Correction of Isolated Complete Penoscrotal Transposition: Point of Technique

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Abstract. Complete penoscrotal transposition also known as pre penile scrotum is a rare anomaly in which scrotum is transposed to a cranial position in relation to the penis. There are few cases reported in literature, and often it is associated with severe hypospadias. We report a novel operative technique which allows single stage correction of complete penoscrotal transposition.

Keywords: Complete penoscrotal transposition, Hypospadias, Penis, Pre-penile scrotum

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Introduction

Penoscrotal transposition (PST) is a rare anomaly characterized by malposition of the penis in relation to the scrotum. In complete PST, also referred to as pre penile scrotum, the scrotal folds are located cranially and fused in midline, while the penis emerges from perineum. Incomplete PST is a more common condition where the penis lies in the middle of the bifid scrotum. Both forms are most often associated with severe forms of hypospadias.\(^1\)\(^2\) There are very few reports of complete PST with no chordee or hypospadias.\(^3\)

Several techniques have been described to correct PST of which Glen Anderson technique is popular.\(^4\)\(^5\) We herewith report a rare combination of complete PST, glanular hypospadias and no chordee. We also describe a novel operative technique which allowed single stage correction with minimal lymphoedema and good cosmetic outcome.

Case Report and Technique

A term male neonate presented with complete PST and glanular hypospadias. There was no skin chordee. Both testes were normally descended and, the patient was able to pass urine well via the glanular meatus. There were no major anomalies involving other systems and karyotyping was normal 46XY. Hormonal evaluation did not reveal any abnormality. Since there was evidence of micropenis, monthly testosterone injections were given (three doses between 10-12 months).

At the age of 15 months there was good improvement in the shaft size and length (Fig. 1a). Since the hypospadias was glanular, parents elected to leave it uncorrected. Under general anaesthesia and caudal analgesia, surgical correction was performed. Initial catheterization with 6F feeding tube failed as the catheter could not be advanced beyond the posterior urethra. Cystoscopy revealed a prominent prostatic utricle and a supra pubic catheter was inserted under cystoscopic vision.

Fig. 1b shows the markings of the incision. Circumferential incision was made at the base of the penis. This was extended vertically at 12 O’ clock in the midline between the fused scrotal folds. At a point where the penis has to be transposed the vertical incision was stopped and a horizontal incision was made (T shape) with either side of the horizontal limb going laterally to outline scrotal folds. Fig. 1c and Fig. 1d reveal deepening of ‘T’ incision and the circumferential incision around the base of penis, to release the abnormal soft tissue bands holding the scrotal folds in the cranial position. Once fully mobilised, the scrotal folds are free to be moved caudally and penis free to move cranially to its natural position (Fig.1e). Soft tissue and skin approximation were obtained with 5-0 polyglactin sutures as shown in Fig. 1f. Soft compression dressing was kept for 8 days. The patient passed urine well on removal of dressing and there was no lymphoedema. Follow up at 3, 6 and 12 months revealed good cosmetic outcome. There were no late complications and parents elected to defer decision on surgery for glanular hypospadias till puberty.
Discussion

The embryological sequence responsible for complete PST is unclear. During normal development in a male embryo, the labio-scrotal swellings, under the influence of di-hydro testosterone, migrate inferomedially, and fuse in the midline caudal to the penis, between 9th and 12th week of gestation. Abnormal positioning of the genital tubercle in relation to the scrotal swellings or incomplete/failed migration of labio-scrotal swellings have been suggested to cause complete PST.\(^\text{1-3}\)

PST was first reported by Appleby in 1923. Patients with PST often have accompanying urological abnormalities such as chordee, hypospadias, vesicoureteric reflux, urethral atresia, and bifid scrotum. McIlvoy and Harris first performed surgery to move the penis into a more cranial position through a subcutaneous tunnel beneath the prepenile scrotum.\(^\text{2}\)

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.\(^\text{3}\)

Kolligian et al transferred the penis after straightening into a button hole designed in the skin of mons pubis. The authors feel this technique does not allow release of abnormal soft tissue bands well enough to achieve a good cosmetic result.\(^\text{3}\)

Complications after surgery for PST include urethral and testicular injury, urinary fistula, flap necrosis, and penile edema. Circular incision at the root of the penis may partially compromise lymphatic drainage and cause lymphoedema. Observation of patients corrected by Glenn-Anderson technique showed gross edema that persists for long periods (6-9 months), and after resolution leaving the penile skin dusky
and darkly pigmented with appearance like the scrotal skin. Saleh felt that preservation of strip of skin at 12 O’clock position during correction of PST reduced postoperative edema and lowered complications,[5] however, we did not advocate this as we felt it results in excess skin causing dog ear. Despite this we did not encounter lymphoedema or late penile skin abnormalities reported earlier, as the penile blood supply and lymphatic drainage took care of the un-degloved skin attached over it.

The authors feel that whenever complete PST is associated with hypospadias, it should be staged to avoid complications associated with blood supply and lymphatic drainage. The technique we have described, is for isolated PST where there is no chordee requiring degloving. The described technique is an addition to existing techniques for correcting of complete PST.

References