

# Fetal Diagnosis of Testicular Torsion: What Shall We Tell the Parents?

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## Background

The true incidence of perinatal testicular torsion is difficult to evaluate because various nomenclature used and since the literature is limited only to case reports and case series. In addition to the above, controversies also exist regarding its exact etiology, the timing and the necessity for scrotal exploration. Postnatal ultrasound (US) diagnosis of testicular torsion is more frequently reported, but still only few fetal US assessments have been reported. Furthermore, there are no proposed managements in the literature regarding the timing and route of delivery when prenatal twisted testicle is diagnosed. Therefore topics like parental counseling focusing on the indication for prompt delivery, postnatal management which includes either urgent, or delayed surgical exploration versus observation and the outcome of each treatment modality are very much needed.

## Objectives

To present our collective experience with prenatal testicular torsion and propose a possible management scheme as for the in utero management of these patients.

## Methods

We retrospectively reviewed all medical records of the cases which were diagnosed with perinatal testicular torsion in our medical center between the years 2002 - 2013. Prenatal torsion was defined as diagnosed in utero or on immediate newborn examination.

## Results

A total of 5 unilateral prenatal torsion were diagnosed. Two fetuses were diagnosed with testicular torsion in the third trimester of pregnancy. In both cases, cesarean section was performed immediately upon diagnosis. One newborn underwent immediate orchiectomy with contralateral orchiopexy. Torsion was confirmed by pathological examination (Figure 1). Antenatal and postnatal ultrasound examination and image of testicular torsion in case 2 is presented in Figure 2. The other newborns were diagnosed immediately after birth. All other four newborns underwent expectant management. On follow-up scan, the affected testicle was found atrophied with lack of blood flow on color Doppler examination. The unaffected contralateral testicle remained within the normal size with good blood flow.

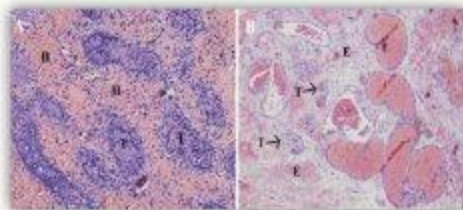


Figure 1. Microscopic examination of the specimen in case 1. (A) Hemorrhagic testicular stroma (H) with residual seminiferous tubules (T) with disintegrating cellular component (HE, original magnification x100). (B) Highly edematous testicular stroma (E) with only few tubular remnants (T, arrows) (HE, original magnification x400).

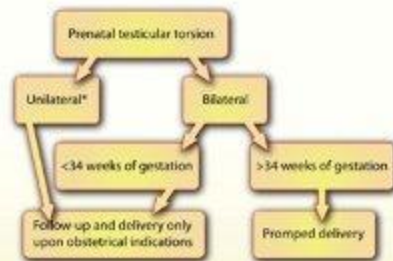


Figure 3. Algorithm for management of prenatal torsion

\*Prompted delivery only if evidence of acute torsion <24 hours seen by ultrasound, >34 weeks' gestation.

## Discussion

Review of the recent relevant literature clearly suggest that among the unilateral prenatal torsions none were viable on exploration and therefore removed. Animal models demonstrated that ischemia leads to loss of spermatogenesis at 4–6 h and of hormonal function at 10–12 h after occlusion of blood flow. Hence regrettably prenatal torsion seems to be an almost unsalvageable event.

Some authors believe that bilateral torsion diagnosed at birth is true emergency and should undergo immediate exploration in the hope to prevent testicular loss.

The most compelling reason for urgent exploration in case of unilateral prenatal torsion is suspicious torsion of contralateral viable gonad without signs and symptoms of acute torsion. Therefore those authors believe that urgent surgery is indicated in all case of unilateral torsion. We propose a different approach for prenatal unilateral vs. bilateral testicular torsion (Figure 3). In utero diagnosis of a unilateral testicular torsion per se is not an indication for induced delivery unless there is evidence of an acute torsion seen by follow-up ultrasound in less than 24 hours. Otherwise, salvage of the affected testicle is practically nonexistent. In all other circumstances, observation with possibility of intervention after birth seems to be a reasonable approach. When bilateral torsion of testicle suspected in >34 weeks of gestation, we advocate induced delivery and surgical intervention for preserving at least one of the testicle by all means.

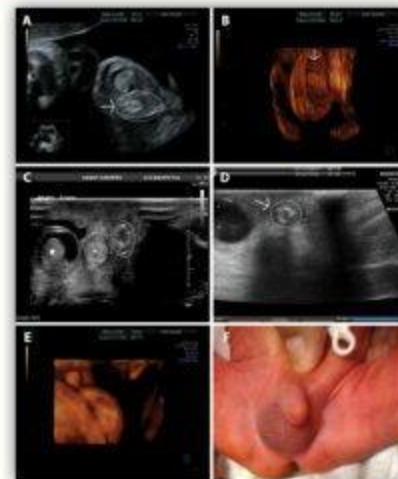


Figure 2. Montage plate of antenatal and postnatal ultrasound examination and image of Case 2. (A) Prenatal ultrasound examination at 36 weeks of gestation. Right hydrocele; the left testicle is very small and hyperechoic (arrow; circle). (B) Prenatal 3D-ultrasound demonstration of left testicle. Note a thickened tunica albuginea (arrow). (C) Immediate postnatal ultrasound. Grey scale, transverse plane demonstrating normal right testicle with mild hydrocele (star sign), pinal body (asterisk sign) and left atrophic testicle with peripheral calcifications (circle). (D) Left same atrophic testicle with peripheral calcifications 3 month later (arrow; circle). (E) Prenatal 3D-ultrasound demonstration of scrotum and the penis. (F) Immediate clinical examination of the newborn showing the normal size and color of the scrotum and the penis.

## Conclusions

Prenatal diagnosis of unilateral testicular torsion is a coincidental rare finding. Because the twisted testicle cannot be salvaged, induced delivery and prompted surgery are not recommended.