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Left Testicular Torsion in an Undescended Left Testis in a 5-Year-Old Boy: A Case Report

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Abstract

Purpose: Testicular torsion is a urological emergency characterized by the twisting of the spermatic cord structures, and subsequent loss of blood supply to the ipsilateral testis leading to testicular ischemia and infarction. This condition, if not promptly treated, can result in permanent testicular damage. Within 6 hours from onset of testicular pain, testicular exploration is recommended.While testicular torsion is common in normally descended testes, its occurrence in an undescended testis is rare and poses unique diagnostic and management challenges.

Methodology: A 5-year-old male presented with a 6-hour history of severe left groin pain. Clinical examination revealed an empty left Hemiscrotum and a tender left groin swelling. Doppler ultrasound confirmed the absence of the left testis in the scrotum, locating it in the left groin with markedly reduced blood supply, suggestive of testicular torsion. Laboratory investigations, including a complete blood count, were within normal limits. Urgent surgical intervention involved detorsion and bilateral orchidopexy, leading to complete resolution of symptoms and an uneventful recovery.

Findings: This case highlights the diagnostic difficulties associated with testicular torsion in an undescended testis. The rarity of this condition necessitates heightened clinical suspicion in patients with cryptorchidism presenting with acute abdominal or groin pain. Relevant literature and case reports emphasize the importance of early diagnosis and treatment to salvage the affected testis. Doppler ultrasonography is the diagnostic modality of choice, though clinical suspicion should guide management due to the possibility of false negatives. Surgical intervention remains the definitive treatment, with timely detorsion and orchidopexy being crucial for favorable outcomes.

Unique Contribution to Theory, Practice and Policy: Testicular torsion in an undescended testis requires prompt recognition and multidisciplinary management to prevent long-term complications such as infertility. Clinicians should maintain a high index of suspicion for this condition in pediatric patients presenting with inguinal swelling and ipsilateral empty hemiscrotum. Early surgical intervention is essential for the preservation of testicular function and favorable patient outcomes.

Keywords: *Testicular Torsion, Undescended Testis, Groin Exploration, Orchidopexy, Pediatric Urology*

Introduction

Testicular torsion is a urological emergency that occurs as a twisting of the testicle along its spermatic cord leading to obstruction of blood flow to the testes (1). This condition can result in testicular ischemia and necrosis if not promptly treated, potentially leading to permanent testicular damage (2). The majority of testicular torsion cases, approximately 80%, are caused by the bell clapper deformity, an anatomical abnormality present in around 12% of males (3). Additionally, trauma (4), and an increase in testicular volume (5) can also cause torsion . Acute, severe, unilateral scrotal pain is the most common presenting symptom, often followed by swelling. Nausea and vomiting are also common (1, 6). Typically, testicular torsion occurs in normally descended testes and can happen at any age. However, there are two commonly reported peak incidences: most cases occur around puberty, with a smaller peak occurring in the first year of life (3). An undescended testis, or cryptorchidism, is a congenital condition where one or both testes fail to descend into the scrotum. It is a common clinical problem with an estimated prevalence ranging from 0.1 to 9% at birth and 1.1–2.1 % at 1 year of age (7). The combination of testicular torsion in an undescended testis presents a unique clinical challenge due to its atypical presentation and potential for delayed diagnosis.

While testicular torsion is well-documented in the literature (8), the occurrence of torsion in an undescended testis is uncommon and thus not widely covered. Therefore, reporting this case is crucial as it highlights the diagnostic difficulties and unique clinical presentations of such cases, emphasizes the need for heightened clinical suspicion in patients with cryptorchidism presenting with acute abdominal pain, and underscores the importance of early surgical intervention to prevent testicular loss. Given the rarity and unique presentation, this case adds valuable knowledge to the existing literature and can inform clinical practice, especially in settings where pediatric urological emergencies are encountered.

According to current surgical literature and guidelines, the management of testicular torsion requires immediate intervention to salvage the testis, typically within 6 hours of symptom onset . Testicular torsion is commonly treated with orchiectomy - removal of the testicle or orchiopexy - fixation of the testicle to the inner scrotal wall (9). For cases involving undescended testes, recent guideline recommendations advocate orchiopexy between 12 and 18 months of age, or at first contact if diagnosed later to maximize potential for fertility and perhaps reduce the risk for testicular carcinoma in the future (10, 11). Here, we present a case of left testicular torsion in a 5-year-old boy with an undescended left testis to increase awareness among physicians regarding torsion of undescended testis.

This case report has been reported in line with the SCARE 2023 Criteria (12).

Patient Information

A 5-year-old male presented to the General Surgeons with a 6-hour history of severe left groin pain. The pain was continuous and not associated with nausea or vomiting.

Clinical findings

Clinical examination revealed a well-looking boy in distress, with an empty left hemiscrotum and a tender left groin swelling. Abdominal examination was unremarkable, and the right testis was palpable and non-tender.

Diagnostic assessment and interpretation

Laboratory investigations:

Complete Blood Count (CBC): The CBC results were within normal limits, indicating no signs of infection or systemic inflammatory response.

Imaging Studies:

Scrotal and groin Doppler ultrasound: This imaging modality was crucial in assessing testicular position and blood flow. The key findings from the Doppler ultrasound include:

Absence of the Left Testis in the Scrotum: This confirmed that the left testis was undescended.

Location of the left testis in the left groin: The ultrasound identified the undescended testis in the left inguinal region, which is a common location for undescended testes.

Markedly reduced blood supply to the left inguinal testis: Doppler ultrasound revealed significantly diminished blood flow to the testis located in the left groin. This was a critical finding suggestive of testicular torsion,

The combination of the clinical presentation (acute, severe, unilateral scrotal pain and swelling) and the imaging findings (reduced blood supply to the undescended testis) strongly supported the diagnosis of testicular torsion in an undescended testis. The normal laboratory results further excluded systemic causes and focused attention on the localized urological emergency.

Therapeutic Intervention

Based on clinical and radiological findings, a diagnosis of suspected left testicular torsion in an undescended testis was made, and the patient was referred for urgent urological consultation. An indication for left groin exploration was established, and the patient was prepared for surgery. Intraoperatively, a left groin incision was made, and a blue-dark colored left testis suggestive of torsion was identified (Figure 1). Detorsion of the testis was performed, followed by warm compression to facilitate reperfusion (Figure 2). Left orchidopexy was carried out to prevent recurrence. Additionally, orchidopexy of the contralateral testis was performed to prevent future torsion.

Figure 1: Left groin with inguinal testicular torsion

Figure 2: Left testis after detorsion and testicular resuscitation

Follow-Up and Outcome

The immediate post-surgery period was uneventful, with complete resolution of the patient's symptoms. He was discharged the following day in stable condition, with clear instructions for home care and activity restrictions to ensure optimal recovery. At the one-week follow-up appointment, the patient showed no signs of infection or complications at the surgical site, and his pain was well-controlled with minimal analgesics. The wound healed uneventfully upon review 4 weeks after surgery. Doppler Ultrasound of the testis showed adequate blood supply to the left testis. The testis was palpable in the left Hemiscrotum.

Discussion

This case report presents a 5-year-old boy with left testicular torsion in an undescended left testis. The key findings include acute, severe left groin pain, an empty left Hemiscrotum, and a tender left groin swelling. Doppler ultrasound confirmed the undescended testis in the left groin with markedly reduced blood supply, indicative of testicular torsion. Laboratory investigations were within normal limits, excluding systemic causes. Urgent surgical intervention successfully detorsed the testis and performed bilateral orchidopexy, leading to the complete resolution of symptoms and an uneventful recovery.

There are few case reports on testicular torsion in undescended testis in the literature (13-15). Lakssir, El Bote (15) reported a case of torsion of an undescended testis mimicking acute appendicitis in a 20-year-old adult, where detorsion failed to restore normal coloration despite rewarming and infiltration of vasodilator drugs such as diluted non-adrenalized lidocaine 2% in

the spermatic cord. Similarly, Melani, Faruk (14) described a case of torsion in a right undescended testis in a 16-year-old boy, where surgical exploration revealed a black-colored testis necessitating orchiectomy. In another instance, Sheref, Johnson (13) reported a case involving a 5-month-old male with right testicular torsion in the inguinal canal, which resulted in right orchiectomy and left orchiopexy. These case reports underscore the critical importance of early diagnosis and treatment as the primary prognostic factors for functional testicle recovery after surgical detorsion.

Testicular torsion in an undescended testis is a rare but potentially devastating condition. Prompt recognition and surgical intervention are crucial to salvage the affected testis as the likelihood of salvaging a torsed testicle correlates strongly with the duration of torsion (16). Therefore, it is important that the emergency medicine community be aware of the presenting features and imaging findings of this entity to prevent long-term complications such as infertility.

Doppler ultrasonography remains the method of choice leading to the diagnosis of this condition. Its use is widely recommended to help diagnose undescended testis, but many false negative results have been reported. It has a sensitivity of 87.9% and a specificity of 93.3%, but this rate is lower in case of UDT (15). Clinical suspicion, supported by imaging studies, guide the management approach, which typically involves surgical exploration, detorsion, and orchidopexy. Timely intervention can lead to favorable outcomes and preservation of testicular function.

Conclusion:

Testicular torsion in an undescended testis poses unique diagnostic and management challenges in pediatric patients because of its atypical clinical presentation. A multidisciplinary approach involving pediatricians, urologists, and radiologists is essential for timely diagnosis and intervention. Inguinal swelling and Pain with an ipsilateral empty Hemiscrotum should raise suspicion for torsion of an undescended testicle and further evaluation with Doppler sonography and urologic consultation should be performed.

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