

Intravaginal torsion of undescended testes

Filipe La Fuente Carvalho ,¹ Ish Talati,² Aaron Krill³

¹Department of Urology, MedStar Georgetown University Hospital, Washington, District of Columbia, USA

²Georgetown University School of Medicine, Washington, District of Columbia, USA

³Division of Urology, Children's National Medical Center, Washington, District of Columbia, USA

Correspondence to

Dr Filipe La Fuente Carvalho; filipe.decarvalho@gunet.georgetown.edu

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DESCRIPTION

A 5-month-old male infant status post routine neonatal circumcision with known left inguinal testis presented to the emergency room with swelling and redness in the left inguinal region for over 24 hours. Physical examination revealed an indurated inguinal bulge with associated erythema (figure 1). The right testis was normal, and the left hemiscrotum was empty. Scrotal ultrasound revealed an enlarged, heterogeneous testis without Doppler flow. He was emergently taken to the operating room for inguinal exploration which confirmed an intravaginal torsion, non-viable testis (figure 2) and closed inguinal canal. Left orchiectomy and right scrotal orchiopexy were performed without complication. The final pathology revealed an infarcted and haemorrhagic testicle and epididymis.

Undescended testes (UDTs) affect up to 8% of full term, but 33% of premature male neonates, as the testis enters the inguinal canal after 28 weeks' gestation.¹⁻³ Insulin-like 3 and its receptor, relaxin family peptide receptors (RXFP), may play a role in the transabdominal migration as their loss results in UDTs in animal models.⁴ Seventy per cent of UDTs are palpable in the upper scrotum or low inguinal canal. Of non-palpable UDTs, 55%, 35% and 15% are in the abdomen, inguinal canal or absent, respectively.⁵ A patient with solitary UDT and hypospadias requires evaluation for a disorder of sexual development, but in patients without penile anomalies, UDT treatment can be delayed until 6 months of age.⁶ The scrotal location supports



Figure 1 Physical examination of the patient in the emergency room revealed an indurated left inguinal bulge with associated erythema.



Figure 2 Gross pathology of the left inguinal testis showing necrosis.

testicular function such that UDTs are associated with subfertility and germ cell malignancies.¹⁻³

The aetiology of torsion in UDTs is unknown, but may be related to abnormal cremasteric muscle contractions or gubernacular attachments. Intravaginal torsion (torsion of the testicle within the tunica vaginalis) is more common in infants over 30 days of age and those with UDTs, compared with extravaginal torsion (torsion of the testis and tunica vaginalis as a unit) which is more common in neonates.⁷⁻⁹ While the incidence of torsion in UDTs is unknown, it is higher than the incidence in orthotopic testes.^{1 2 10} As demonstrated in this case, findings include abdominal and groin pain with ipsilateral inguinal swelling and erythema. Infants may present with inconsolable crying⁶ and should be evaluated emergently with a differential diagnosis including incarcerated inguinal hernia, intussusception and viral gastroenteritis.¹²

Doppler ultrasound has a sensitivity of 77.8% and specificity of 90% for diagnosing testicular torsion. However, its accuracy in UDTs decreases due to difficulty evaluating the inguinal canal.¹ As such, in suggestive cases with acute pain, inguinal swelling and empty ipsilateral hemiscrotum, surgical exploration should not be delayed. Surgery within 6 hours of torsion is generally successful, however due to often delayed diagnosis, the success rate in UDT torsion is below 40%.^{2 11} While the specific risk of contralateral torsion in UDTs is unknown, contralateral orchiopexy is recommended due to the risk of metachronous torsion and subsequent anorchia, in addition to the low morbidity of the procedure.^{7 9 11}



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Our case illustrates the typical presentation of torsion of UDTs. As orchiopexy is routinely delayed until 6 months, emergency physicians, paediatricians and parents must be aware that torsion of the UDT is possible in the interim. Parents and paediatricians should be aware that changes in the inguinal region associated with UDT require emergent evaluation.

Learning points

- ▶ Acute inguinal pain or swelling in the setting of an empty ipsilateral hemiscrotum or history of undescended testis requires urgent surgical evaluation.
- ▶ Torsion of an undescended testis is associated with poor salvage rates due to delay in diagnosis.
- ▶ Parents and clinicians should be aware that torsion of an undescended testis can occur while awaiting spontaneous descent or surgical correction.

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ORCID iD

Filipe La Fuente Carvalho <http://orcid.org/0000-0003-2378-6512>

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