopenis, which was not addressed in the present study. Another concern is the limitation of donor site morbidity. The use of groin region as the donor area has a clear advantage over other donor areas in limiting donor site morbidity. All resultant scar can be covered by underwear in these three technique.<sup>5</sup>

In patient who underwent glansectomy or partial penectomy, reduced sensitivity was a predictable consequence. However, with a proper treatment, the neoglans would have a cosmetic appearance similar to a true glans, and the patients were able to fully regain sexual activity with a favorable psychological impact.<sup>6</sup>

The use of musculocutaneous flaps for reconstruction does not allow spontaneous erection and has been reported to be unsatisfactory cosmetically.<sup>4</sup> When raising the scrotal skin as a flap, it is recommended to dissect close to the tunica vaginalis in order to protect the main vessel. Once the artery is included in the pedicle, the various technique of raising the scrotal skin flap can be performed.<sup>7</sup>

## SUMMARY

In a country like Indonesia, where circumcision is very often, it is wise if patients are sure of the doctor who perform the operation. Even though it is a routine procedure, there is always risks of complications that might occur. It is advised to perform the safest technique, such as by dorsumcision. In a communal event where speed is highly expected, it is strongly recommended that the procedure is perform by an expert.

The penile or glans amputation exerts huge problem for patient and family both physically and psychologically. The choice of technique for the reconstruction is at the doctor's discretion, based on the patient condition.

Three cases of glans amputation that caused by circumcision had been performed. In each case we perform different techniques. The main goal is to reconstruct the is so it has the same contour and color, function as good as before and acceptable aesthetically and functionally. It must have long lasting result without any complications in the future.

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