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Penile Degloving and Skin Re-Attachment Technique for Repair of Penile Torsion, Our Experience

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ABSTRACT

Penile torsion is a rare anomale usually associated with hypospadias and rarely presents alone. It was saught to be due to abnormal skin attachment. As a result, penile degloving and skin and re-attachment was used for long time to correct torsion. Recently other aetiological factors and new technique were described. In this work, we attempted correction of penile torsion in 13 boys by the technique of penile degloving and skin re-attachment emphasizing cutting all fibrous bands around the base of the penis. The age of patients ranged from 1 to 4 years (mean 2.5 yrs) and degree of torsion was between 50 to 90 degrees. Ten cases were associated with distal hypospadias, three of them had chordee in addition. Torsion was fully corrected in all cases and maintained through the period of follow up (one year). Urthroplasties were successful in nine cases with pin point fistula in one case. In our hands, complete penile degloving and skin re-attachment was a satisfactory technique for correction of penile torsion within the mentioned range of age and degree of torsion.

INTRODUCTION

Penile torsion is a rare anomaly in which the median raphe can be seen to pass in a spiral manner from the base of the penis ventrally and around the penile shaft **[1]**. It is usually seen in association with hypospadias or chordee and rarely presents as an isolated anomale usually the torsion is counterclockwise (i.e. towards the left) and urethral meatus is placed in oblique position **[1,2]**.

The aetiology of penile torsion isn't settled, many people believe that the embryologic defect lies in the abnormal skin and dartos fascia attachment. As a result of that many authors reported successful repair by simply degloving the penis and re-attaching the skin **[2-5]**. However, other authors reported incomplete correction of rotation by the previous simple technique and proposed other aetiological factors working through other tissues as Buck's fascia **[6]** and corporal tissue **[7,8]**. In 1992, Slawin and Nagler **[7]** described a technique of removing angular ellipses of corporeal tissue with subsequent application to correct the torsion. In 2000, Bolgrano et al. **[9]** described a technique to correct the complex penile deformities (torsion + curvature) by modified Nesbit procedure asymmetric tunica albuginea excision. In 2004, Fisher and Park described a technique using dorsal dartos flap rotation **[10]**. In 2006, Lizhou et al., described the technique of suturing the tunica albuginea to the pubic periosteum **[8]**. In this paper we will present our experience in repairing congenital penile torsion in 13 boys by the simple technique of penile degloving and skin re – attachment.

MATERIAL AND METHODS

From January 2003 to January 2005, 13 boys with penile torsion were operated upon in Fayoum University Hospital and Kaser Elini Hospital, their ages ranged from 1 to 4 years (mean, 2.5). Ten were associated with distal hypospadias (8 primary & 2 revisional) and three were isolated anomale. Three boys of hypospadias cases were suffering from chordee. The direction of torsion was counterclockwise in twelve patients and clockwise in only one case. The angles of rotation were between 50 to 90 degrees. Follow up was done for one year at least for each case.

Operative procedure:

Circumcoronal incision was done at the beginning in case of isolated penile torsion and as a second step after incisions done for urethroplasty in cases associated with hypospadias "Snodgrass technique". Skin and dartos were degloved completely with division of all fibrous bands down to the pubic bones (Figs. 2,6). Torsion could be corrected in all cases by the end of the previous step. Three cases (hypospadias group) were suffering from chordee which was corrected also by the

complete penile degloving and ascertained by artificial errection test before attempting urethral reconstruction.

The degloved skin and dartos were sutured after excising the excess tissue in away that maintained the achieved correction (Fig. 3).

Silicon catheter was left for 48 hours in isolated torsion and ten days in hypospadias cases.

RESULTS

One year follow up revealed satisfactory correction of the abnormal rotation in all cases. As regard the results of the ten urethroplasties it were successful in nine cases and only one case suffered pin point coronal fistula. The operation provided an excellent cosmetic result such that the urethtal meatus is located at normal position (Figs. 4,8), and allowed a normal forward directed urine stream.

(A) AP view.

(B) Lateral view.

Fig. (1): Pre-operative photo showing isolated counterclockwise penile torsion (90 degrees).

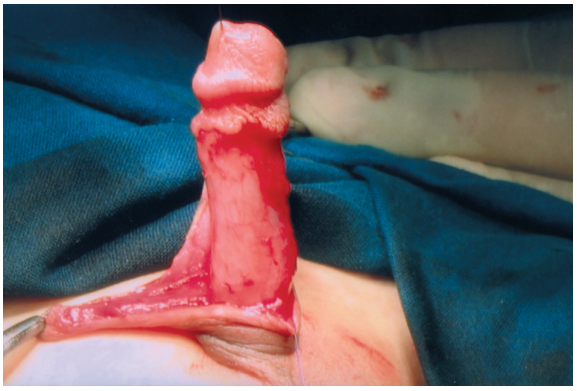


Fig. (2): Intra-operative photo showing complete penile degloving.

Fig. (3): Photo at the end of surgery showing corrected torsion. "glandular stitch marks the mid dorsal point".

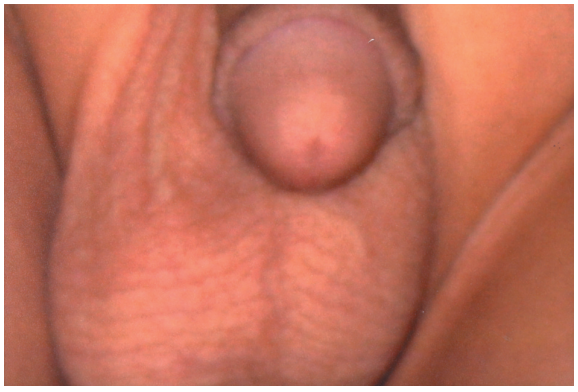


Fig. (4): Postoperative photo showing maintained correction after one year.

(A) AP view.

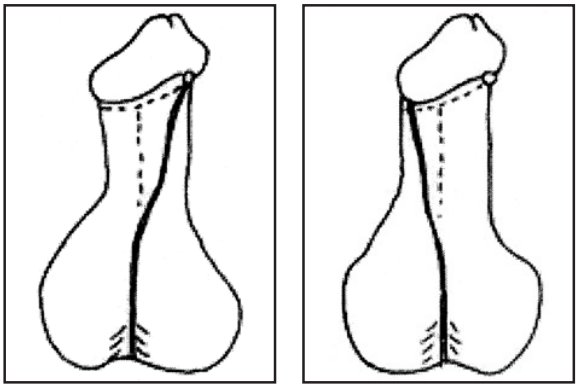
(B) Lateral view.

Fig. (5): Pre-operative photo showing counterclockwise penile torsion (60 degrees) associated with hypospadias.

Fig. (6): Intra-operative photo showing complete penile degloving.

Fig. (7): Postoperative photo (2 weeks) showing corrected torsion.

Fig. (8): Postoperative photo (one year) showing maintained correction.



(A) Lizhou et al., 2006. (B) Our finding.

Fig. (9): Diagram showing the direction of rotation of the median raphe in case of counterclockwise penile torsion (i.e. to the left).

DISCUSSION

Penile torsion is a rare anomale especially when isolated. On reviewing the published reports of penile torsion repair in the last three decades it were very poor both in number of the reports and number of cases included in. The aetiology of penile torsion isn't clear. Many authors believe that the main defect is abnormal skin attachment in addition to the presence of fibrous bands at the base of penis in some cases (2,3,4). In 1981, Corriere described Buck's fascia involvement in the aetiology of congenital penile torsion. In 2006, Lizhou et al., denied the abnormal skin attachment as a main factor in any case. They proposed the asymmetric development of the corpora cavernosa as the main aetiological factor.

In our experience, complete penile degloving of the skin with division all bands around the base of the penis resulted in full correction of torsion in all cases with persistent good results for one year follow up.

Untill 1990, the technique of penile degloving and skin re-attachment was considered the main line of treating penile torsion [1]. In the last few years more than one technique have been evolved. In 2000, Belgrano et al., described modified Nesbit procedure in which they performed asymmetric tunica albuginea excisions of ellipses. The technique was used to correct complex penile deformities (torsion and curvature) in males their ages ranged from 27-63 yrs. Shortening of the penis and decreased sensation were reported as complications in some cases. In our work, we corrected three cases with ventral bending (45 degrees) by penile degloving. As a result, the modified Nesbit technique may be considered in complex cases in males with older age group.

In 2004, Fisher and Park described the use of dorsal dartos fascial flap sutured on the ventral aspect to correct eight cases of penile torsion. This technique has the advantage of being a step in the operation done for cases associated with hypospadias. The dartos flap is used to cover the urethroplasty suture line.

In 2006, Lizhou et al., described the technique of suturing the lateral edge of the corpus cavernosum to the pubic periosteum. Their work was comparative in which six boys with penile torsion were operated upon by the technique of penile degloving and skin re-attachment. They reported failure of correction in the six cases. On the other hand, they reported satisfactory correction in eleven boys operated by their new technique. As a result they emphasized the asymmetric development of the corpora cavernosa as the main etiological factor in their cases. The results and conclusions of this recent work appears to be on the contrary of that of our work. However, we have the following observations:

1- As regard the technique they tried to correct the torsion by releasing the fibrous band around the left hypoplastic corpus but the adhesion was so dense and tight that it was difficult to separate the tunica albuginea from the bone. Also, they mentioned that extensive dissection may injure the neurovascular bundle. This means that they didn't perform complete penile degloving as we did in our cases without being confronted with that too much difficulty and risk mentioned in their report.

2- In our work the patient's ages range was 1 to 4 years (mean 2.5 yrs). However, the range in the work of Lizhou et al., was 3 to 12 years (mean 6 years). This evident difference in age may have a role in the contrast of the results of the same technique. If the main aetiological factor at birth is the abnormal skin attachment, theortically secondary changes may occur with age in the development of corporal tissue. However this lacks the evidence.

3- The maximum degree of rotation was 90 degrees in our work however it was 120 degrees in the other report. This also, may have a role in explaining the difference of results. Unfortunately, they didn't mention the range of age and the degree of rotation relevant to the group of patients operated by penile degloving and skin re-attachment.

4- Finally Lizhou et al., presented a diagram showing a case of penile torsion (to the left) associated with hypospadias. The median raphe was drawn passing to the left ending at the meatus. This in contrast to our findings in all cases where the median raphe was seen to pass to the right in cases of penile torsion to the left (Figs. 5a,9). Our finding supports the idea of abnormal skin attachment and its responsibility for torsion.

Conclusion:

13 boys with penile torsion were operated upon by complete penile degloving and skin re-attachment. Their ages ranged from 1 to 4 years with mean of 2.5 years. The maximum degree of torsion was 90 degrees.

Correction was achieved in all cases and maintained during the follow up period (one year). This simple and safe technique should be the first choice

for cases within the mentioned age range and degree of torsion. Further studies are needed to evalution its validity in older age group and in more severe cases.

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