



## PENOSCROTAL TRANSPOSITION WITH HYPOSPADIAS: HAMBARDE`S TECHNIQUE OF O-T-O PLASTY

**Dr. sandeep R. Hambarde\***

Paediatric Surgeon, Ramkrishna Hospital, N 5, Cidco, Aurangabad, India  
\*Corresponding Author

**Dr. ashwini S. hambarde**

Gynaecologist, Ramkrishna Hospital, N 5, Cidco, Aurangabad, India

**Dr. thavendra Dihare**

Paediatric Surgeon, Wardha Sawangi, India

### ABSTRACT

**BACKGROUND/ PURPOSE:** Penoscrotal transposition, partial or complete is result of positional exchanges between the penis and the scrotum. Earlier correction of penoscrotal transposition was done transposing the penis to a neo hole created in the skin of mons pubis or creating scrotal rotational flaps and bringing them caudal to penis.

Modified Glenn Anderson's method is commonly used. This method is known to cause major penile lymphoedema following surgery due to circular incision around the root of the penis that delay correction of the frequently associated hypospadias and increase the incidence of complications. We used novel method to correct 22 cases of penoscrotal transposition i.e. HAMBARDE`s Technique of O-T-O PLASTY. This method has given excellent cosmetic and functional outcome, allowed early surgical correction of hypospadias after 6 months with almost nil complications.

### MATERIAL AND METHODS

We retrospectively reviewed 22 patients, age ranging from 2 to 23 years that underwent two-stage repair for penoscrotal transposition with hypospadias. The operative principle was based on achieving a normal anatomical position of the penis and scrotum using a novel method i.e. HAMBARDE`s technique of O-T-O PLASTY. All cases were associated with midpenile or penoscrotal hypospadias. Hypospadias correction was performed after a period of 6 months with Onlay tube urethroplasty. 7 patients were having unilateral undescended testis and 1 patient was having unilateral inguinal hernia.

### RESULTS

Cosmetic and functional results of HAMBARDE`s Technique of O-T-O PLASTY were excellent. No major complications were observed. Of 22 patients, only 2[9%] had fistula after hypospadias repair.

### CONCLUSION

HAMBARDE`s Technique of O-T-O PLASTY for reconstruction of penoscrotal transposition is a simple technique, free of major complications. The purpose of this innovative method is to improve functional outcome and cosmetic appearance of the penis. A minimum period of 6 months between consecutive urethroplasties is important. Preserving the prepuce and making its use for subsequent urethroplasty after 6 months gives excellent short term and long term outcome.

**KEYWORDS :** Penoscrotal transposition, hypospadias, HAMBARDE`s Technique, O-T-O PLASTY

### SURGICAL TECHNIQUE

O shaped circular incisions were taken on both scrotal halves. Subcutaneous dissection was performed on both sides till adequate mobilization of both scrotal flaps. T shaped incision was taken at intervening skin just proximal to hypospadiac urethral meatus and subcutaneous tissue dissection done till adequate margins raised. Then both the scrotal flaps were brought posterior to penis and more caudal [Figure 1, 2,3] All incisions were closed primarily with good tissue approximation [Figure 4]. Urinary diversion and pressure dressing were given for 5 days. Hypospadias repair was done after 6 months. No patient had any complications like penile lymphoedema, flap necrosis or infection.

Satisfactory anatomical, cosmetic and functional results were obtained in most of the patients. The follow up period ranged from 6 to 18 months.

Complications include only urethral fistulas in 2 patients (9%) that was successfully

treated with repeated dilatations and no patient required redo surgery.

In this technique, no circumferential incision of the skin around the penile base was taken. In fact, whole penile skin left attached to skin of mons pubis. There was almost nil post operative edema and rapid wound healing.

### FIGURES

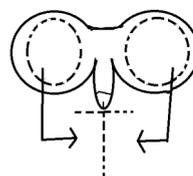


Figure 1



Figure 2



Figure 3

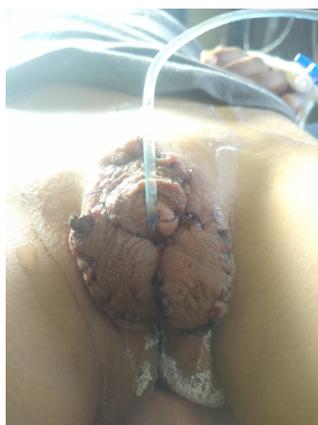


Figure 4

### DISCUSSION

Penoscrotal transposition results from abnormal genital tubercle development with delay in the midline fusion of the urethral folds. 90% patients had associated anomalies like hypospadias, chordee, undescended testis and renal agenesis. Imperforate anus may present in some cases.<sup>1,2,3</sup>

Differential diagnosis must include pseudohermaphroditism, penoscrotal hypospadias, micropenis, intrauterine penile amputation and penile agenesis with a midline skin tag anterior to the anus. Surgery of more complex cases of Penoscrotal transposition is technically challenging.<sup>4,5,6,7,8</sup>

Various surgeries have been advocated by many surgeons. Mellvoy and Harris first performed surgery to move the penis into a more cranial position through a subcutaneous tunnel beneath the prepenile scrotum.<sup>9</sup> 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.<sup>10</sup> This method was also used by Glenn and Anderson.<sup>11</sup> The technique was later modified by Dresner in 1982.<sup>12</sup> Mark and his colleagues in 2000<sup>13</sup> presented a radically divergent view of Penoscrotal transposition 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.

Complications of penoscrotal transposition include urethral and testicular injury, urinary fistula, flap necrosis and penile edema. Circular incision at the root of the penis partially compromises lymphatic drainage, which may interfere with healing of the neourethra.<sup>14</sup> Majority of the studies showed significant number of complications like Arena *et al.* study in 2005<sup>15</sup> showed 38% complications in their work, Glassberg *et al.* in 1998<sup>16</sup> reported 50% complications and Koyanagi *et al.* in 1994<sup>17</sup> found 48% complications in their work. All of them used same technique with hypospadias correction in the same stage. Hence, to reduce the complications, we planned hypospadias correction at later date.

Glenn-Anderson technique left gross penile edema with dark pigmentation later on.<sup>18</sup> Saleh *et al.* demonstrated a 10% complication rate by just preserving the dorsal strip of penile skin.<sup>18</sup> We have modified it with O shaped circular incisions on both scrotal halves and T shaped incision at intervening skin just proximal to hypospadiac urethral meatus. Penile base was left intact, hence completely avoided complications like penile lymphoedema, flap necrosis or infection. None of our patients had significant edema and all were discharged on 7th post-op day.

Penoscrotal transposition is a rare congenital anomaly often with severe hypospadias and other genital anomalies. Surgical correction of these anomalies is technically demanding and should be done in stages.

With our experience of 22 cases of Penoscrotal transposition by O-T-O PLASTY, this method is completely free of complications like penile edema, flap necrosis and infection. This supple and untouched prepuce can be more useful in future chordee correction and Onlay tube repair. We can authenticate that this is the best repair technique cosmetically and functionally.

### 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. Glassberg K, Hansbrough F, Horowitz M. The Koyangi-Nonomura 1-stage bucket repair of severe hypospadias with and without penoscrotal transposition. *J Urol.* 1998;60:1104-7
5. Mori Y, Ikoma F. Surgical correction of incomplete penoscrotal transposition associated with hypospadias. *J Pediatr Surg.* 1986;21:46-8
6. Levy J, Darson M, Bite U, Kramer SA. Modified pudendal-thigh flap for penoscrotal transposition. *Urology.* 1997;50:597-600.
7. Kolligian ME, Franco I, Reda EF. Correction of penoscrotal transposition: a novel approach. *J Urol.* 2000;164:994-7.
8. Méndez-Gallart R, Tellado MG, Somoza I. Extreme penoscrotal transposition. *World J Pediatr.* 2010;6:89.
9. Mellvoy DB, Harris HS. Transposition of the penis and scrotum: Case report. *J Urol.* 1955;73:540-3.
10. Forshall I, Rickham PP. Transposition of the penis and scrotum. *Br J Urol.* 1956;38:250-213.
11. Glenn JF, Anderson EE. Surgical correction of incomplete penoscrotal transposition. *J Urol.* 1973;110:603-5.
12. Dresner ML. Surgical revision of scrotal engulfment. *Urol Clin North Am.* 1982;9:305-10
13. Kolligian ME, Franco I, Reda EF. Correction of penoscrotal transposition: A novel approach. *J Urol.* 2000;164:994-7
14. Germiyanoglu C, Ozkardes H, Altug U *et al.* Reconstruction of penoscrotal transposition. *Br J Urol.* 73:202-3, 1994.
15. 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.
16. 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.
17. Koyanagi T, Nonomura K, Yamashita T, 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.
18. Saleh A. Correction of incomplete penoscrotal transposition by a modified Glenn-Anderson technique. *Afr J Paediatr Surg.* 2010;7:181-4.