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LEFT-SIDED SCROTAL PYOCELE WITH CONTRALATERAL MINIMAL HYDROCELE IN AN ELDERLY DIABETIC MALE: A CASE REPORT

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ABSTRACT

Scrotal pyocele is an uncommon urological emergency characterized by accumulation of purulent fluid within the tunica vaginalis surrounding the testis. It commonly develops as a complication of epididymo-orchitis, infected hydrocele, trauma or intra-abdominal infections. Early diagnosis and prompt intervention are essential to prevent serious complications such as Fournier's gangrene and testicular damage. We report a case of a 70-year-old male with newly detected uncontrolled Type II Diabetes Mellitus who presented with bilateral scrotal swelling and pain, predominantly on the left side. Ultrasonography revealed gross left-sided hydrocele with dense echogenic contents suggestive of pyocele along with mild right hydrocele. The patient underwent left orchidectomy with excision of infected spermatic fascial layers and right-sided Jaboulay's eversion of sac under spinal anaesthesia. Post-operative recovery was satisfactory with healthy wound healing

and no complications. This case highlights the importance of early clinical and ultrasonographic diagnosis followed by timely surgical management in elderly diabetic patients presenting with acute scrotal swelling.

KEYWORDS: Scrotal pyocele, hydrocele, orchidectomy, diabetes mellitus, Jaboulay's procedure.

INTRODUCTION

Scrotal pyocele is a rare but significant urological emergency characterized by collection of purulent material between the visceral and parietal layers of the tunica vaginalis surrounding the testis. It may occur in a previously normal tunica vaginalis or develop secondary to infection of a pre-existing hydrocele or haematocele. Common causes include sexually transmitted infections, epididymo-orchitis, intra-abdominal infections, trauma, and infected hydrocele. Early diagnosis and prompt management are important to prevent serious complications and further progression of infection.[1-3]

Pyocele and hydrocele are both conditions affecting the scrotum but differ significantly in their nature. Hydrocele is defined as an abnormal accumulation of amber coloured serous fluid between the visceral and parietal layers of the tunica vaginalis surrounding the testis or within a part of the processus vaginalis.[4] Based on aetiology, hydrocele may be classified as primary (idiopathic), in which no underlying pathology of the testis or epididymis is identified, and secondary hydrocele, which occurs secondary to diseases involving the testis or epididymis.[5] Secondary hydroceles are generally smaller and less tense in consistency.

Hydrocele is seen even in infants, but the primary hydrocele is most common over the age of 40 years. While the secondary hydrocele is commoner between 20 and 40 years of age.[6]

Although hydrocele is usually a benign and painless condition, secondary infection of the hydrocele fluid may rarely result in formation of pyocele, particularly in elderly or immunocompromised patients such as those with uncontrolled diabetes mellitus. The coexistence of unilateral pyocele with contralateral hydrocele is uncommon and may necessitate simultaneous surgical management.

Delay in diagnosis and treatment may lead to severe complications including testicular necrosis, abscess formation, septicaemia, and Fournier's gangrene.

Ultrasonography is considered the imaging modality of choice for evaluating acute scrotal conditions because of its ability to identify fluid collections, septations, debris, and associated testicular pathology.[7]

Initial management usually consists of intravenous fluids, broad-spectrum antibiotics, analgesics, and supportive measures. However, extensive infection or non-viable testicular tissue may necessitate urgent surgical intervention.[8]

The present case describes successful surgical management of left-sided pyocele with infected spermatic fascial layers and contralateral minimal hydrocele in an elderly diabetic patient.

CASE PRESENTATION

A 70-year-old male patient was admitted to the Shalyatantra IPD on 05/02/2026 with complaints of bilateral scrotal swelling and pain for eight days, more prominent on the left side. The patient also gave a history of fever eight days earlier for which oral medications had been taken. The patient was found to have uncontrolled Type II Diabetes Mellitus during evaluation.

On general examination, the patient was moderately built and conscious, oriented, and cooperative. Vital parameters were as follows: Blood Pressure: 120/80 mmHg, Pulse Rate: 110/minute, Temp: 96.8 °F, SpO2: 99% on room air. Written informed consent for treatment and publication of the case report was obtained from the patient.

Local Examination

Examination of the scrotum revealed bilateral swelling, more pronounced on the left side. The left scrotal region was firm in consistency and tender on palpation. The right testis was palpable, whereas the left testis appeared compressed due to the swelling. Transillumination test[9] was negative.

Figure 1: Pre-operative scrotal swelling.

Investigations

Laboratory Investigations

Table 1: Haematological and Biochemical Investigations (05/02/2026)

Sr. No.	Investigation	Result
1.	Haemoglobin	9.0 g/dL
2.	WBC Count	**12,660** cells/mm^3
3.	Random Blood Sugar	**516** mg/dL
4.	Blood Urea	25.1 mg/dL
5.	Serum Creatinine	0.82 mg/dL
6.	HIV	Non-reactive
7.	HBsAg	Non-reactive
8.	HbA1c	**12.7**%

Table 2: Urine Routine Examination (05/02/2026).

Sr. No.	Parameter	Result
1.	Albumin	Nil
2.	Sugar	++++
3.	Pus Cells	Nil
4.	RBCs, Epithelial Cells, Crystals, Bacteria	Nil

Radiological Investigations

Table 3: Ultrasonography Findings - Inguino-Scrotal Region (04/02/2026).

Sr. No.	Findings
1	Gross left hydrocele with dense echogenic contents within
2	Left testis appeared displaced/compressed by hydrocele
3	Mild right hydrocele

Table 4: Ultrasonography Findings - Abdomen and Pelvis.

Sr. No.	Findings
1	Mild Hepatomegaly with Grade I Fatty Liver
2	Mild Splenomegaly

3	Mild Prostatomegaly
4	Small Right Renal Cortical Cyst (Bosniak Type I)

Diagnosis

Preoperatively, based on clinical examination and ultrasonographic findings, the patient was diagnosed as:

Gross left-sided hydrocele with right minimal hydrocele associated with Type II Diabetes Mellitus.

Operative Management

The patient was planned for Bilateral Jaboulay's eversion of sac with possible left orchidectomy under spinal anaesthesia.[10,11]

Pre-operative Preparation

- Written informed consent obtained.
- Physician and anaesthetic fitness were obtained in view of uncontrolled blood sugar levels. (Inj. Human Actrapid insulin was administered according to sliding scale.)
- Nil by mouth for 8 hours before surgery.
- Part preparation and surgical scrubbing performed.
- Injection Ceftriaxone 1 gm intravenously administered pre-operatively.
- Injection Tetanus Toxoid 0.5 ml given intramuscularly.
- Perioperative blood sugar monitoring was carried out.

Surgical Procedure

Under all aseptic precautions and spinal anaesthesia, the patient was placed in supine position. The operative area was painted, draped, and isolated.

A linear incision parallel to the median raphe was made over the left scrotum. On deepening the incision, purulent material was drained confirming the diagnosis of pyocele. The infected tunica vaginalis and spermatic fascial layers were identified.

The left spermatic cord was isolated from the cremasteric muscle fibres, clamped, transfixed, and ligated using No.1 vicryl. The distal end of the spermatic cord was excised with cautery, and left high inguinal orchidectomy was completed.

Through the same incision, the right scrotal sac was approached. The layers were dissected to expose the tunica vaginalis sac. The sac was opened and approximately 60-80 mL of amber-coloured hydrocele fluid was drained. Jaboulay's eversion of sac was then performed and the sac was sutured posteriorly with continuous vicryl 2-0 sutures.

Haemostasis was achieved. A corrugated rubber drain was placed in the gravity-dependent position of the left scrotal wall. Layer-wise wound closure was done and skin closure was completed using Ethilon 2-0 vertical mattress sutures. Betadine ointment dressing was applied and Foley's catheterization was performed.

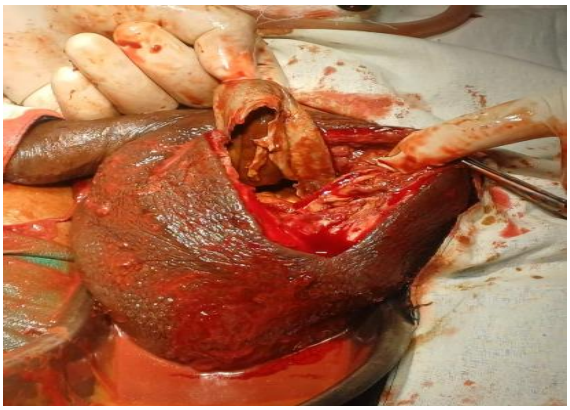
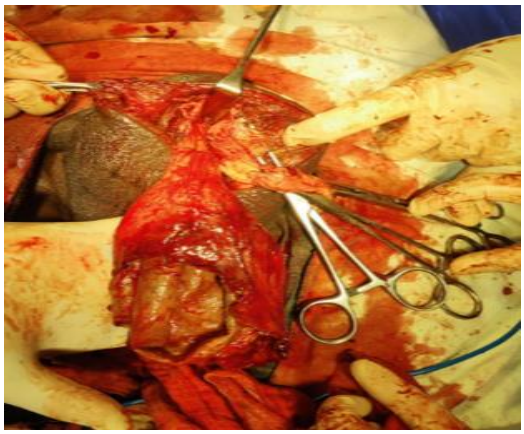


Figure 2: Scrotal incision with drainage of frank pus.
Figure 3: Infected tunica vaginalis sac.



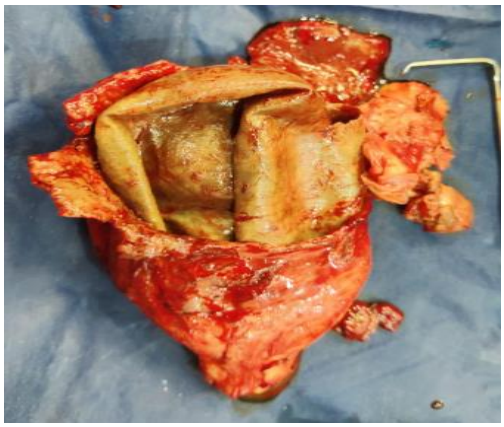


Figure 4: Intraoperative view showing entire infected tunica vaginalis sac.
Figure 5: Excised left testis with infected tunica vaginalis sac following orchidectomy.

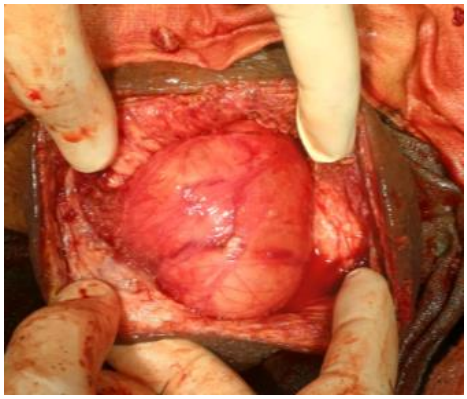



Figure 6: Infected spermatic fascial layers. Figure 7: Right-sided minimal hydrocele.


Figure 8: Right-sided Jaboulay's eversion procedure.
Figure 9: Layered wound closure with corrugated rubber drain placement.

Post-operative final diagnosis - Left scrotal pyocele with right minimal hydrocele.

Surgical procedure performed - Left orchidectomy with right Jaboulay's eversion of sac under spinal anaesthesia.

Post-operative Care and Outcome

Post-operatively, intravenous antibiotics (according to culture and sensitivity report), analgesics, anti-inflammatory medications, antacids, multivitamins, and supportive treatment were continued for five days.

The wound was examined on the fifth post-operative day and showed healthy healing without slough or discharge. Regular dressing was done and scrotal support with figure-of-8 bandage was advised. The patient had an uneventful post-operative recovery.

The patient was followed up after 21 days. Surgical wound healing was satisfactory with no evidence of recurrence, discharge, or infective complication.

Figure 10: Post-operative follow-up on Day 21 showing satisfactory wound healing.

DISCUSSION

Scrotal pyocele is an uncommon but important urological emergency characterized by accumulation of purulent fluid between the visceral and parietal layers of the tunica vaginalis surrounding the testis. It may arise secondary to sexually transmitted infections, intra-abdominal infections, epididymo-orchitis, trauma, or infected hydrocele.[12]

The pathogenesis of scrotal pyocele involves spread of infection into the tunica vaginalis sac through conditions such as epididymo-orchitis, infected hydrocele, sexually transmitted infections, intra-abdominal infections, or trauma.[13]

Differential diagnoses of acute scrotal swelling include hydrocele, haematocele, testicular torsion, epididymo-orchitis, incarcerated inguinal hernia, and testicular tumour.

Epididymo-orchitis and epididymitis are among the leading causes of acute scrotal pain and may progress to abscess formation or infarction if left untreated.[14] In elderly patients above 35 years of age, urinary tract pathogens such as Escherichia coli are commonly implicated.[15]

In the present case, the patient was an elderly diabetic male with uncontrolled blood sugar levels and bilateral scrotal swelling associated with pain and fever. Diabetes mellitus may have contributed to impaired immune response and progression of infection. Diabetes mellitus predisposes patients to severe genitourinary infections because of impaired neutrophil function, altered cellular immunity, microvascular compromise, and hyperglycaemic environment favouring bacterial proliferation. Poor glycaemic control in the

present case may have contributed to rapid progression of infection and involvement of the spermatic fascial layers.

Ultrasonography demonstrated gross left hydrocele with dense echogenic contents and displacement of the left testis, suggestive of pyocele. Ultrasound is the imaging modality of choice for diagnosing scrotal pathologies. Typical ultrasonographic features of pyocele include complex heterogeneous fluid collection with septations, internal echoes, and debris within the tunica vaginalis sac. Hydrocele, in contrast, usually appears as a simple fluid collection without internal vascularity on colour Doppler examination.[16]

Management of pyocele generally begins with conservative treatment including intravenous fluids, empirical antibiotics, analgesics, and supportive care. However, definitive management often requires prompt surgical exploration, debridement of necrotic tissue, excision of non-viable structures, and drainage of purulent material.[17]

In this patient, surgical management was preferred because of extensive infection involving the spermatic fascial layers along with compression of the left testis. Left orchidectomy with excision of infected fascial tissue was therefore performed. Simultaneously, right-sided Jaboulay's procedure was carried out for associated hydrocele. The patient showed good post-operative recovery with satisfactory wound healing.

Similar cases of scrotal pyocele in elderly or immunocompromised patients have been reported in literature, often associated with epididymo-orchitis, infected hydrocele, or delayed presentation.[1][2] However, coexistence of unilateral pyocele with contralateral hydrocele requiring simultaneous orchidectomy and Jaboulay's procedure is uncommon.

Potential complications of untreated pyocele include Fournier's gangrene, a rapidly progressive necrotizing fasciitis involving superficial and deep fascial planes of the perineum and scrotum.[18] No such complication developed in the present case due to timely diagnosis and early surgical intervention.

This case emphasizes the importance of early ultrasonographic evaluation, prompt diagnosis, adequate infection control, and timely surgical management in elderly diabetic patients presenting with acute scrotal swelling.

CONCLUSION

Scrotal pyocele is a rare but potentially serious urological emergency requiring prompt diagnosis and timely management. Elderly diabetic patients are particularly susceptible to severe infection and associated complications. Ultrasonography plays a crucial role in early diagnosis and differentiation from other scrotal conditions. Although conservative management may be effective in selected cases, extensive infection and non-viable tissue require definitive surgical intervention. Early operative management in the present case resulted in satisfactory recovery without complications.

Ethical Consideration

Written informed consent for publication of clinical details and clinical images was obtained from the patient. Patient identity has been adequately concealed and confidentiality has been maintained throughout the report.

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