TESTICULAR TORSION INDUCED BY EPIDIDYMO-ORCHITIS: A RARE CASE REPORT STUDY

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ABSTRACT

Objective: *We report a case of an episode of acute scrotum within 4 days. To our knowledge, this is a rare case of epididymo-orchitis predisposing to testicular torsion. This paper has been reported in line with the SCARE 2023 criteria.* ***Case(s) Presentation:*** *This case involves a 17-year-old male with worsening scrotal pain and swelling following minor trauma, accompanied by intermittent fever. Physical examination revealed left testicular enlargement and tenderness, with a negative Prehn's test. Doppler ultrasound indicated decreased blood flow and a whirlpool sign, suggesting torsion.* ***Discussion:*** *Emergency scrotal exploration confirmed a 180-degree spermatic cord torsion with partial testicular necrosis, necessitating orchiectomy and orchidopexy. The patient had a smooth recovery.* ***Conclusion:*** *Testicular torsion requires prompt diagnosis and intervention for optimal outcomes.*

Keywords: *Testicular torsion, epididymo-orchitis, case report.*

ABSTRAK

Tujuan: *Kami melaporkan kasus episode skrotum akut dalam waktu 4 hari. Sepengetahuan kami, ini adalah kasus epididimo-orkitis yang jarang terjadi dan berpotensi menyebabkan torsi testis. Laporan ini disusun sesuai dengan kriteria SCARE 2023.* ***Presentasi Kasus:*** *Kasus ini melibatkan seorang pria berusia 17 tahun dengan nyeri dan pembengkakan skrotum yang memburuk setelah trauma ringan, disertai demam yang hilang timbul. Pemeriksaan fisik menunjukkan pembesaran dan nyeri tekan testis kiri, serta tes Prehn negatif. Ultrasonografi Doppler menunjukkan penurunan aliran darah dan tanda pusaran air yang mengindikasikan torsi.* ***Diskusi:*** *Eksplorasi skrotum darurat mengkonfirmasi torsi korda spermatika 180 derajat dengan nekrosis testis parsial yang memerlukan orkiektomi dan orkidopeksi. Pasien pulih dengan lancar.* ***Simpulan:*** *Torsio testis memerlukan diagnosis dan intervensi segera untuk hasil yang optimal.*

Kata kunci: *Torsio testis, epididimo-orkitis, laporan kasus.*

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INTRODUCTION

Acute scrotum means acute onset of painful swelling of the scrotum, which is tender and may be red and edematous.[1] It is associated with a range of differential diagnoses, including testicular torsion, infection, trauma, and other uncommon causes such as tumours. Testicular torsion is a significant cause of testicular infarction, and thus, rapid assessment is required to salvage the testis within 12 hours of injury. Once testicular torsion is excluded, the emergency room (ER) physician may proceed to a complete patient history and physical examination to diagnose the source of the testicular pain.[2]

Nevertheless, history taking and physical examination are often insufficient for a definite diagnosis due to pain or swelling, which can limit an accurate physical examination. Therefore, the use of Ultrasound with colour Doppler and power Doppler imaging can significantly enhance the accuracy of the diagnosis and differentiate surgically correctable abnormalities from those that can be adequately treated by medical therapy alone; that is why it has become the modality of choice for assessing scrotal pathologies.[3]

Despite ultrasound's high sensitivity, torsion may not always be ruled out, requiring surgical exploration. The definitive treatment is surgical

detorsion and orchidopexy, though manual detorsion can be attempted with variable success (25-80%). Manual detorsion should be done medially-to-laterally, often requiring 180-720 degrees of rotation. It is not advised if torsion has lasted more than 6 hours. Point-of-care ultrasound can guide and assess the procedure. Even if manual detorsion succeeds, surgery is still necessary.[4]

We report a case of an episode of acute scrotum within 4 days. To our knowledge, this is a rare case of epididymoorchitis predisposing to testicular torsion. This paper has been reported in line with the SCARE 2023 criteria.[5]

CASE(S) PRESENTATION

A 17-year-old male patient who does not smoke or drink alcohol, has no substantial family history of disease, is not on medication, has no drug allergies, has never had surgery before, and does not have any comorbid conditions. The patient presented with complaints of worsening left scrotal pain for 4 days. Two days previously, the patient bumped his scrotum while riding a motorcycle. Pain is felt continuously, followed by scrotal swelling. The patient had a history of fever for 3 days ago intermittently, nausea, and vomiting. There is no prior history of bloody urine, stone expulsion, flank pain, or unprotected sexual contact in the last 3 months.

On examination, he was alert, oriented, and afebrile with stable vitals. His scrotal examination revealed a noticeable left scrotal swelling with normal overlying skin. The left epididymis and testicle were enlarged, tender, not high-riding testis, with a negative Prehn's test and cremasteric reflex. The right testis had normal findings, and the rest of the systemic examination was regular (Fig.1). The initial workup of the patient revealed a leukocytosis with predominanceof neutrophilia, and mid-stream urinalysis showed no leucocytes and pus. Emergency Doppler ultrasound of the scrotum performed and interpreted by a senior radiologist showed a testicular size of 2.7 x 2.9 x 3.4 cm, left echoparencym was good, with no mass and calcification. Doppler vascularization decreased, and the left spermatic cord formed a whirlpool sign (Fig. 2). The size of the right testicle is 2.2 x 2.5 x 3.8 cm, the right echoparencym is good, there are no calcification masses, and Doppler shows good vascularization (Fig.3).

The patient was booked for emergency scrotal exploration performed by the senior urologist. The patient was in a supine position with subarachnoid block anaesthesia. The operator did a left paragraph incision, left testis exploration, and found pus in the tunica vaginalis. There was an adhesion of the tunica vaginalis with the spermatic cord. On the spermatic cord, a 180-degree torsion and cyanosis were found. The left testis was partially cyanosis and enlarged compared to the right testis, with an impression of partially necrosis testis. Thus, left orchidectomy and left-right orchidopexy were performed with a handscoon drain(Fig.4).

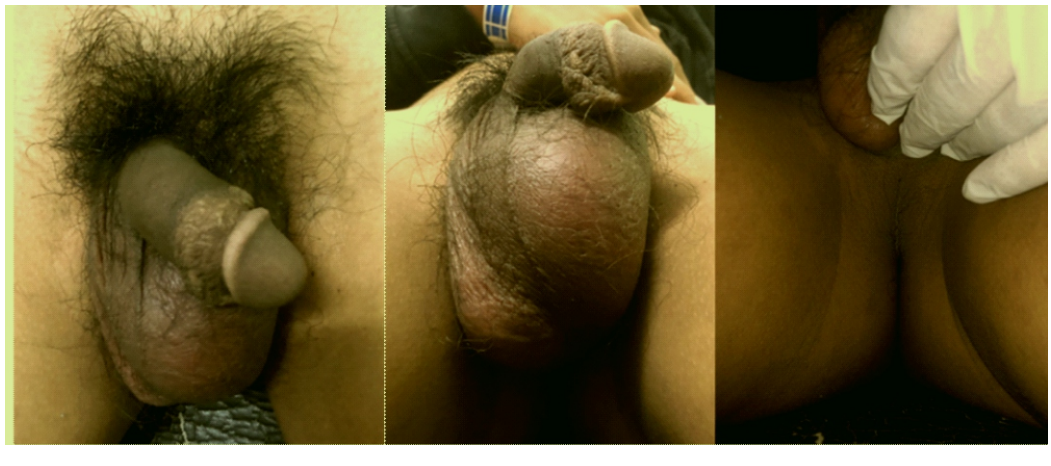

Figure 1. The scrotal exam showed left-sided swelling with normal skin. The left epididymis and testicle were enlarged and tender. The right testis was normal.

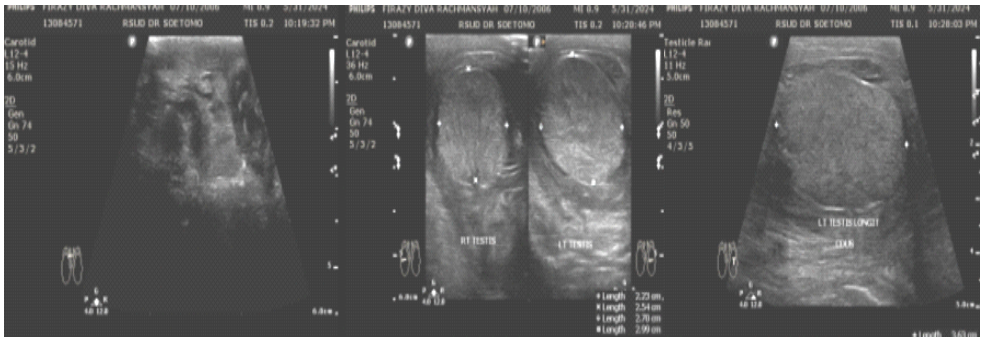

Figure 2. Doppler ultrasonography showed a testicular size of 2.7 x 2.9 x 3.4 cm, left echoparencym was good, with decreased vascularization, and the left spermatic cord formed a whirlpool sign.

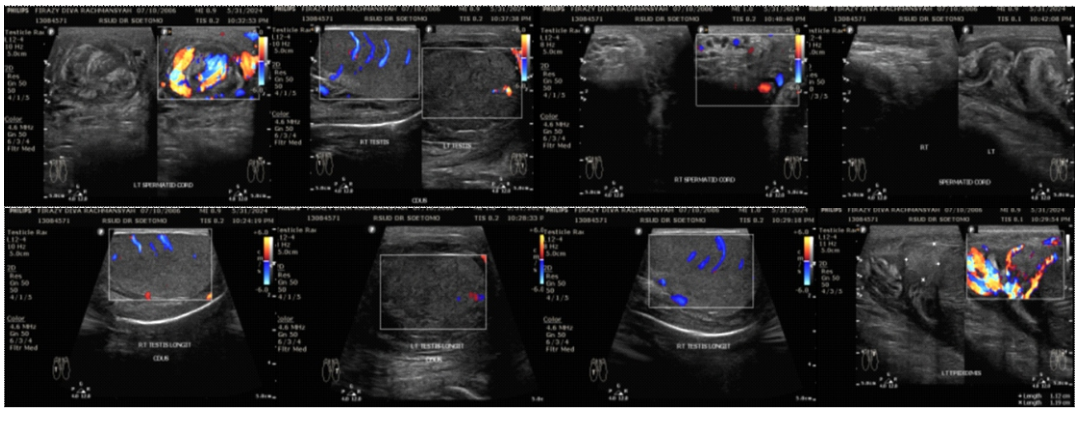

Figure 3. Doppler ultrasonography showed a size of the right testicle is 2.2 x 2.5 x 3.8 cm, the right echoparencym is good, there are no calcification masses, and shows good vascularization.

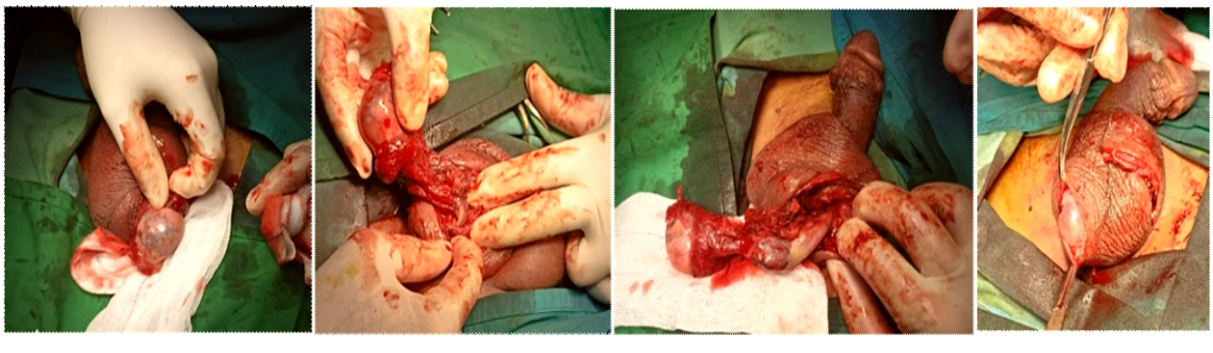

Figure 4. A left scrotal incision and testis exploration revealing pus in the tunica vaginalis, adhesions with the spermatic cord, and a 180-degree torsion with partial testicular necrosis. A left orchiectomy and bilateral orchidopexy were performed with a handscoon drain.

Postoperatively, the patient was put on antibiotics (IV ceftriaxone 1 g 12 hourly), pain management (IV metamizole 1 g 8 hourly), and IV tranexamic acid 500 mg 8 hourly. Handscoon drain and scrotal support were maintained for 2 days. He was discharged home on postoperative day four with oral ciprofloxacin 500mg PO twice a day for two weeks. On follow-up at the outpatient clinic, he was progressing well with minimal tenderness and a clean surgical scar.

DISCUSSION

The acute scrotum is the constellation of new onset of pain, swelling, and tenderness of intrascrotal contents. There is a limited differential diagnosis with considerable overlap of signs and symptoms, which may affect the ability to make a definitive diagnosis; some reliable clinical features exist, and adjuvant use of scrotal imaging helps make a diagnosis.[6]

Appendix testis torsion is the most common (40-60%), followed by spermatic cord torsion (20-30%), epididymitis (5-15%), and other or no pathology (10%). Appendix torsion typically occurs in children between infancy and puberty, while epididymitis and spermatic cord torsion are more common in the perinatal and pubertal periods. While appendix torsion and epididymitis are managed conservatively, prompt surgical intervention is crucial for testicular torsion to prevent ischemic damage, especially with delays in presentation or awareness.[7]

Intravaginal testicular torsion typically occurs after age 10, peaking at 12-16 years. Boys often report sudden, severe scrotal pain at rest or after trauma. Some may have milder or absent pain, with inguinal or abdominal discomfort. Nausea and vomiting occur in 10-60% of cases. Common signs include testicular tenderness, abnormal orientation, and absent cremasteric reflex. Ultrasound, especially Doppler, is key for diagnosing torsion, showing reduced blood flow or parenchymal heterogeneity.[7]

Testicular torsion is a surgical emergency, as testis viability decreases with time. Preoperative manual detorsion may help but is often incomplete. Management options include immediate scrotal exploration for all suspected cases, risking unnecessary surgeries, or selective exploration based on history, exam, and Colour Doppler Ultrasound (CDUS), which can miss torsion. If torsion is suspected, urgent exploration should not be delayed.[1] The testis is untwisted, wrapped in warm gauze, and monitored for color improvement, while the contralateral testis is fixed with a suture to prevent future torsion. The affected testis is then re-evaluated for viability, guiding the decision for orchidopexy or orchiectomy.[7]

Testicular torsion and epididymal-orchitis are distinct conditions, with torsion caused by testicular twisting and epididymal-orchitis due to inflammation from infections. While typically separate, severe epididymal-orchitis can lead to testicular torsion due to swelling. This rare occurrence underscores the need for prompt intervention to prevent complications, such as testicular infarction, as seen in cases caused by Pseudomonas aeruginosa.[8] This case highlights the potential for severe epididymal-orchitis to result in testicular complications such as infarction.

Numerous studies indicate that approximately 4-8% of testicular torsion cases may be precipitated by other factors, including trauma or infection, such as epididymo-orchitis. Numerous case reports document testicular infarction following an episode of epididymo-orchitis, which have indicated abscess formation, compression of testicular blood arteries due to edema, and bacterial toxins leading to thrombus formation may be potential causes of infarction following an episode of epididymo-orchitis.[6,9,10]

One case report stated that epididymo-orchitis may precede testicular torsion, as the increased testicular volume resulting from inflammatory responses can predispose individuals to torsion. Additionally, the activation of the cremasteric reflex, which is make inflammatory conditions uprising, along with rapid testicular growth, are contributing factors to torsion development. This indicates that while not all instances of torsion result from epididymo-orchitis, a notable correlation exists between this condition.[1]

The interplay between epididymal-orchitis and testicular torsion underscores the importance of recognizing the diverse manifestations of scrotal pathologies and the need for prompt diagnosis and intervention. Diagnostic imaging modalities, such as colour Doppler ultrasound, are crucial in differentiating between these conditions and guiding appropriate management decisions. We described a case of epididymal-orchitis without testicular infarction presenting with reversal of diastolic testicular flow on Doppler ultrasonography, emphasizing the utility of imaging in assessing scrotal pathologies.[3] Our case reflects the above findings with intraoperative pus in the tunica vaginalis. We conclude that this patient presented with previous epididymal-orchitis and testicular torsion as a second present.

CONCLUSION

The management of acute scrotum necessitates a high level of suspicion for testicular

torsion, prompt diagnosis, and appropriate intervention to prevent testicular damage. Differential diagnosis between epididymo-orchitis and testicular torsion requires a comprehensive approach involving clinical evaluation and imaging modalities for accurate diagnosis and optimal management. In the presented scenario, an enlarged testicle resulting from an epididymal orchitis condition can increase the likelihood of an individual experiencing testicular torsion. Therefore, it is essential for patients with epididymal-orchitis to receive thorough counseling regarding the symptoms to watch out for, along with post-discharge monitoring and follow-up, as this situation could progress to torsion, where early detection plays a crucial role.

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