Correction of Penoscrotal Transposition by Modified Glenn-Anderson Technique

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Abstract

Background/ Purpose: Penoscrotal transposition may be partial or complete resulting in variable degrees of positional exchanges between the penis and the scrotum. Repair of penoscrotal transposition rely on the creation of rotational flaps to mobilize the scrotum down or transposing the penis to a neo hole created in the skin of mons pubis. Almost all known techniques make in complete circular incision around the root of the penis and this result in severe and massive edema of the penile skin that delay correction of the frequently associated hypospadias, and increase the incidence of complications. A modification of Glenn-Anderson technique was used to prevent the postoperative edema and allows early correction of associated hypospadias, and to decrease the incidence of potential complications. The results were compared with other reported techniques.

Materials & Methods: Ten patients with incomplete penoscrotal transposition had been corrected by designing rotational flaps that push the scrotum back while the penile skin remain attached by small strip to skin of mons pubis. The early and late results were analysed.

Results: All patients have had excellent cosmetic outcome. There have been minimal postoperative edema and no vascular compromise to penile or scrotal skin. Repairs of associated hypospadias were done in the same sitting in 2 patients, and 3-6 months after correction of penoscrotal transposition in the other 8 patients.

Conclusion: The proposed modification of Glenn-Anderson technique minimizes post operative edema and improves healing with excellent cosmetic appearance. It allows one stage repair of associated hypospadias and reduce postoperative complications as urinary fistula, and flap necrosis.

Index Word: Scrotal transposition, penis, hypospadias.

INTRODUCTION

Penoscrotal transposition is a rare anomaly of the external genitalia characterized by malposition of the penis in relation to the scrotum. In complete transposition the scrotum covers the penis, which emerges from the perineum. In incomplete transposition, which is more common, the penis lies in the middle of the scrotum. Both forms are often associated with a severe hypospadias.1

The aim of this study was to evaluate the results of correction of incomplete penoscrotal transposition and associated hypospadias by a modification of Glenn-Anderson technique.
PATIENTS AND METHODS

Between 2004 and 2007, 10 patients underwent surgery for incomplete penoscrotal transposition associated with hypospadias. Their ages ranged between 1 to 9 years. The hypospadias was classified as subcoronal in 2 patients, penile in 3, penoscrotal in 2, scrotal in 2, and perineal in 1. After release of the chordee; 2 patients had proximal penile, 3 had penoscrotal, 3 had scrotal and 2 had perineal hypospadias.

Five patients had associated congenital anomalies in the form of incomplete testicular descent and inguinal hernias (2 bilateral and 3 unilateral).

Surgical technique: (Figs 1-4)

The lines of incision were drawn around the root of the penis to elevate the two halves of the scrotum as rotational flaps leaving the dorsal penile skin connected to the skin of mons pubis. It is important to be sure that the designed incisions do not meet in the mid line as in Glenn-Anderson technique to leave a bridge of skin about 3-5mm separating the two incisions and connecting the penile skin to the skin of mons pubis. So no circular incision was done around the root of the penis as in other techniques, and penile skin remains connected and drained to skin of mons pubis. Two scrotal wings were thus created and mobilized by subcutaneous dissection. The next step was straightening of the penis and excision of the chordee. The median scrotal raphe was incised along approximately half its length leaving the mobilized urethra entirely free.
Complete mobilization and fixation of the testes were performed in all patients. Herniotomy was performed in 5 patients (3 unilateral and 2 bilateral) through the same scrotal approach.

The two scrotal wings were rotated infero medially and sutured together with 4-0 absorbable sutures.

The repair of associated hypospadias was done by tubularized incised plate (TIP) urethroplasty in the same sitting in 2 patients, and 3-6 months after correction of penoscrotal transposition in the other 8 patients.

RESULTS
Satisfactory anatomical, cosmetic and functional results were obtained in most of the patients. The follow up periods ranged from 6 to 18 months. Complications included urethral stenosis and urethral fistulas in 1 patient (10%) that was successfully treated with repeated dilatations, no additional surgical correction needed in any of the corrected patients.

In this technique, no circumferential incision of the skin around the penile base was done, and penile skin is connected and drained to skin of mons pubis. There was minimal post operative edema that did not compromise wound healing and disappeared in few days after surgery.

DISCUSSION
Penoscrotal transposition was first reported by Appleby in 1923. Patients with penoscrotal transposition often have accompanying urological abnormalities such as chordee, hypospadias and vesicoureteric reflux.

McIlvoy and Harris first performed surgery to move the penis into a more cranial position through a subcutaneous tunnel beneath the prepenile scrotum.5

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. This method was also used by Glenn and Anderson. The technique was later modified by Dresner in 1982. Mark and his colleagues presented a radically divergent view of penoscrotal transposition. They stated that the penis and not the scrotum is mal positioned. They transfer the penis after straightening into a button hole designed in the skin of mons pubis.

Complications after surgery for 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.10

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 and appears as the scrotal skin.

In this neo designed modification of Glenn Anderson technique the preserved strip of skin on the dorsum of the penis provides a good vascular bed for venous and lymphatic drainage, so no gross edema developed after operation as seen in other techniques and simultaneous correction of associated hypospadias can be done without increasing complications.

Arena et al11 reported 38% complications in their work, Glassberg et al12 reported 50% complications and Koyanagi et al13 reported 48% complications. All of them use the same technique in the correction of penoscrotal transposition. In this series there were 10% complications in the designed modification of Glenn Anderson technique.

CONCLUSION
Preservation of strip of skin at the root of the penis connecting penile skin to skin of lower abdomen during correction of penoscrotal transposition reduce postoperative edema and lower complications with better cosmetic appearance.

REFERENCES


