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## Case Report

# Spermatic cord abscess: Case report and imaging findings <sup>☆</sup>

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## ABSTRACT

Spermatic cord abscess is a rare condition usually associated with other genitourinary infections. We present a case of a 49-year-old male with past medical history of uncontrolled diabetes mellitus. He presented with right groin swelling and pain for a week. Ultrasound showed a tubular hyperemic structure extending into the scrotal sac. Computed tomography showed concurrent perinephric abscess and right spermatic cord abscess. The spermatic cord abscess was managed surgically by incision and drainage. To our knowledge, this is the first case report of a patient with spermatic cord abscess and concurrent perinephric abscess. We highlight the clinical importance of familiarity with such a rare condition and the role of imaging in establishing the correct diagnosis while excluding close differentials.

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## Introduction

Spermatic cord abscess is a rare complication of bacterial infection of the genitourinary tract [1–3]. There have also been reports of spermatic cord abscess in patients without associated genitourinary tract infection [4,5]; however, there was history of recent groin procedure in one of these cases [4]. To date, only a handful of case reports are available in published literature.

The etiopathogenesis of spermatic cord abscess is not completely understood; it is however believed to be related to retrograde urinary infection in which the pathogen moves through the ductus deferens to the spermatic cord [2]. This is believed to explain its association with other lower geni-

tourinary infectious processes. There is no consensus about the most frequently associated causative organism; however, *Escherichia coli* [1] and *Candida* [3] have been reported in previous studies.

## Case report

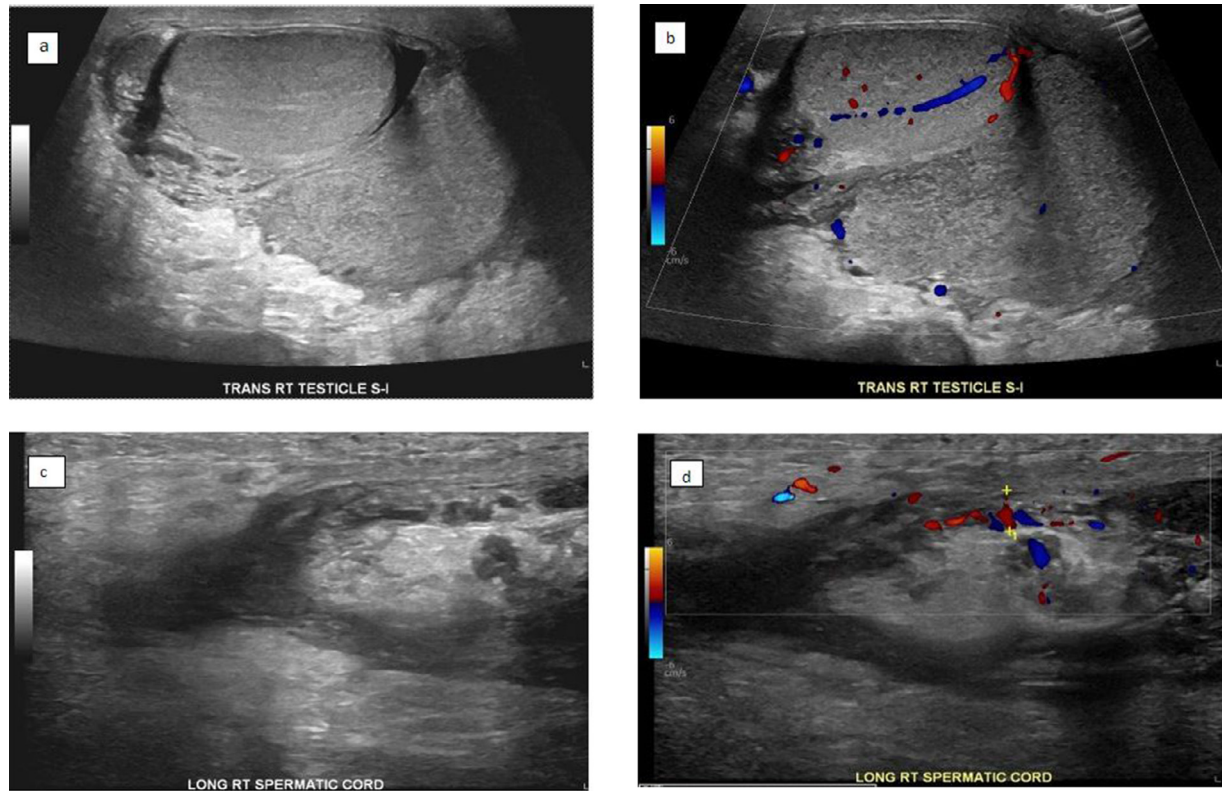
We present a 49-year-old male with past medical history of uncontrolled type II diabetes mellitus and hypertension who presented with right groin swelling and pain for 7 days. He had no history of nausea or vomiting, constipation, fever, or dysuria. He had no similar swelling in the past. There was no preceding history of epididymitis.

Abbreviation: CT, Computed tomography.

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**Fig. 1 – Grayscale (A & C) and color Doppler (B & D) ultrasound images demonstrating a heterogeneous tubular lesion with increased vascularity extending to the right hemiscrotum.**

On examination, the patient was febrile, temperature was 39.2°C, tachycardic, heart rate 122 per minute and blood pressure was 160/80 mmHg. There was swelling and erythema of the right groin. The right hemiscrotum was swollen and tender, most significantly on palpation of the spermatic cord and epididymis. Groin swelling was non-reducible, and no hernia defect detected.

Laboratory work up was significant for white blood cell count of 17500/ $\mu$ L (4400-10,600/ $\mu$ L) with a left shift; hyperglycemia, serum glucose 492 mg/dl (reference: 65-110 mg/dl), hemoglobin A1c 17% (reference: 4.0%-5.7%), mild hyponatremia, Na 123 mEq/L, 129 mEq/L when corrected for hyperglycemia (reference: 135-145 mEq/L). Urinalysis showed 160 white cell counts/HPF (reference: 0-3/HPF).

Differential diagnosis included incarcerated inguinal hernia, scrotal abscess, and epididymo-orchitis.

Scrotal ultrasound (Fig. 1) showed a heterogeneous tubular lesion with increased vascularity extending to the right hemiscrotum. Findings suspected to represent dilated vas deferens with vasitis.

He underwent an emergent contrast-enhanced CT of the abdomen and pelvis that showed a tubular fluid-filled structure in the right scrotum with mucosal enhancement, surrounding fluid and inflammation, structure did not appear to be contiguous with small bowel (Figs. 4A-E). CT also showed features of acute pyelonephritis with a rim enhancing fluid collection consistent with right perinephric abscess. There

was an additional small left perinephric abscess (Figs. 2 and 3).

No evidence of bowel in the scrotum on ultrasound or CT.

Urology was consulted due to imaging concern for pathology arising from vas deferens or epididymis. Surgery was planned in conjunction with general surgery as inguinal hernia was also a consideration. Incision and drainage was performed after inguinal exploration and isolation of the spermatic cord. A large amount of pus was evacuated from the scrotum. A Penrose drain was placed around it. Primary closure of the skin with loose sutures and packing with iodoform gauze was performed. The patient tolerated the procedure well and was sent to the Recovery Room. The final diagnosis was spermatic cord abscess.

Wound culture was positive for methicillin-sensitive *Staphylococcus aureus* (MSSA). Also, culture from the perinephric abscess was positive for MSSA with similar sensitivity pattern.

Interventional radiology was consulted for drainage of the perinephric abscess. A percutaneous perinephric drain was placed on the right side.

Patient was started on IV antibiotics per sensitivity pattern of the MSSA. The clinical findings continued to improve, and leukocytosis was down trending. Glycemic control was achieved using insulin. Patient was given antihypertensives for blood pressure control. The perinephric drains were removed on postoperative day 14 and the Penrose catheter was



**Fig. 2 – Axial contrast-enhanced CT demonstrating perinephric renal abscess on the right with rim enhancement and surrounding inflammatory fat stranding (blue arrow). The pyogenic collection has resulted in scalloping of the normal renal cortex.**



**Fig. 3 – Axial contrast-enhanced CT demonstrating additional small perinephric renal abscess on the left with rim enhancement (blue arrow).**

removed on day 17. The patient was subsequently discharged in stable condition on oral antibiotics.

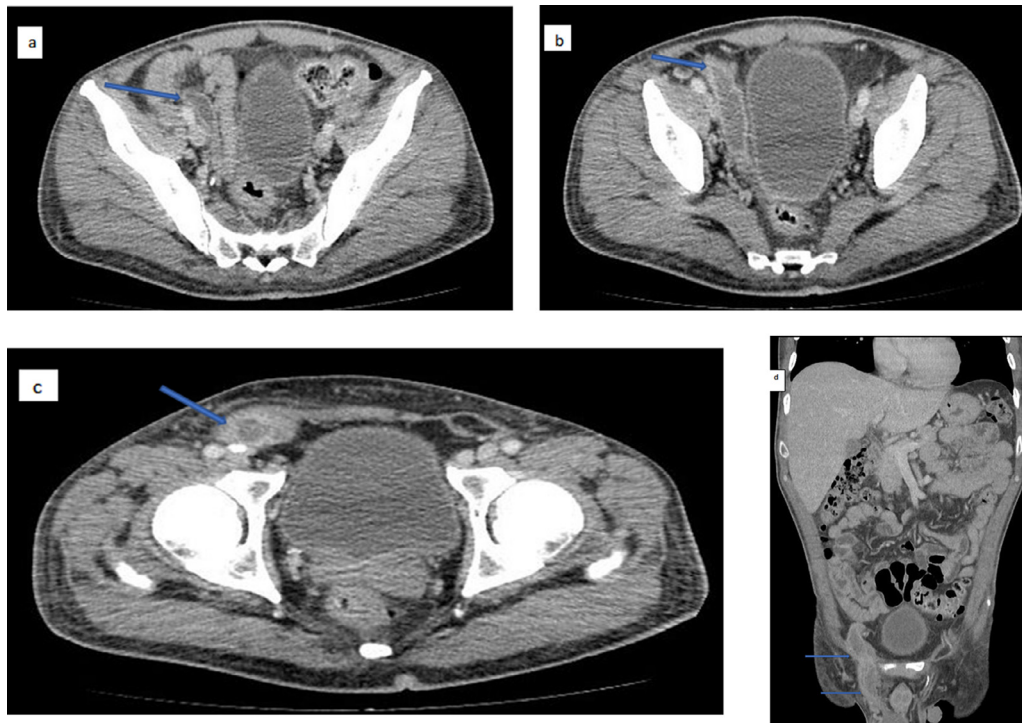
## Discussion

Spermatic cord abscess is a rare condition. To the best of our knowledge, only a handful of case reports of spermatic cord abscess have been published. Case reports have shown no typical population, clinical presentation, or microbiology. All patients presented in literature had inguinal swelling with a variety of risk factors including peritoneal dialysis [3], concurrent prostate abscess [2], history of epididymo-orchitis [1], and coronary angiography via femoral artery [5].

Previous studies have reported *E coli* [1] and *Candida* [3] as causative organisms. MSSA was the causative agent in this case. Our case is peculiar as it supports the mechanism of

retrograde urinary tract infection especially in a patient with poorly treated diabetes and complicated urinary tract infection resulting in perinephric abscess caused by the same bacteria. To the best of our knowledge, this is the first case of spermatic cord abscess in a patient with concurrent complicated urinary tract infection. Management options from prior cases include conservative management with antibiotics, surgical drainage and orchidectomy, which is usually a last resort. Successful surgical drainage and antibiotic therapy was done in this case.

Imaging, especially CT is important to establish the diagnosis of this rare disease and to also exclude differentials that may mimic its presentation. Representative CT (Fig. 4) and ultrasound images (Fig. 1) demonstrating an inflamed tubular structure extending to the right hemiscrotum are included. Images demonstrating associated perinephric abscesses (Figs. 2 and 3) and a normal appendix (Fig. 5) are also included.



**Fig. 4** – Axial and coronal contrast-enhanced CT demonstrating a tubular rim enhancing structure at in the expected region and course of the right spermatic cord (blue arrow). Subsequent descending CT slices demonstrate the collection coursing along the trajectory of the spermatic cord into the scrotal sac (A, B, and C). The coronal image (D) demonstrates the course of the tubular rim enhancing structure. Additional images in the lower abdomen indicate that this is neither the appendix nor a loop of small bowel.



**Fig. 5** – Axial contrast-enhanced CT demonstrating the normal appendix arising from the cecum, excluding the diagnosis of acute appendicitis.

## Conclusion

Spermatic cord abscess is a rare complication of genitourinary infection caused by a variety of infectious agents including bacteria and fungi. Case reports have consistently described

the presence of inguinal swelling in patient's presentation. It is important for clinicians to be aware of this rare complication and to include it among the differential diagnosis of patients with genitourinary infection and right inguinal swelling. Imaging, especially CT has been shown to be essential in the prompt and appropriate diagnosis of spermatic cord abscess.

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## Patient consent

Written informed consent for the publication of this case report was obtained from the patient.

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