

Isolated penile torsion in newborns

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Abstract

Introduction: We reported on the incidence of isolated penile torsion among our healthy children and our approach to this anomaly.

Methods: Between 2011 and 2014, newborn babies with penile torsion were classified according to the angle of torsion. Surgical correction (penile degloving and reattachment for moderate cases and dorsal dartos flap technique in case of resistance) after 6 months was advised to the babies with rotations more than 45°.

Results: Among 1000 newborn babies, 200 isolated penile torsions were found, and among these, 43 had torsions more than 45°, and 4 of these had angles greater than 90°. The mean angle of the rotations was found 30.45° (median: 20°). In total, 8 children with 60° torsions were previously circumcised. Surgery was performed on 19 patients, with a mean patient age of 12 ± 2 months. Of these 19, 13 babies were corrected with degloving and reattachment. This technique was not enough on the remaining 6 patients; therefore, derotational dorsal dartos flap was added to correct the torsion. After a mean of 15.6 ± 9.8 months, residual penile rotation, less than 15°, was found only in 2 children.

Conclusion: The incidence of isolated penile torsion is 20% in newborns. However, rotation more than 45° angles are seen in 4.3% of male babies. Correction is not necessary in mild degrees, and penile degloving with reattachment is enough in most cases. If the initial correction is insufficient, dorsal dartos flap rotation is easy and effective. Prior circumcision neither disturbs the operative procedure nor affects the outcomes.

Introduction

Congenital penile torsion is a rotational defect of the penile shaft. The true incidence is unknown and the etiology is unclear, because it rarely invokes complaint.¹⁻⁴ Its incidence and clinical importance may have been underestimated, with little data in the literature. The torsion may be associated with other penile anomalies, including hypospadias, epispadias or chordee without hypospadias.³ Patients with penile torsion have some of these pathologies. This may confuse the physicians encountering isolated penile torsion.

A number of techniques have been described for correcting penile torsion, yet there is no consensus on the most successful repair.^{2,3,5-11} Herein, we report the incidence of isolated penile torsion among our healthy children and describe our approach to correct this anomaly.

Methods

Healthy, full-term newborn babies without known abnormality, who asked for circumcision, were examined by the same pediatric surgeon at their second day of their life and their observed penile abnormalities were recorded. Babies without obvious dysmorphic features born at our hospital, between 2011 and 2014, were included in the study analysis. The retrospective study analysis was stopped we reached 1000 subjects. After putting the penis in a straight upright position by digital pressure on the dorsal root of the penis carefully to avoid torsion, we measured the angle with a simple protractor. The index points were set at the end of the median raphe at the tip of the preputium and at the base of the penis. The measurements were done without retracting the foreskin and without defining the urethral meatus to prevent bias in measuring the torsion. Babies who had penile torsions were classified according to angle of torsion: <45° torsion simple, 45° to -90° mild, and >90° severe. All parents were informed about the pathology. According to our hospital policy, newborn circumcision is performed for babies with this simple torsion. Parents signed the informed consent forms before all the procedures.

Surgical correction after 6 months, under general anesthesia, was advised for babies with higher degrees of rotation. Penile degloving and reattachment was the preferred surgical technique; however, in resistant cases, the dorsal dartos flap technique was chosen to correct the pathology. To perform the flap technique after a subcoronal mucosal circumferential incision and degloving of the penile skin, we dissected a dartos flap from the surface under the dorsal penile skin. The flap was rotated around the counter-torsion side of the penis and sutured to the ventral aspect of the shaft with absorbable sutures under a small amount of tension. The amount of flap rotation was adjusted by the

degree of penile torsion that needed to be corrected and fine adjustments were done during the placement of sutures for circumcision.

All patients were seen after 7 days. Parents were contacted by phone, questioned about the cosmetic appearance of the penis to assess their satisfaction with the outcome of the surgery, and were asked to come with their babies for follow-up.

Results

A total of 200 patients had penile torsion and were classified according to the torsion angle. The mean angle of the rotations was 30.45° (median 20°). Of these, 157 had torsions less than 45°, and the remaining 43 had torsions more than 45°, with 4/43 more than 90° angles. Of the 200 patients, 8 had clockwise rotations, and the remaining 192 had torsions in the counter clockwise direction. All of the 157 babies with penile rotations <45° were circumcised. Among the 43 babies with torsions more than 45°, 8 were at 60° and were also circumcised at the parent's request despite information about the pathology and our recommendation to surgically correct the torsion after 6 months.

Surgical correction was performed on 19 patients, with a mean age of 12 ± 2 months. Of these 19, 13 were corrected with the degloving and reattachment technique. On the remaining 6 patients, degloving and reattachment was first attempted. This technique was not enough to correct the torsion, so it was replaced by the dorsal dartos flap, as described by Aldaqadossi and colleagues.¹¹ A summary of the retrospective study analysis of penile torsions is shown in Table 1.

Postoperative care was uneventful in all patients. After the 7-day follow-up, there were also no complications and parents were satisfied with the early results. After a mean of 15.6 ± 9.8 months, parents were contacted by phone and still reported satisfaction with the cosmetic appearance and surgical outcome of the surgery. Only 10 patients came for the long-term follow-up after this second phone call. Two of them were the ones who needed dorsal dartos flap for

correction, and they did not have residual torsions. Among the other 8, 2 had residual penile torsions less than 15°. Two patients needed dorsal dartos flap for correction. Among the others, 2 had residual penile torsions less than 15°.

Discussion

Penile torsion is a congenital rotational defect of the penile shaft on the longitudinal axis and the shaft is rotated in a counterclockwise direction in most cases. In the present series, most rotations were also counterclockwise with a left spiral raphe. The median raphe spirals obliquely around the shaft and creates a cosmetic defect. Parents often seek medical attention because of this cosmetic appearance and concerns of future dysfunction.¹²

The incidence of penile torsion is an enigma. Although, penile torsion was first described by Verneuil in 1857, reports of isolated penile torsion are sparse and include few patients.⁵ It is reported as common, uncommon, or unknown.^{1,2,11,12} The incidence of isolated ones is even a bigger enigma, because almost all reported cases include other penile anomalies. The incidence of these isolated penile torsions ranges between 1.7% and 27%.^{1,3,4}

At our centre, we encounter penile torsion quite frequently, and feel that the incidence is higher than reported. In 2007 Sarkis and Sadasivam reported the incidence of isolated penile torsions as 27%.¹ To our knowledge, our study is the largest of its kind in the literature. The incidence in our study is 20%, but treatment was only indicated in 4.3% of patients. This may explain why physicians overlook this anomaly; although the overall incidence is high, mild and severe forms, that need treatment, are less frequent.

The etiology of penile torsion is not known, but it may be genetic.¹³ Many authors have suggested that the underlying cause of congenital penile torsion is the abnormal skin and dartos fascia attachment.⁵⁻⁷ In one report, the incidence of penile torsion with distal hypospadias was 32.8%, while it is 0% in proximal hypospadias cases, where the ventral skin is completely absent.¹⁴ This observation may support the abnormal skin and dartos fascia attachment theory. However, the degloving and reattachment skin technique is not always enough to correct the anomaly. Other authors have suggested involving other tissues, such as Buck's fascia, corpus cavernosum and corporeal tunica albuginea.^{5,7,11,15} The precise etiology, in the absence of genital malformation, remains unclear. With the suggestion of other tissue involvement, different corrective techniques have been described. Penile degloving and reattachment, resection of Buck's fascia, modified Nesbit procedure, dorsal dartos flap rotation, suturing the tunica albuginea to the pubic periosteum, diagonal corporal plication, correction by mobilization of urethral plate and urethra are the known surgical techniques, and their effectiveness has been reported.^{2,3,5,7,9-11}

Table 1. Summary of the retrospective study analysis of the penile torsions

Angle of torsions	No. patients (n = 200)	Treatment
<45° (simple)	157 (78.5%)	Newborn circumcision, n = 157
45° – 90° (mild)	39 (18.5%)	Newborn circumcision, n = 8
		Degloving and reattachment, n = 14
		Dorsal dartos flap, n = 2
>90° (severe)	4 (2%)	Lost to follow-up, n = 15
		Degloving and reattachment, n = 1
		Dorsal dartos flap, n = 2
		Lost to follow-up, n = 1

Penile torsion is known as a non-disturbing anomaly. The only complaint we found in our literature review was abnormal urinary stream, which was 60% in one study.¹¹ However, it was not clear whether these children had hypospadias. It is hard to know how much of a functional problem this malformation causes in adults. In a survey of 12 307 adult men evaluated at a sexual dysfunction/infertility clinic, 12% of patients had penile torsion. Overall, 2% of these patients requested corrective cosmetic surgery. No patients complained of sexual dysfunction related to their penile torsion.^{12,16}

Although most children are asymptomatic, parents usually wish to correct the cosmetic defect. Isolated penile torsion with small degrees should be approached conservatively.¹⁰ This is also our approach to these children. After informed consent, we carried newborn circumcisions in 157 children with torsions less than 45°. If cosmetic correction is requested, the least-invasive approach should be used to correct the defect.¹² We preferred degloving and reattachment, which is currently the easiest technique. Although its effectiveness is very high, degloving and reattachment may not be enough by itself in severe cases.⁵ For 6 patients in our study, we needed to add another technique. For most pediatric surgeons, mobilization of a dartos flap from the dorsal prepuce is a familiar technique. In these cases, we easily corrected the torsion with the dorsal dartos flap. More extensive repairs would likely be required in patients with other penile malformations.

The parents in our study requested circumcisions for their newborns, and torsions were detected during the pre-circumcision examination, so they all had circumcision during the torsion correction. We do not have any experience in correction without circumcision. Moreover, we believe that circumcision is necessary in the fine adjustment. Final adjustments can easily be made during skin closure after the circumcision.

Conclusion

The incidence of isolated penile torsion is 20% in healthy newborns. Correction is not necessary in simple cases less than 45°. Penile degloving and reattachment are enough to correct the anomaly in most cases. If this technique is insufficient, dorsal dartos flap rotation can easily be performed to the already degloved penis to correct the pathology.

Competing interests: The authors declare no competing financial or personal interests.

This paper has been peer-reviewed.

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