Journal of Surgical Sciences 2023;27(1): 23-27

JOURNAL OF SURGICAL SCIENCES

Case Report

Missed Torsion of an Undescended Intra-Abdominal Testis Presenting as Acute Abdomen in an Adult: A Preventable Loss

Siddiqua SS[1], Ahmed S[2], Khan MSA[3], Hassan MM[4]

Abstract

We report a case of a 22-year-old man with a lifelong uncorrected left intra-abdominal undescended testis presented with sudden severe left lower abdominal pain and vomiting. The initial evaluation at another hospital failed to recognize the absent testis and to perform a scrotal examination; he was treated for suspected intestinal obstruction. On transfer, physical examination revealed a small, empty left hemiscrotum and an impalpable left testis. Urgent color Doppler ultrasound of the left inguinal region showed a 3.1×2.8 cm left testis at the internal inguinal ring with heterogeneous echotexture and absent intratesticular blood flow. The findings were consistent with torsion of the undescended testis The patient underwent immediate laparoscopic exploration, left orchidectomy was performed. Histopathology confirmed hemorrhagic infarction and a congested epididymis; no malignancy was found. Serum tumor markers (AFP,β-hCG, LDH) were normal. This case highlights that undescended testicular torsion can present as an acute abdomen and be easily missed in adults. We emphasize the importance of routine genitourinary examination in young males with abdominal pain, the benefits of early orchiopexy for cryptorchidism, and the need for contralateral testis fixation to prevent future torsion.

Introduction

Cryptorchidism (undescended testis) affects approximately 1–4% of full-term and 30% of preterm male infants, with the prevalence decreasing to 1–2% by early childhood. This congenital anomaly is associated with subfertility, testicular malignancy, and an elevated risk of torsion. As a matter of fact, an undescended testis is said to possess approximately ten times the risk of torsion when compared to a normally descended testis. Torsion is a surgical emergency where testis twist around the spermatic cord reducing the blood flow that leads to tissue death. However, torsion of a cryptorchid testis – particularly an intra-abdominal testis – is rare and often not recognized, leading to diagnostic delay. In existing literature, torsion of an undescended testis was described as a "persistent challenge," with delayed diagnosis being common. There is limited literature on torsion of an intra-abdominal testis that presents as acute abdominal pain or as pain in the groin[1,2] describe the case of a 22-year-old man who had cryptorchidism (left intra - abdominal) and experienced acute abdomen as a result of testicular torsion. This case represents a preventable loss of a viable testis, as it is essential that the case be recognized and treated at an early stage in order to salvage it.

1. Dr. Sadia Sajmin Siddiqua, Associate Professor of Surgery, Sheikh Hasina National Institute of Burn and Plastic Surgery, Dhaka
2. Dr. Somaiya Ahmed, Sir Salimullah Medical College and Mitford hospital, Dhaka
3. Dr. Mohammad Shayesta Ali Khan, Assistant Professor of Medicine, Sheikh Hasina National Institute of Burn and Plastic Surgery, Dhaka
4. Dr. Mohammad Mahmudul Hassan, Assistant Professor of Surgery, Sheikh Hasina National Institute of Burn and Plastic Surgery, Dhaka

Corresponding author: Dr. Sadia Sajmin Siddiqua, Associate Professor of Surgery, Sheikh Hasina National Institute of Burn and Plastic Surgery, Dhaka-1000. Telephone: 01711693688, E-mail: sadiashawon21@gmail.com

Case report

A 22-year-old man was referred to our emergency department with a 24-hour history of sudden-onset severe left lower abdominal and inguinal pain, accompanied by nausea and vomiting. The onset of the pain was acute and was caused by straining during defecation. The patient denied any history of fever, urinary problem or trauma. His history was remarkable in showing a left testis which was congenitally absent; he never had orchiopexy. He remembered an identical

experience of pain in the lower left abdomen two years ago and which had self-resolved. Fourteen years ago, he underwent an appendectomy; the operative notes revealed the absent left testis but no further investigation was done to search it out.

On examination, vital signs were within normal limits. Abdominal examination revealed a soft but tender lower left quadrant and groin; there were no signs of peritonitis or bowel obstruction. A healed right lower quadrant (gridiron) scar from the prior appendectomy was noted. Genitourinary examination revealed a small, underdeveloped left hemiscrotum with an empty left scrotal sac; the left testis was not palpable in the scrotum or groin. The right testis was in normal position and size. There was no inguinal hernia on either side. (Fig 1) Laboratory tests showed leukocytosis with neutrophil predominance. Serum tumor markers (AFP, â-hCG and LDH) were within normal limits.

Fig. 1: *Empty Left Hemiscrotum*

Given the empty left hemiscrotum and acute symptoms, torsion of an undescended left testis was strongly suspected. An urgent ultrasound of whole abdomen, pelvic and both inguino scrotal inguinal region was obtained. This revealed an intra-abdominal left testis located near the internal inguinal ring, which was smaller in size and volume was 5.9cc. (Fig 2)

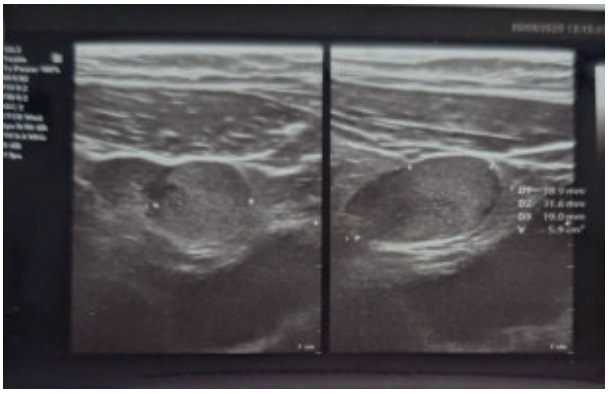

Fig. 2: High resolution terms abdominal Ultrasound of showing the ectopic testis.

The intra-abdominal testis appeared hypoechoic and heterogeneous, with a small adjacent fluid collection. Importantly, there was no detectable intratesticular blood flow on Doppler imaging. The epididymis was swollen and hypoechoic. The right testis was normal in size and showed intact blood flow (Fig 3). These findings confirmed torsion of the left undescended testis.

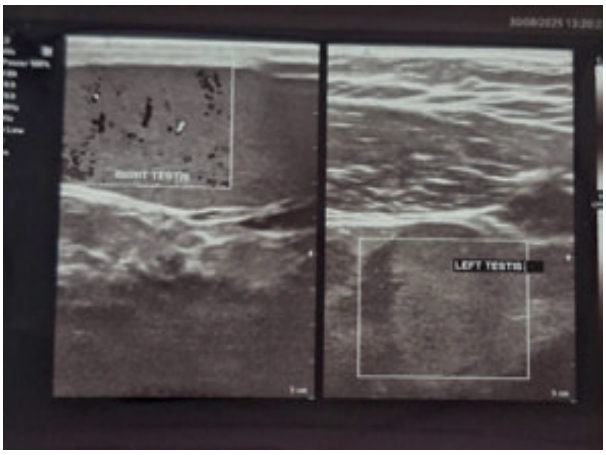

Fig. 3: *Doppler Ultrasonogram of Testis*

The patient was taken immediately to the operating room for laparoscopic exploration. Under general anesthesia, laparoscopy identified the left testis and epididymis in the intra-abdominal space just medial to the left deep inguinal ring. The left testis appeared dusky, dark, and ischemic. (Fig 4) Attempts at detorsion failed to restore perfusion. Given the clear nonviability, a laparoscopic left orchidectomy was performed. (Fig 5)

Fig. 4: *Laparoscopic view of gangrenous left testis and epididymis at deep inguinal ring.*

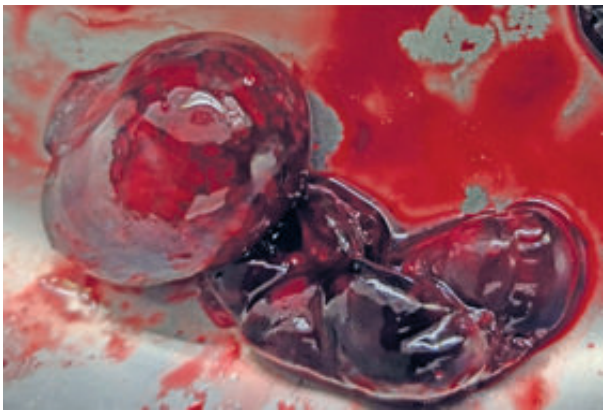

Fig. 5: *Necrosed Left testis and epidemies.*

The patient's postoperative course was uneventful. He was discharged on postoperative day one with adequate pain control. Histopathology of the removed left testis confirmed hemorrhagic infarction and a congested epididymis, consistent with torsion; no evidence of malignancy was found. (Fig 6)

At one-month follow-up, he reported complete resolution of symptoms. The right testis remained normal on examination. The patient was instructed on monthly testicular self-examination and the importance of prompt medical evaluation for any future testicular pain. He also was advised for right orchidopexy at an early possible date.

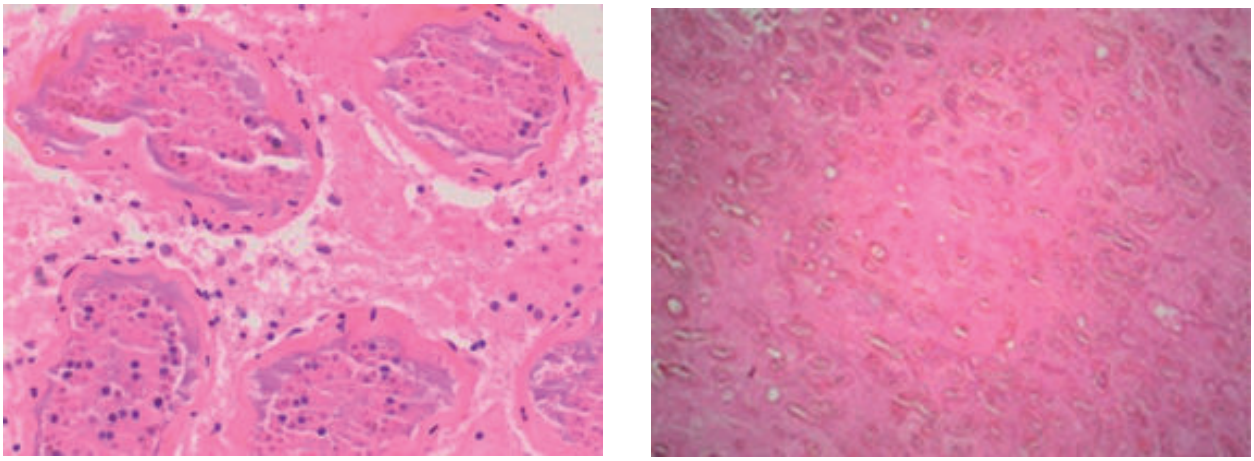

Fig. 6: *Histopathological slides showing coagulative necrosis involving seminiferous tubules.*

Discussion

This case underscores several important clinical lessons. First of all, torsion of an undescended testis in an adult can present as other acute intra-abdominal or pelvic conditions. In our patient, the initial examinations targeted gastrointestinal pathology (possible bowel obstruction) without a genital examination, delaying the accurate diagnosis. In fact, torsion of a cryptorchid testis has been misdiagnosed as appendicitis or small-bowel obstruction in other reports.[1,3] Clinicians may not instantly consider a testicular etiology in an older male with abdominal pain. Ong *et al.* note that torsion of an intra-abdominal testis is a rare cause of acute abdominal pain in cryptorchid patients[4], and Naouar *et al.* emphasize that routine genital examination should be performed in any patient with acute groin or lower abdominal pain.[1] Moudane *et al.* also adds the importance of a complete physical assessment, including the external genitalia.[3] In our patient, identifying the empty left hemiscrotum at the second evaluation was the crucial clue leading to the correct diagnosis.

Second, time is an essential key in testicular torsion. The testicular viability reduces drastically in response to the late intervention. Mellick et al. systematic review demonstrated testicular salvage rates of 97% when detorsion happened in 0-6 hours after onset of symptoms, and only 42% salvage when surgery was delayed to 19-24 hours.[5] Stat Pearls also reports that the viability of the testicles is the lowest after approximately 6 hours of torsion.[6] The case series presented by Naouar gave an average duration of patient symptoms of 6.5 hours in patients who had their testes salvaged, and 21.2 hours in patients who needed an orchiectomy.[1] Conversely, our patient took

about 24-36 hours before surgery to experience the symptoms. This was well beyond the "golden window of salvage and infarction was imminent. This indicates that clinically, detorsion can be salvaged in the first 6-8 and there are high chances of losing the testicles in the first 12-24 hours.[5,6].

Third, the risks of untreated cryptorchidism are long term and severe. The undescended testis is long and mobile with a spermatic cord; thus, it is prone to twisting. Pediatric Urology guidelines recommend that a cryptorchid testis should be surgically descended at approximately 6 to 18 months so as to maximize the reproductive potential, and to provide surveillance.[4] Recurrent cryptorchidism is associated with the development of testicular germ cell tumor with a relatively high probability of about 8 to 10 times more than a normally descended testis.[4] These complications are most likely to affect intra-abdominal testes. Bearing left cryptorchidism until adulthood in our patient implied that the testis was exposed for decades to the risk of torsion and malignancy. Luckily, the histopathology of the infarcted specimen had no tumor. However, the loss of the left testis limits fertility in the future. These factors highlight the "preventable loss" aspect of this case: early orchiopexy in infancy might have prevented both the torsion and the long-term cancer risk.

The malignant nature of retained cryptorchid testes has been observed in other places. For example, Malik et al. described the removal of a nonviable undescended testis in a 16-year-old mainly due to its high likelihood of malignancy.[7] The most frequent tumor originating in an undescended testis is seminoma, even though other germ cell tumors can take place. Considering this danger, experts would recommend the removal of an atrophic or torsed testis to eliminate the possibility of malignancy if salvage is not possible. Tumor markers in our patient were normal and only infarction was found in the pathology; no malignancy of the patient was detected.

A review of the literature shows how variable the presentations of cryptorchid torsion can be. Even an asymptomatic impalpable testis has been reported to be twisted in laparoscopy, as reported by El-Gohary et al. Guo *et al.*[8] described a 7-year-old whose pain began in the lower abdomen and then migrated to the scrotum, illustrating an atypical presentation.[9] In adolescents, there were cases which include a 16-year-old with an intra-abdominal torsion requiring orchiectomy[7] and another 16-year-old with bilateral torsion requiring fixation. Even older adults are reported: Tang *et al.* described a 55-year-old man whose torsion was initially overlooked due to his age. Melani *et al.*[10] recently described a similar case in a teenager, where diagnosis was done early.[11] Ong *et al.* remind us that cryptorchidism in adults is often disregarded unless specifically examined.[4] Altogether, these reports underscore the rarity and diagnostic challenges of intra-abdominal torsion in cryptorchid patients.

Imaging modalities can help in diagnosis when suspicion is present. Color Doppler ultrasound is the first-line study, as in our case. More advanced techniques have been explored: functional testicular scintigraphy has been reviewed for torsion detection[12], but is rarely clinically required. The spectrum of acute testicular pathology is also demonstrated using rare anatomic variants. As an example, a torsion of a testicular appendix in an undescended testis has been reported[13] and another rare finding is polyorchidism (supernumerary testis) .[14] These cases remind us that any acute inguinal or scrotal pain in a cryptorchid patient requires careful evaluation.

Finally, the contralateral testis is a very important issue that needs to be discussed. The predisposing classic bell-clapper deformity is normally bilateral.[15] Therefore, it is the norm to carry out prophylactic orchiopexy on the opposite side following treatment of torsed testis. It is also important to educate the patient: Men with the history of undescended testis because of their higher risk values, must be taught to perform self-examination every month and to seek immediate consultation in case of any new testicular pain onset.

Conclusion

Cryptorchid testicular torsion also is uncommon but in all young men who present with acute pain in the abdomen or in the groin, it must be considered. In such situations, a simple genital examination might save lives. Early identification and immediate surgical investigation are necessary to maximize the possibility of testicular salvage.[5] Awareness regarding the increased risk of infertility and malignancy associated with undescended testes emphasizes the importance of early orchiopexy and regular follow-up[4]. After a torsion event, prophylactic contralateral orchiopexy is strongly recommended.[15] Such measures can help prevent similar avoidable losses.

Learning points

- Always examine the scrotum in males with unexplained acute lower abdominal or groin pain. An empty hemiscrotum should immediately raise suspicion for torsion.
- Correct cryptorchidism early. Orchiopexy by 6–18 months of age is recommended to enable surveillance and reduce long-term risks.
- Time matters in torsion. Detorsion within 6 hours offers the highest chance of salvage; beyond 12–24 hours, salvage rates drop precipitously.[5]
- Fix the other testis. Any torsion warrants prophylactic –orchiopexy due to bilateral bell-clapper deformity risk.[15]
- Educate patients. Men with a history of undescended testis should perform monthly self-exams and seek immediate care for any testicular pain, understanding their elevated risks.

Statement of ethics

Informed written consent for publication of the case details and photographs was obtained from the patient.

Conflict of interest

The authors declare no conflict of interest.

References

1. Naouar S, Braiek S, El Kamel R. Testicular torsion in undescended testis: a persistent challenge. *Asian J Urol*. 2017;4(2):111–115.
2. Akinsola B, Farthing H. A case of torsion of the undescended testes. *J Am Coll Emerg Physicians Open*. 2022;3(2):e12666.
3. El Moudane A, Ouraghi A, Mokhtari M, Boukhannous I, Barki A. Acute abdomen revealing a testicular torsion of an undescended testis: case report. *Urol Case Rep*. 2022;42:102035.
4. Ong K, Hellberg K, McCombie SP. Torsion of an intra-abdominal testis presenting as acute abdominal pain – a rare diagnosis. *Urol Case Rep*. 2023;51:102627.
5. Mellick LB, Sinex JE, Gibson RW, Mears K. A systematic review of testicle survival time after a torsion event. *Pediatr Emerg Care*. 2019;35(12): 821–825.
6. Schick MA, Sternard BT. Testicular torsion. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; 2023.
7. Malik MIK, Abbas J, Sabri S, Michael G, Ellenbogen S. Torsion of an undescended abdominal testicle in a 16-year-old and its management. *BMJ Case Rep*. 2020;13(1):e232179.
8. El-Gohary MA. Asymptomatic torsion of an intra-abdominal testis. *J Pediatr Surg Case Rep*. 2015;3(1):30–31.
9. Guo BC, Wu HP. Atypical symptoms of testicular torsion in a 7-year-old child: a case report. *Medicine (Baltimore)*. 2023;102(18):e33709.
10. Tang YH, Yeung VHW, Chu PSK, Man CW. A 55-year-old man with right testicular pain: too old for torsion? *Urol Case Rep*. 2017;11:74–75.
11. Melani AL, Faruk M, Palinrungi MA. Torsion in a right undescended testis: a case report. *Urol Case Rep*. 2023;50:102480.
12. Siraj QH. Functional imaging of testicular torsion. *Semin Nucl Med*. 2023;53(6):797–808.
13. Cinelli DP, Atwan F, Carroll AG, Cascio S. Torsion of the appendix testis in undescended testes as a rare cause of groin swelling. *J Pediatr Surg Case Rep*. 2021;64:101742.
14. Liu MH, Suraparaju L. A rare case of polyorchidism. *BMJ Case Rep*. 2012;2012: bcr0220125937.
15. Taghavi K, Dumble C, Hutson JM, Mushtaq I, Mirjalili SA. The bell-clapper deformity of the testis: the definitive pathological anatomy. *J Pediatr Surg*. 2021;56(8):1405–1410.