



# Traumatic testicular rupture complicated by pyocele: a rare case report

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**Introduction and Importance:** Scrotal pyocele is a rare but serious urological emergency characterized by the accumulation of purulent fluid within the scrotum, often secondary to infection or trauma. Early recognition and intervention are essential to prevent complications such as abscess formation, necrosis, or testicular loss.

**Case Presentation:** We report the case of a 39-year-old diabetic male with chronic alcoholism who presented with progressive left scrotal pain and swelling following a minor motorcycle accident. Ultrasonography confirmed rupture of the tunica vaginalis and collection of purulent fluid consistent with pyocele. Emergency incision and drainage were performed, and pus culture revealed *Staphylococcus aureus*, which was managed successfully with targeted antibiotics and analgesics. The patient recovered completely without complications.

**Clinical Discussion:** Scrotal pyocele is an uncommon sequela of blunt trauma, more often associated with infectious etiologies. In this case, ultrasonography played a crucial role in differentiating pyocele from hematocele and guiding early surgical intervention. The presence of comorbidities such as diabetes and chronic alcoholism increased infection risk, yet timely drainage and culture-directed therapy led to preservation of testicular function. The isolation of *S. aureus* is unusual compared to more typical urinary pathogens reported in previous literature.

**Conclusion:** Traumatic scrotal pyocele is a rare but potentially life-threatening entity. Prompt diagnosis, surgical drainage, and culture-based antibiotic therapy are critical to favorable outcomes and testicular preservation.

**Keywords:** purulent, scrotal abscess, scrotal complication, *Staphylococcus aureus*, testicular injury

## Introduction and importance

Scrotal pyocele, characterized by the collection of purulent fluid in the scrotum, is an emergent urological condition that demands timely diagnosis and intervention<sup>[1]</sup>. While it most often arises from infections such as epididymo-orchitis or testicular abscesses, rare cases have been linked to trauma or intra-abdominal infections via a patent processus vaginalis<sup>[2,3]</sup>. Although rare, when a scrotal pyocele occurs secondary to trauma, particularly in a patient with comorbidities like diabetes

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## HIGHLIGHTS

- Scrotal pyocele is a rare surgical emergency following traumatic testicular injury
- Ultrasound confirmed rupture of tunica vaginalis and purulent fluid collection
- Surgical drainage and antibiotics led to full recovery without complications
- *Staphylococcus aureus* was identified in culture and treated with targeted therapy
- Early diagnosis and prompt incision and drainage are key to preserving testicular function

and alcoholism, the risk of delayed diagnosis and complications increases. This report presents a rare case of traumatic pyocele diagnosed via ultrasonography and managed surgically<sup>[4,5]</sup>.

## Case presentation

A 39-year-old male presented with severe pain and swelling in the left scrotal region. He reported a minor motorcycle accident 1 month earlier, with symptoms progressing gradually. He had a history of type 2 diabetes mellitus and chronic alcohol use for 10 years.

Physical examination revealed swelling in the left scrotum with tenderness and discomfort on walking. Laboratory tests showed an elevated white blood cell count (17 300/ $\mu$ L) and 10–12 pus cells/high power field in urine. Ultrasonography revealed a hypochoic fluid collection (Fig. 1) with internal echoes, consistent with



Figure 1. Ultrasound findings of inflamed left scrotum containing purulent fluid prior to the surgical profiling for admission.

purulent material between the layers of the tunica vaginalis<sup>[1,6,7]</sup>. No cardiac abnormalities were noted on ECG (Fig. 2).

The patient was taken for emergency incision and drainage under spinal anesthesia. Purulent material was drained completely (Fig. 3). The surgical site was dressed aseptically. Postoperatively, antibiotics (fluoroquinolone and vancomycin, as per sensitivity) and analgesics were administered. The patient was instructed to maintain hygiene and avoid trauma during recovery. Pus culture revealed *Staphylococcus aureus* sensitive to the chosen antibiotics.

Recovery was uneventful with full resolution of symptoms. The patient was followed up for 4 weeks postoperatively, during which he demonstrated complete resolution of symptoms, no recurrence of swelling, and no postoperative complications (Fig. 4).

**Clinical discussion**

Scrotal pyocele is an infrequent but serious cause of acute scrotal pain and swelling. It has been more commonly linked with

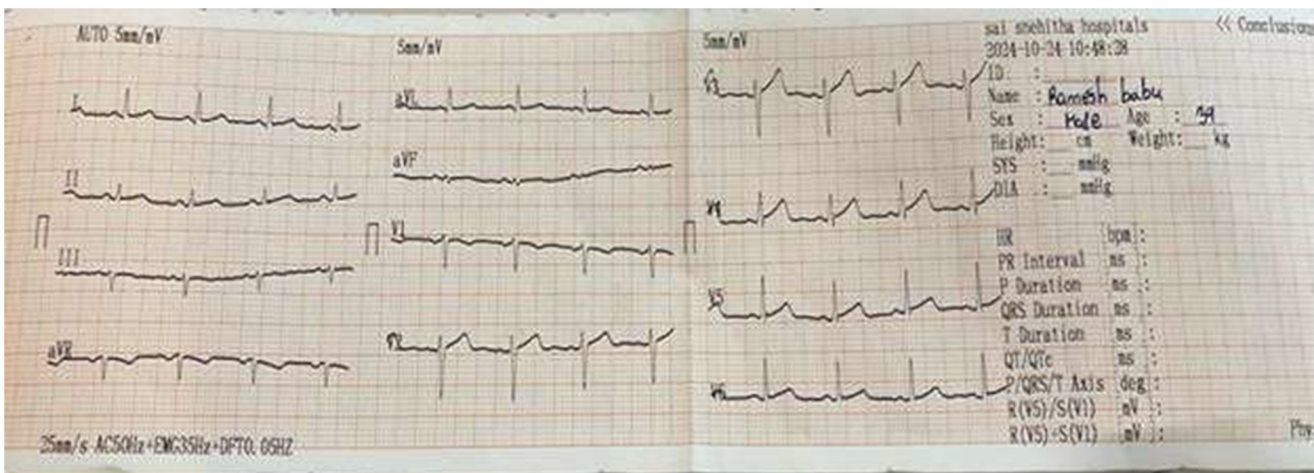


Figure 2. Normal ECG findings during admission for surgical profiling.



**Figure 3.** Image of open scrotal sac after draining purulent from left scrotum.

infections such as epididymo-orchitis, abscess formation, or intra-abdominal spread through a patent processus vaginalis<sup>[1-3]</sup>. Reports of traumatic pyocele are scarce, with most literature emphasizing hemocele as the usual sequela of blunt scrotal trauma<sup>[6]</sup>. In our case, ultrasound was crucial in identifying both the purulent collection and rupture of the tunica vaginalis, allowing early surgical intervention and testicular preservation.

Previous reports highlight that management may vary depending on etiology and patient profile. Oberlin and Cheng<sup>[4]</sup> described percutaneous aspiration as an option in pediatric pyoceles, whereas Sood *et al*<sup>[6]</sup> emphasized that post-traumatic cases generally require open exploration to differentiate pyocele from hemocele and to evacuate infected material. In contrast to the predominance of urinary or sexually transmitted pathogens reported in earlier studies<sup>[2,4]</sup>, the isolation of *S. aureus* in our patient is unusual. Furthermore, the presence of comorbidities such as diabetes and chronic alcoholism increased the risk of infection, yet timely surgery and targeted antibiotic therapy



**Figure 4.** Image of closed scrotal sac by non-absorbable silk sutures.

resulted in a favorable outcome. This case therefore adds to existing literature by illustrating trauma as a potential cause of pyocele and highlighting the importance of culture-based therapy in guiding management.

### Conclusion

Traumatic scrotal pyocele is a rare but critical urological condition. Early imaging and surgical intervention are key to favorable outcomes. This case underscores the importance of considering trauma in the differential diagnosis and highlights the value of targeted therapy based on culture sensitivity.

### Patient perspective

The patient reported significant relief of pain and swelling following surgery and expressed satisfaction with the outcome. He appreciated the clear communication about the procedure and recovery process. The patient also stated his willingness to share his experience to help others with similar conditions.

### Ethical approval

Not applicable.

### Consent

Informed consent for publication was obtained from the patient. A copy of the written consent is available on reasonable request on request.

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### Author contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work. Concept and design: BV, DKR, SPNB; Acquisition, analysis, or interpretation of data: BV, DKR, SPNB, CT; Drafting of the manuscript: SPNB, CT, NG, TMY; Critical review of the manuscript for important intellectual content: SPNB, BV, CT, NG, TMY; and Supervision: BV, SPNB. All authors read and make the final corrections.

### Conflicts of interest disclosure

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Data availability statement**

Data availability is not applicable to this article as no new data were created or analyzed in this study.

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