

M-Plasty for Correction of Incomplete Penoscrotal Transposition

KN Manjunath*, MS Venkatesh

Department of Plastic and Reconstructive Surgery, MSRMC, Bengaluru, Karnataka

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 transposition; Lymphoedema

Please cite this paper as:

Manjunath KN, Venkatesh MS. M-Plasty for Correction of Incomplete Penoscrotal Transposition. *World J Plast Surg* 2014;3(2):138-141.

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. Hypospadiasis correction was planned at later date. (Figure 1).

*Correspondence Author:
KN Manjunath, MD;
Assistant Professor of Department of
Plastic and Reconstructive Surgery,
MSRMC, BENGALURU, Karnataka.
Tel: +91 98800 00000
E-mail: drknmanjunath@gmail.com
Received: February 10 2014
Accepted: May 1, 2014



Fig. 1: Hypospadiis 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 hypospadias. 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).

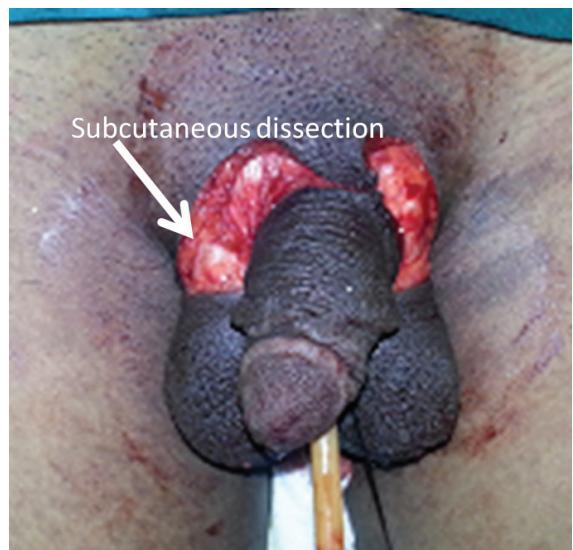


Fig. 2: Dissection of both scrotal halves.



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

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. McIlvoy 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 2000¹⁵ 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 2005¹⁷ showed 38% complications in their work, Glassberg *et al.* in 1998¹⁸ reported 50% complications and Koyanagi *et al.* in 1994¹⁹ found 48% complications in their work. All of them used same technique and corrected hypospadias in the same stage. Hence, to reduce the complications, we planned hypospadias 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 hypospadias 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.

REFERENCES

- 1 Pinke LA, Rathbun SR, Husmann DA, Kramer SA. Penoscrotal transposition: Review of 53 patients. *J Urol* 2001;166:1865-8.
- 2 Glenn J, Anderson E. Surgical correction of incomplete penoscrotal transposition. *J Urol* 1973;110:603-5.
- 3 Ehrlich R, Scardino P. Surgical correction of scrotal transposition and perineal hypospadias. *J Pediatr Surg* 1982;17:175-7.
- 4 Hinman F Jr. Penoscrotal transposition. In: *Atlas of Pediatric Urologic Surgery*. Philadelphia: WB Saunders, Chapt. 128, 1994; pp. 627-32.
- 5 Lockhart J, Berrocal J. Urethral advancement in management of penoscrotal transposition. *Urology* 1985;25:371-3.
- 6 Glassberg K, Hansbrough F, Horowitz M. The Koyangi-Nonomural-stage bucket repair of severe hypospadias with and without penoscrotal transposition. *J Urol* 1998;60:1104-7.
- 7 Mori Y, Ikoma F. Surgical correction of incomplete penoscrotal transposition associated with hypospadias. *J Pediatr Surg* 1986;21:46-8.
- 8 Levy J, Darson M, Bite U, Kramer SA. Modified pudendal-thigh flap for penoscrotal transposition. *Urology* 1997;50:597-600.
- 9 Kolligian ME, Franco I, Reda EF. Correction of penoscrotal transposition: a novel approach. *J Urol* 2000;164:994-7.
- 10 Méndez-Gallart R, Tellado MG, Somoza I. Extreme penoscrotal transposition. *World J Pediatr* 2010;6:89.
- 11 McIlvoy DB, Harris HS. Transposition of the penis and scrotum: Case report. *J Urol* 1955;73:540-3.

12 Forshall I, Rickham PP. Transposition of the penis and scrotum. *Br J Urol* 1956;38:250-2.

13 Glenn JF, Anderson EE. Surgical correction of incomplete penoscrotal transposition. *J Urol* 1973;110:603-5.

14 Kolligian ME, Franco I, Reda EF. Correction of penoscrotal transposition: A novel approach. *J Urol* 2000;164:994-7.

15 Dresner ML. Surgical revision of scrotal engulfment. *Urol Clin North Am* 1982;9:305-10.

16 Germiyanoplu C, Ozkardeó H, Altuπ U, Erol D. Reconstruction of penoscrotal transposition. *Br J Urol* 1994;73:202-3.

17 Arena F, Romeo C, Manganaro A, Arena S, Zuccarello B, Romeo G. Surgical correction of penoscrotal transposition associated with hypospadias and bifid scrotum: Our experience of two-stage repair. *J Pediatr Urol* 2005;1:289-4.

18 Glassberg KI, Hansbrough F, Horowitz M. The Koyanagi-Nonomura 1-stage bucket repair of severe hypospadias with and without penoscrotal transposition. *J Urol* 1998;160:114-7.

19 Koyanagi T, Nonomura K, Yamashita T, and Kanagawa K, Kakizaki H. One-stage repair of hypospadias: Is there no simple method universally applicable to all types of hypospadias? *J Urol* 1994;152:1232-7.

20 Saleh A. Correction of incomplete penoscrotal transposition by a modified Glenn-Anderson technique. *Afr J Paediatr Surg* 2010;7:181-4.