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Double Y glanuloplasty for glanular hypospadias

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Abstract

Purpose: A double Y glanuloplasty technique is described for the repair of glanular hypospadias with mobile meatus.

Materials: Ninety-seven children with glanular hypospadias and mobile meatus were operated on using this technique in the period from January 2003 to January 2009. Mean age of patients was 12 (range, 4-60) months.

Results: Patients were discharged home within 3 days. The operation resulted in a slit-like meatus. Follow-up ranged from 8 months to 6 years (mean, 45 months). Good cosmetic and functional results were obtained in 94 patients. Complications occurred in 3 patients (3%). Two patients experienced meatal stenosis. This was corrected using ventral meatotomy. One patient suffered from dehiscence of the wound and retraction of the meatus. The meatal retraction was corrected using a modified inverted Y Mathieu technique.

Conclusions: The double Y glanuloplasty technique is suitable for appropriately selected patients with glanular hypospadias and mobile meatus. It provides a cosmetically natural vertical slit at the tip of the glans.

Hypospadias is one of the most common congenital anomalies, with a prevalence of 3.8 per 1000 male newborns [1]. Historically, glanular hypospadias was not repaired routinely because of the high complication rate and, in some, the unsatisfactory cosmetic outcome. Recently, improved techniques with better surgical outcome and increasing concern of parents and older patients [2] have stimulated surgical correction of glanular hypospadias.

A myriad of procedures for glanular hypospadias have been developed during the last 30 years based on the principle of urethral mobilization first described by Beck [3] in 1898. These include meatal advancement glanuloplasty (MAGPI)I [4,5] and its modifications [6,7], glans approximation procedure [8], and Koff [9] to mention a few.

Furthermore, there is an increasing interest to decrease postoperative patient discomfort, decrease the risk for complications, and provide cost-effective therapy.

The double Y glanuloplasty (DYG) technique is presented as a simple technique suitable for patients with glanular hypospadias and a mobile meatus. This technique helps achieve a terminal, slit-like meatus with minimal complications.

1. Materials and methods

Between January 2003 and January 2009, 97 children with glanular hypospadias and mobile meatus were operated on using the DYG technique. The age ranged between 4 and 60 months (mean, 12 months). All patients received caudal block before the operation performed under general anesthesia. Patient selection is essential. The decision that the patient is suitable for the DYG technique can only be

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confirmed under anesthesia after proper assessment of the glans and meatus and after confirming that the meatus is mobile and can be pushed to the tip of the glans using a fine-toothed forceps. The presence of a transverse ridge distal to meatus is a helpful tip but not always reliable. A transurethral catheter was used for 1 to 2 days depending on the degree of mobilization and the age of the child.

2. Operative technique

The DYG technique is suitable for selected patients with glanular hypospadias, with mobile meatus, and in the absence of deep chordee (Figs. 1A and 2A). Those patients usually have a little ridge distal to meatus. This ridge can be pushed with a mosquito or toothed forceps to the tip of the glans (Fig. 2B).

If the distal edge of the urethral meatus is immobile (Fig. 3A) and cannot be pushed to the tip of the glans (Fig. 3B), the child is not suitable for the DYG technique; and another technique suitable for distal hypospadias is performed (inverted Y Thiersch in patients with cleft glans or inverted Y Mathieu technique in patients with flat glans, personal communication).

A 5/0 nylon traction suture is placed on the glans, dorsal to the tip of the glans. A tourniquet is placed at the root of the penis, and chordee is excluded using the artificial erection test.

An inverted Y incision is outlined on the glans. The centre of the inverted Y is just above the ridge distal to the meatus. The longitudinal limb extends to the tip the glans where the tip of the neomeatus will be located. Each oblique limb of the inverted Y is 0.5 cm long, and the angle between them is 60° (Figs. 1B and 4A). The incision is deepened, and the flaps are mobilized to allow more mobility of the meatus (Fig. 1C). A

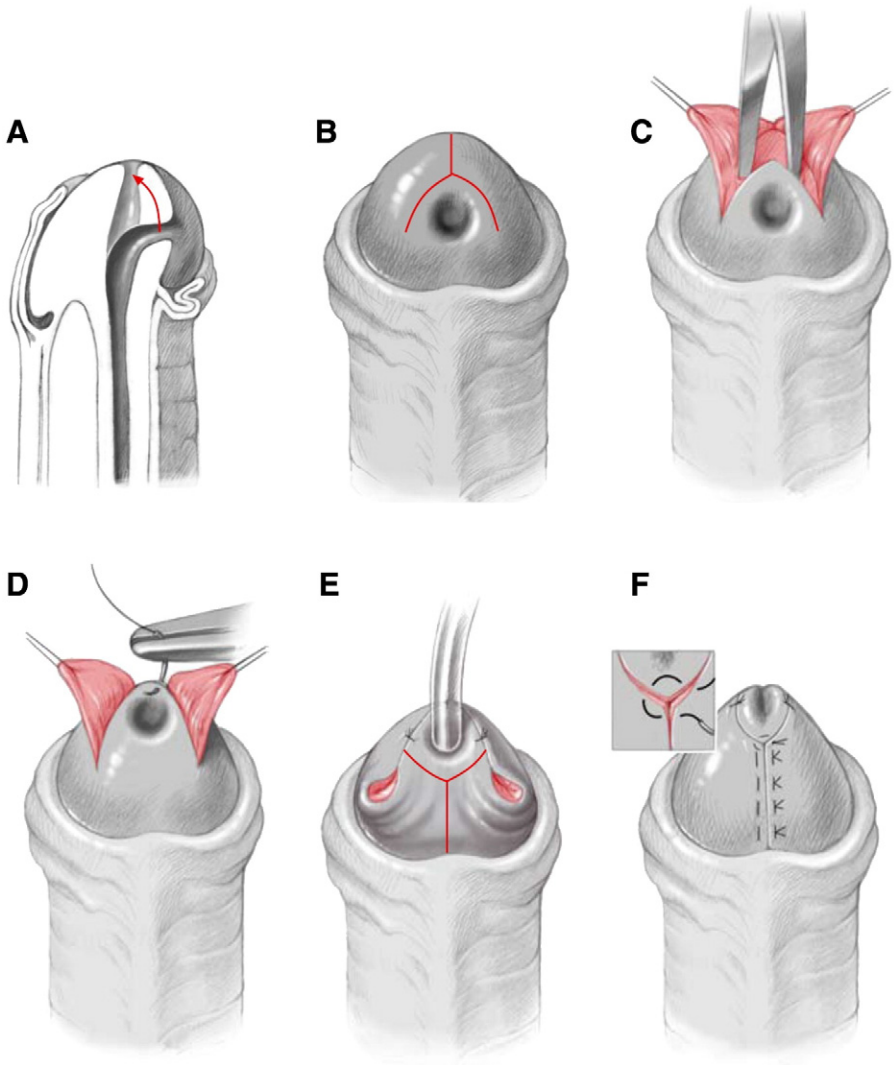

Fig. 1 Steps of DYG. A, Glanular hypospadias with mobile meatus. B, Inverted Y incision. C, The 3 flaps are elevated. D, The apex of the meatus is sutured to the tip of the glans. E, A catheter F10 is introduced inside the urethra, and a Y incision is made that surrounds the meatus and extends down to the coronal sulcus. F, The glanular wings are mobilized deep enough to wrap around the urethra and are approximated in the midline. The 6-o'clock stitch is a 3-point stitch that brings the urethra and the 2 medial edges of the glanular wings together and is magnified in the inset. From Hadidi AT, Azmy AF (Eds) *Hypospadias Surgery, Second Edition*, Springer-Verlag, Berlin Heidelberg, with permission (in press).