Case report

RECONSTRUCTION OF SOFT TISSUE PENILE DEFECTS DUE TO TRAUMA USING INGUINAL FLAPS

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ABSTRACT

Background: *We present a case of using the external pudendal artery (EPA) flap to cover the soft tissue defects of the penis following multiple trauma with penis shrinkage, corpus spongiosum and urethral injuries.*

Case report: *A 54-year-old male patient was admitted to the hospital with multiple injuries: complex trauma with extensive scrotal and perineal skin loss, soft tissue defects of the penis with corpus spongiosum and urethral injuries, complex and open forearm fracture. The patient underwent emergency surgery to remove scrotal skin, Burry the testis in the subcutaneous pouches in the thigh, Foley sonde was placed over the bladder above the pubic bone and amputate the right hand.After that, the patient was operated on using foreskin flaps to cover corpus spongiosum defects and reconstruct the urethra. However, after about 10 days, the foreskin flap was infected and then necrotic resulting in the soft tissue defects of the penis exposing the urethral.Therefore we decided to perform surgery using the external pudendal artery (EPA) flap to solve that problem. We put sonde foley to shallow urethra and let urine pass out. The cosmetic and functional results of this foreskin-flap have been good. There was no infection, the length of the penis was maintained. The urinary stream has been normal with no urine leakage after surgery.*

Conclusion: *The external pudendal artery flap is a good option for the treatment of patients with penile soft tissue defects. Due to its simplicity, short operation time, easy dissection, good aesthetic outcome. Therefore the external pudendal artery flap is an optimal choice for the treatment of cases of genital soft tissue defects (scrota and penis).*

Keyword: *Inguinal flap, external pudendal artery flap, groin flap.*

I. INTRODUCTION

The pedicled groin flap described by McGregor and Jackson in 19721 is one surgical possibility that still has many indications in hand resurfacing [1]. It has been shown to be reliable and it has minimal peri-operative complications, which make it the procedure of choice in many centres around the world [2,3]. The external pudendal artery (EPA) flap is considered as a simple, easy-to-operate, highly effective surgery that was first described by Dias in 1984 [4]. This is a highly effective surgery for the case of injury. penis; shrinkage, missing part of the porous object, missing part of the urethra.Therefore, we have chosen this

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surgical method to evaluate the effectiveness of EAP flap surgery for penile tissue defects.

We present a case of using the external pudendal artery (EPA) flap to cover the soft tissue defects of the penis following multiple trauma with penis shrinkage, corpus spongiosum and urethral injuries at Hue Central Hospital.

II. CASE PRESENTATION

A54-year-old male patient presented with post traumatic penile soft tissue defects with penis shrinkage, corpus spongiosum and urethral injuries and complex wounds were initially treated by emergency surgery,corpus spongiosum partially lost, urethra half lost in circumference size: # 1cm wide, 2cm long **(Figure 1)**.

Figure1: Posttraumatic penile soft tissue defects with penis shrinkage, corpus spongiosum, and urethral injuries

After identifying complex lesions, we performed Surgery to remove scar tissue causing the shrinkage plasty by technique. The penis was maintained with a normal length. And then we dissected the foreskin, took the inner foreskin to reconstruct the injured urethra, and the penis **(Figure 2)**.

Figure 2: Foreskin flap, and penile skin were reconstructed

Ten-day postoperative: the flap was infected, and then necrotic exposing the urethral **(Figure 3)**, we removed necrotic tissue, cleaned the wound. The complete blood count, and CRP tests resulted inside the normal range. We adjusted the antibiotic therapy according to the results of blood cultures. The 2nd surgery was then performed to cover the new defect after 2 weeks of postoperative.

We decided to perform surgery using the external pudendal artery flap to cover penile soft tissue defects.

Figure 3: Penile soft tissue defects with corpus spongiosum, and urethral injuries following necrosis of the foreskin flap

Fourteen - day postoperative: the flap has been survived with no infection, and necrosis as well . Removal of the urethral and bladder sonde after 8 weeks, for patients with active urination.

Six - month postoperative: The length of the penis has been maintained well. The cosmetic, and functional results of this foreskin-flap have been good **(Figure 4)**. The urinary stream has been normal with no urine leakage after surgery.

Figure 4: Follow-up visit after 6 months

III. DISCUSSION

Groin flap was described in 1972 by McGregor and Jackson, then it become popular because groin flap can cover soft tissue defect have a large area and hide the scar in the groin [1]. Today, groin flap have seamless blood vessels are applied to cover soft tissue defect in the genital area [5]. The superficial external pudendal artery flap was described by Dias in 1984 [4]. Blondeel et al introduced about anatomy and technique of the external pudendal artery flap in 2013 [6]. Balbinot et al partner performed clinical cases cover soft tissue defect in the genital area by external pudendal artery flap in 2015 [7].

Anatomy of the external pudendal artery: The superficial external pudendal artery, the deep external pudendal artery. It is from the femoral artery, go under the groin ligament. Branches: scrotum before (male), front lip (female), groin branches [4,6].

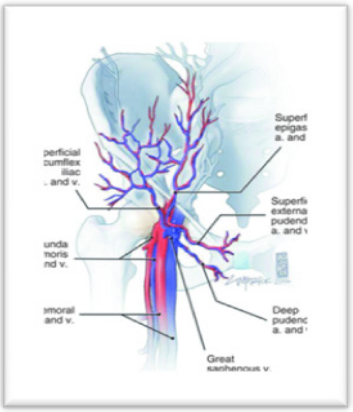

Figure 5: External pudendal artery and vein [4,6].

Technique: (1) Find the path of the artery by hand doppler machine. (2) Design flap. (3) Cut the skin and dissection flap. (4) No need to dissect to the blood vessels. (5) Put flap up the soft tissue defect and stitching … [4,8].

The EPA flap is easily operated, safe, has the high survival rate, which was suitable for this case. We initially cleaned the affected area, mapped the external pudendal artery branch, designed the flap, which was not too long, and stretched as well, to make sure it was sufficient to cover the defect. We cut the skin until the pedicle flap as designed to cover the defect, placed a Foley catheter **(Figure 6)**.

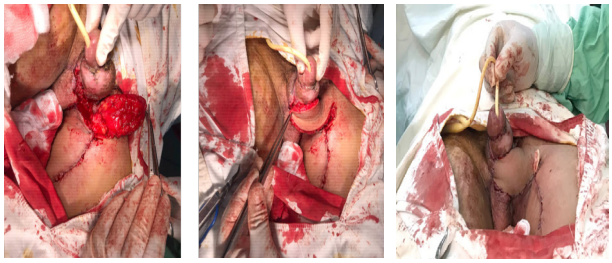

Figure 6: Design and dissection of the skin flap

We found this flap suitable for this case, according to previous studies presented by some authors before [4,6,9].

IV. CONCLUSION

Through clinical cases performed, we can initially realize that the pedicle flap based on the superficial external pudendal artery is constant, safe, suitable to cover genital soft tissue defects. Simple surgery, highly aesthetic, short surgery time. Flap has nerves attached so it retains sensory function, Scar of the groin area is covered by clothes.

Results are end of urethral probe, Strong urine flow, beautiful scar, not shrinkage, good form and function and the patient is very satisfied.

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