Perinatal Testicular Torsion

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**HPI:** A 41wk 5000+ gm baby boy was born NSVD to a healthy woman after an uneventful first pregnancy, APGAR 9 and 9; and was immediately noted to have a large mass in the right hemiscrotum.

Surgical consult called for r/o testicular torsion
Case Presentation

- **Physical Exam:**
  - WD, NAD
  - Abdomen: soft, nt, nd
  - Scrotum: left testicle was normal in size and configuration
    - Bilaterally no hernias or hydroceles with no evidence of scrotal or inguinal inflammation
    - right hemiscrotum did not transilluminate
Case Presentation

- **Doppler Ultrasound**: no flow to right testicle
Intra-operative Course:
BB was taken urgently to OR for bilateral scrotal exploration; the right testicle was blackened and grossly necrotic and appeared to represent long standing torsion, therefore orchiectomy was performed.
Case Presentation

- The contra lateral hemiscrotum was explored and the left testicle was viable and in normal position, an orchiopexy was performed to fix the testicle in position and prophylac against future torsion.

- **Postoperative Course:**
  He did well and was discharged to home on POD#5.
Perinatal Testicular Torsion
Perinatal Testicular Torsion (PTT) initially described in 1897 by Taylor\textsuperscript{1} in Britain and then again about 50 years later in North America by Campbell\textsuperscript{2}

Extremely rare entity — estimated incidence 1 in 7500 live births\textsuperscript{3}

Testicular torsion refers to twisting of the spermatic cord structures — either in inguinal canal or just below
Two most common types of testicular torsion:

1. **Extravaginal torsion:** this type manifests in neonatal period and is associated with the lack of tunica vaginalis attachment to the scrotum.

2. **Intravaginal torsion:** usually in older children within the tunica vaginalis and is related to anomalous testicular suspension known as bell clapper anomaly — often bilateral.
PTT: Presentation

- Extravaginal torsion recently subcategorized as occurring perintally in utero or immediately postnatally\(^5\)
  - **Prenatal Torsion**: minimal to no discomfort and very localized findings
  - **Postnatal Torsion**: acute manifestation with considerable tenderness and swelling of a previously normal testicle
**Frequency**

- **Extravaginal Torsion.**
  - approximately 5% of all torsions.
  - most often a prenatal (in utero) event
  - 3% are bilateral.

- **Intravaginal Torsion.**
  - Approx. 16% of patients with torsion presenting in emergency departments with acute scrotum.
  - Peak incidence occurs in adolescents aged 13 years
  - left testis is more frequently involved.
  - Bilateral cases account for 2% of all torsions.
No consistent pattern regarding possible etiologies\textsuperscript{6}

Suggested risk factors include

- Difficult labour
- Breech presentation
- High birth weight
- An overactive cremasteric reflex
- Multiparity
Etiology

- **Extravaginal Torsion.**
  - Associated with lack of tunica vaginalis attachment to scrotum

- **Intravaginal Torsion.**
  - Normal posterior anchoring of the gubernaculum epididymis and testes prevents twisting of the spermatic cord.
  - Bell-clapper deformity allows torsion to occur because of a lack of fixation,
  - Resulting in the testis being freely suspended within the tunica vaginalis.
  - Contraction of the spermatic muscles shortens the spermatic cord and may initiate testicular torsion.
Torsion of the spermatic cord may interrupt blood flow to the testis and epididymis.

The degree of torsion may vary from 180-720°.

Increasing testicular and epididymal congestion promotes progression of torsion.

The extent and duration of torsion influences the immediate salvage rate and late testicular atrophy.

Testicular salvage most likely occurs if the duration of torsion is less than 6-8 hours.

If 24 hours or more elapse, testicular necrosis develops in most patients.
Extravaginal Torsion:
- manifests as a firm, hard, scrotal mass,
- does not transilluminate
- otherwise asymptomatic newborn male.
- scrotal skin characteristically fixes to the necrotic gonad.

Intravaginal Torsion:
- classic presentation is sudden onset of severe testicular pain
- followed by inguinal and/or scrotal swelling.
- Pain may lessen as the necrosis becomes more complete
- one third of patients also have gastrointestinal upset with nausea and vomiting
A physical examination may reveal a swollen, tender, high-riding testis. The absence of the cremasteric reflex in a patient with acute scrotal pain supports the diagnosis of torsion.
Work-up

- **Laboratory Studies:**
  - A urinalysis and culture may help exclude urinary tract infection and epididymitis as the etiology of the scrotal complaints.

- **Imaging Studies:**
  - The following diagnostic tests may be useful when a low suspicion of testicular torsion exists:
    - *Scrotal color Doppler sonogram* is usually diagnostic by verifying arterial flow.
    - *Nuclear testicular scan* can help differentiate torsion from acute epididymitis by demonstrating cold spot and ring signs.
Management

- If testicular torsion is clinically suggested, perform immediate surgical exploration, regardless of laboratory studies because a negative finding upon exploration of the scrotum is more acceptable than the loss of a salvageable testis.
Surgical Therapy

- Treat patients who are born with testicular torsion by performing **early elective exploration** and contralateral orchidopexy (anchoring) because bilateral (synchronous or asynchronous) neonatal testicular torsion is described.
- The potential for salvage of such a testis is nil
- Making the risk of immediate surgery before complete stabilization of the newborn unwarranted.
In contrast, a newborn with a normal testis at birth who subsequently undergoes torsion requires immediate exploration.

Perform the operation through the midline scrotal raphe.

Enter the ipsilateral scrotal compartment; then, deliver and untwist the testis.

Evaluate the testis for viability.

Remove the necrotic testis to avoid prolonged, debilitating pain and tenderness.

To prevent subsequent torsion, fix viable gonads to the scrotal wall with 3-4 nonabsorbable sutures.

Perform both exploration and anchoring of the contralateral testis through the same incision.
Intraoperative Details

- Signs of a viable testis after detorsion include:
  - a return of color
  - return of Doppler flow
  - arterial bleeding after incision of tunica albuginea.
Future Fertility

- Only one functioning testicle is necessary for normal fertility potential and full masculinization.
- A single testicle should produce normal amounts of sperm and testosterone.
Final Word

- Testicular torsion can present in both the neonatal and adolescent population
- In the neonatal population it may present without pain
- Testicular torsion is a surgical emergency
- Surgical therapy involves a scrotal exploration, possible orchiectomy with a contralateral orchiopexy


4. Minevich Eugene et al. Testicular Torsion. Emedicine.com

