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# Penile torsion repair in children following a ladder step: Simpler steps are usually sufficient☆

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**KEYWORDS**
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**Abstract** *Objective:* To evaluate the correction of different degrees of penile torsion following a ladder step so that simpler steps are used whenever possible. This can avoid the morbidity and complications of complex procedures.
*Patients and methods:* Cases of congenital and acquired penile torsion were repaired on a ladder step basis irrespective of the degree of torsion, starting with degloving and skin realignment, then a dorsal dartos flap and finally corporopexy. The torsion is checked with artificial erection after each step, and if corrected completely then the next step(s) is omitted.
*Results:* Twenty-five cases of penile torsion (30—180°) were repaired over a 4-year period. Three cases were corrected by degloving only, 12 by degloving and skin realignment, five by a dartos flap and four required a corporopexy. Postoperative complications included five cases of penile edema, one case of hematoma and one case of dorsal skin gangrene. Residual torsion of $<15^{\circ}$ occurred in three cases. No cases required redo surgery.
*Conclusion:* A ladder step approach is a good option for penile torsion repair, starting with simpler techniques until complete correction is achieved. There is no need to plan a complex procedure in advance.


## Background/purpose

Penile torsion is a rotation of the penis on its longitudinal axis [1,2]. It can be congenital or acquired after penile procedures, for example circumcision and hypospadias repair [3]. The true incidence is unknown as it rarely evokes complaint, but reported incidence of isolated penile torsion

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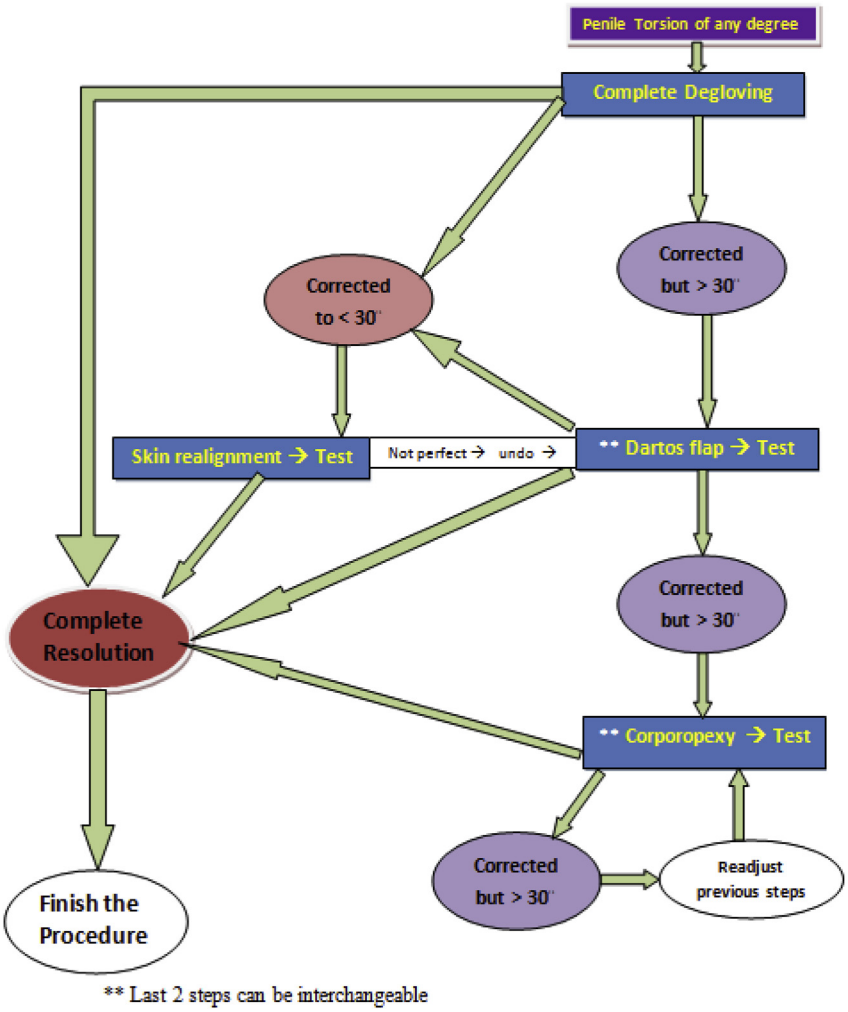


**Figure 1** Ladder step repair flow-chart.

is 1.7—27%. Torsion of >90° is reported in 0.7% of cases only [2—4]. The congenital type is almost always in a counter-clockwise direction [3,5—8]. The etiology of congenital torsion is not clear, some believe that it results from abnormal skin and dartos fascia attachment during development, others suggest corporal disproportion [3,5,7,9—13]. The condition can occur as isolated torsion or may be associated with other penile anomalies, for example hypospadias, epispadias, chordee without hypospadias or penile curvature [2,4]. A high association (32.8%) with anterior penile hypospadias was described [14]. The presentation and indication for surgical correction is usually cosmetic; the condition has no functional impact and does not affect erection or potency [9,15]. Abnormal deflection of urinary stream is seldom encountered [9]. Surgical techniques for correction of penile torsion vary from simple to complicated, with no consensus on the best repair [3,7,13]. These include release of skin and dartos adhesions [11,16], degloving and skin realignment [5,13,17], resection of Buck's fascia [10], excision of angular ellipses of corporeal tissue with subsequent plication [18], dorsal dartos flap rotation [15,19], suturing the tunica albuginea to the pubic periosteum [7], diagonal corporeal plication sutures around the neurovascular bundle (NVB) [20], and mobilization of urethral plate and urethra [3]. More complicated repairs are associated with morbidity and complications that can be serious such as bleeding, hematoma, injury to the NVB and penile shortening [13].

Simpler techniques are usually sufficient in children. We followed a ladder step in repair of different degrees of penile torsion so that simpler steps were used whenever possible to avoid the morbidity and complications of complicated procedures.

## Patients and methods

Between January 2009 and January 2013, 25 cases of congenital and acquired penile torsion were repaired in Tanta Pediatric Surgical Unit. The degree of torsion ranged from 30° to 180°. Cases of curvature were excluded. The cases were managed on a ladder step basis irrespective of the degree of torsion, starting with degloving then skin realignment, then a dorsal dartos flap and finally corporopexy. The torsion was checked after each step, and if corrected completely with artificial erection then the next step(s) was omitted (Fig. 1). If the residual torsion after degloving was greater than 30°, skin realignment was not