Case Report

M-Plasty for Correction of Incomplete Penoscrotal Transposition

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ABSTRACT

Penoscrotal transposition (PST) is a rare anomaly of the external genitalia that can be complete or incomplete while incomplete type is more common. Various surgical methods are described for correction of incomplete PST. Modified Glenn Anderson's method is commonly used. This method is known to cause major penile lymphoedema following surgery. Various modifications have been described to preserve the dorsal penile skin to reduce this lymphoedema. We present here our experience with M-Plasty, where the dorsal penile skin is cut in the form of V so that it breaks the constricting effect of circumferential incision and prevents lymphoedema.

KEYWORDS
M-Plasty; Penoscrotal transaposition; Lymphoedema

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INTRODUCTION

Penoscrotal transposition (PST) is a rare anomaly of the external genitalia. The argument whether penis is malpositioned or scrotum is yet undecided. It can be either complete or incomplete. Incomplete PST where the penis lies between halves of scrotum is more common. Both forms are usually associated with hypospadiasis and hence require multiple surgeries for total correction. Various methods have been proposed for penoscrotal transposition. Penoscrotal transposition (PST) is a rare anomaly of the external genitalia that can be complete or incomplete while incomplete type is more common.[1] Various surgical methods are described for correction of incomplete PST. Modified Glenn Anderson's method is commonly used. This method is known to cause major penile lymphoedema following surgery. Various modifications have been described to preserve the dorsal penile skin to reduce this lymphoedema.[2] Here we are presenting our experience of 2 cases of incomplete penoscrotal transposition correction.

Case 1: A 23 year old patient presented with incomplete PST along with penile hypospadiasis. Patient had limited chordee. As his transposition was to be corrected, we planned it as stage 1. Hypospadisis correction was planned at later date. (Figure 1).

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Fig. 1: Hypospadisis correction (Inverted V shaped incision was marked on the base of both scrotal half, with both V joining in middle over the ventrum at the base of penis making it M shape).

This patient came to doctor for the 1st time at this age.

Case 2: A 7 yr old boy had incomplete PST associated with mid penile hypospadiasis. Chordee was not obvious and hence correction of the transposition was done.

Surgical Technique

In supine position of the patient, the incision was marked. Inverted V shaped incision was marked on the base of both scrotal half, with both V joining in middle over the ventrum at the base of penis making it M shape (Figure 1). Then both the scrotal halves were dissected till the subcutaneous level (Figure 2) and brought posterior to penis and more caudal (Figure 3).

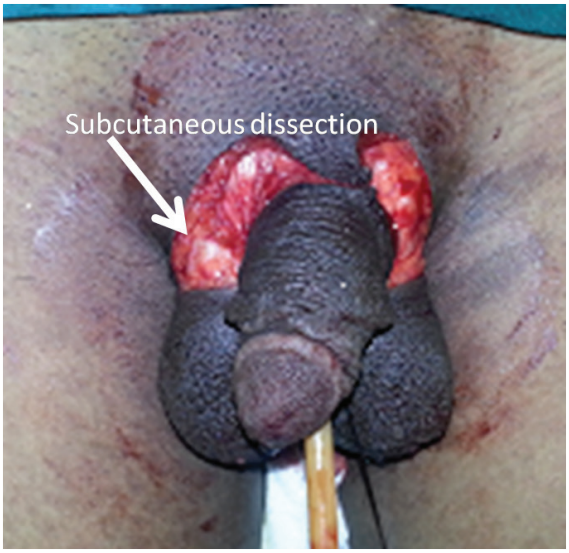


Fig. 2: Dissection of both scrotal halves.



Fig. 3: Scrotal halves were brought posterior to penis while more caudal.

Because of the laxity of surrounding skin, all the incisions could be closed primarily, transposition was complete. Hypospadiasis repair was planned after 6 months. Both patients were happy and needed no revision. In both patients, repair was not associated with significant lymphoedema as the tongue of tissue at the base of penis helped to drain the lymph and hence prevented the post-op lymphoedema.

DISCUSSION

PST results from abnormal genital tubercle development around the 6th week of gestation. It is associated with delay in the midline fusion of the urethral folds. Although the occurrence of most reported cases of PST has been sporadic, other congenital anomalies like hypospadias, chordee and renal agenesis or dysplasia could be found in approximately 90% of patients. Gastrointestinal abnormalities that predominantly imperforate anus were found in 30% of cases.[3]

PST may present with a broad spectrum of abnormalities ranging from simple shawl scrotum (doughnut scrotum) to very complex extreme transposition with cardiac, gastrointestinal, craniofacial, central nervous system, genital and urological associated malformations.[4] Growth deficiency and mental retardation have also been noticed in 60% of patients.[5] Differential diagnosis must include pseudohermaphroditism, penoscrotal hypospadias, micropenis, intrauterine penile amputation and especially

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penile agenesis with a midline skin tag anterior to the anus. Surgery of the more complex cases of PST is technically challenging.[6-10]

Various surgeries have been advocated by many surgeons. Mcllvoy and Harris first performed surgery to move the penis into a more cranial position through a subcutaneous tunnel beneath the prepenile scrotum.[11] Forshall and Rickham used a different technique in two patients in whom the cranially located scrotal flaps were elevated, rotated medially and caudally and sutured beneath the penis.[12] This method was also used by Glenn and Anderson.[13] The technique was later modified by Dresner in 1982.[14] Mark and his colleagues in 2000[15] presented a radically divergent view of PST, stating that the penis and not the scrotum was malpositioned. They transferred the penis after straightening into a button hole designed in the skin of the mons-pubis.

The complications after surgery for PST included urethral and testicular injury, urinary fistula, flap necrosis and penile oedema. Circular incision at the root of the penis partially compromises lymphatic drainage, which may interfere with healing of the neourethra.[16] Majority of the studies showed significant number of complications like Arena *et al*. study in 2005[17] showed 38% complications in their work, Glassberg *et al*. in 1998[18] reported 50% complications and Koyanagi *et al*. in 1994[19] found 48% complications in their work. All of them used same technique and corrected hypospadiasis in the same stage. Hence, to reduce the complications, we planned hypospadiasis correction in the second stage.

Commonly used Glenn-Anderson technique showed gross edema that persisted for long periods (6-9 months) and, after resolution, left the penile skin dusky and darkly pigmented, appearing as the scrotal skin.[20] Saleh et al. demonstrated a 10% complication rate by just preserving the dorsal strip of penile skin.[20] We further modified it by cutting the dorsal skin in the form of V (the median portion of IVI). The tongue of skin breaks constricting effect and limits the post op lymphoedema.

Both of our cases had no significant edema and both were discharged on 10th post-op day after suture removal.

PST is a rare congenital anomaly and is often associated with severe hypospadiasis and other genital or systemic anomalies. Surgical correction of these anomalies is technically challenging and has to be done in stages. Preserving the dorsal skin helps to reduce the lymphoedema and gives better result. Although we had limited experience of 2 cases, with more use of M-plasty, we can authenticate the advantages of this technique compared to others.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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