



POINT OF TECHNIQUE

Modified one-stage dorsal-inlay buccal mucosa graft technique for ventral penile urethral and penile skin erosion: A step-by-step guide



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Abstract Objective: To demonstrate the use of a modified single-stage technique for the repair of a ventral penile urethral erosion with involvement of the penile skin, as penile urethral erosion is a rare but potential complication of chronic indwelling catheterisation with a lack of available recommendations for reconstructive options.

Patient and methods: A 44-year-old male with paraplegia, neurogenic bladder dysfunction and chronic sacral decubitus, presented with a large mid-penile erosion of the ventral penile shaft and urethra, which was caused by chronic transurethral indwelling catheterisation while being hospitalised in an intensive care unit. The reconstruction involved a single-stage dorsal-inlay buccal mucosa graft urethroplasty (Asopa) in addition to the second stage of a two-stage urethroplasty. The urethroplasty as well as the buccal mucosa graft harvest were performed by a single team.

Results: The modified single-stage urethroplasty procedure had a duration of 158 min with a postoperative hospitalisation of 3 days. At 8-months follow-up, the lesion had fully healed and the patient was back on clean intermittent

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self-catheterisation with solifenacin 10 mg daily. No complications occurred postoperatively.

Conclusion: The modified single-stage dorsal-inlay technique is a viable method for repairing ventral penile urethral erosion with involvement of penile skin.

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Introduction

For the repair of ventral urethral defects many single-stage techniques exist. The most well-known techniques are probably the transverse preputial island flap technique, as described by Duckett [1], penile/preputial cutaneous island flap urethroplasty as described by Quartey [2], and the penile island flap, as described by Orandi [3]. The use of buccal mucosa in urethral stricture repair has gained increasingly more traction during recent decades because it is readily available in all patients, easy to harvest, and has a thick elastin-rich epithelium. Moreover, it is hairless and has a thin and highly vascular lamina propria. The use of buccal mucosa graft was first introduced by Humby and Higgins [4] in 1941 as a one-stage operation for hypospadias. In 1993, el-Kasaby et al. [5] were the first to report its use in the repair of penile and bulbar strictures in adult men without hypospadias. In the ensuing years, many clinical experiences and experimental studies have contributed to the further development and evolution of the use of buccal mucosal grafts. In 2001, Asopa et al. [6] described the dorsal-inlay technique for the repair of anterior urethral strictures. In more extended cases of penile urethral pathology, e.g. lichen sclerosus or severe hypospadias, a two-stage urethroplasty is indicated as popularised by Bracka [7] in 1995. As ventral penile urethral erosions are rare, a standardised approach for the repair is not yet available. The following procedure presents a step-by-step demonstration of a technique for the repair of

a penile urethral erosion with a modified dorsal-inlay buccal mucosa graft.

Patient and methods

A 44-year-old male with a history of a circumcision, paraplegia, and neurogenic bladder dysfunction, presented with a large mid-penile erosion of the ventral penile shaft and urethra. This was caused by chronic transurethral indwelling catheterisation while being admitted in an intensive care unit because of haemodynamic instability after surgery for chronic sacral decubitus (Fig. 1).

Technique

For the repair, a combination of a one-stage dorsal-inlay buccal mucosa graft urethroplasty (Asopa [6]) and the second stage of a two-stage urethroplasty (Bracka [7]) are used. The procedure should be conducted by a team of at least three: one surgeon, one assistant, and one scrub nurse. Ideally, a second team of at least two members could simultaneously harvest and prepare the buccal mucosa graft, which would reduce the operating time by 30–40 min.

Preoperative preparation with chlorhexidine mouthwash for oral cleansing is started 3 days before surgery. A broad-spectrum antibiotic, e.g. Co-amoxiclav, is administered i.v. during surgery.

The patient is placed supine, disinfected and draped sterilely, with inclusion of the right upper leg to harvest a split thickness graft if necessary. Ideally, a traction suture is placed through the glans (non-cutting 4/0 polypropylene suture).

The urethral plate is separated from the penile skin and dartos tissue: first by an incision at the mucocutaneous junction and subsequently by sharp dissection, as in the second stage of a two-stage repair (Fig. 2.1). Next, the urethral plate is incised at the midline over a length corresponding to the length the defect, which was 5 cm in this case (Fig. 2.2). The length of the incision is noted, as the buccal mucosa graft should be at least 1 cm longer than this. The medial margins of the incised dorsal urethral plate are moved laterally by sharp incisions with a scalpel blade, parallel to the midline incision and down to the tunica albuginea (Fig. 2.3). This creates a suitable elliptical section up to 2 cm over



Figure 1 Preoperative situation.

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