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Case Report

A case of post-HoLEP vasitis mimicking incarcerated inguinal hernia. A diagnostic approach ☆,☆☆

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ABSTRACT

Vasitis is inflammation of the vas deferens, which can be divided into acute inflammatory vasitis or chronic vasitis nodosa. Acute vasitis can present with inguinal pain, swelling, or a lump, which could mimic other common pathologies occurring at this site, particularly inguinal hernia. While ultrasound is effective in the diagnosis of epididymitis, orchitis, and hernia, this case illustrates the importance of cross-sectional imaging to establish the correct diagnosis of vasitis, to aid in the prevention of unnecessary surgical exploration and to expedite antibiotic treatment. Previous surgical intervention to the prostate is the leading risk factor for vasitis and should be taken into consideration when making a differential diagnosis and determining which image modality to use. Here, we present a case of vasitis in a 60-year-old male with previous Holmium laser enucleation of the prostate (HoLEP), with an initial diagnosis of inguinal hernia on ultrasound which was later diagnosed as acute vasitis on CT.

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Introduction

Vasitis is inflammation of the vas deferens, which encompasses a more common chronic vasitis nodosa or acute painful inflammation of the vas deferens known as acute vasitis, which could be secondary to various pathogens, including *Escherichia coli* and *Haemophilus influenza*. Vasitis can often cause a diagnostic dilemma for clinicians due to its rarity and non-specific symptoms, which overlap with more frequently

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seen urological pathologies. Vasitis is managed conservatively and, therefore, the correct diagnosis is vital to avoid unnecessary surgical exploration.

Case report

A 60-year-old male presented to the Acute Surgical Unit complaining of pain in his right testicle that started 2 weeks prior to his presentation. Upon examination, a palpable lump was observed at the top of the testicle. The patient reported dysuria and debris in his urine. There was no suprapubic pain, dysuria, or fever; otherwise, he felt well.

The patient's blood markers indicated an inflammatory response with a mild rise in creatinine. The patient underwent HoLEP 4 weeks prior to presentation due to benign prostatic hypertrophy and had a trial without a catheter (TWOC) 1 week prior to this presentation. On the day of TWOC, the nurse stated that the pain might be secondary to HoLEP and requested a urine dip and culture, which indicated a *Staphylococcus aureus* infection.

The patient was prescribed a 7-day course of antibiotics and discharged from hospital. Testicular ultrasound revealed presumed herniation of the peritoneal fat in the right inguinal canal (Figs. 1A and B).

Assessment by the general surgical team revealed a tender lump in the right groin descending to the hemiscrotum with no cough impulse. Incarcerated hernia was the differential diagnosis. CT of the abdomen and pelvis was requested to visualize the hernia. However, it showed right-sided acute vasitis (Fig. 2).

The patient was treated with a 6-day course of oral antibiotics. However, a repeat CT showed worsening vasitis. Patient was admitted to the hospital and received IV antibiotics for 10 days. His symptoms have significantly improved and his inflammatory markers returned to normal. He was then discharged and prescribed a 20-day course of oral antibiotics.

Discussion

Vas deferens is a duct that connects the seminal vesicles and epididymis, thereby allowing sperm to migrate from the epididymis upwards. Infection transmission can occur along it from the seminal vesicles to the epididymis or vice versa [1]. The wall thickness of the vas deference is larger than its luminal diameter and if any damage occurs, the passage of spermatozoa will be compromised.

Inflammation of the vas deferens is termed vasitis, which includes vasitis nodosa, common asymptomatic chronic inflammation, and acute vasitis, which is an acutely painful inflammatory condition [2].

Vasitis nodosa. arises secondary to obstruction of the vas deferens, resulting in increased intra-luminal pressure, leakage of spermatozoa, and consecutive inflammation. Consequently, there is disproportionately high regeneration of the basal epithelial cells. Vasitis nodosa is usually associated with a history of vasectomy, prostatectomy, or non-mesh herniorrhaphy. Clinically, patients present with a nodular mass and are often asymptomatic and do not require any treatment [3,4].

Acute vasitis or infectious vasitis, is inflammation of the vas deferens secondary to infection, as in our case. The search in the English language medical literature since 1933 only mentions a handful of cases of infectious vasitis [5]. Acute vasitis is rare and happens from the retrograde spread of urinary pathogens, including *E. coli* and *H. influenza*. However, *Chlamydia trachomatis, Brucella*, and *Tuberculosis* have also been described as causes of acute vasitis in the literature [3]. Clinical symptoms and signs vary, but most patients have localized pain and/or palpable mass in the groin or scrotal region with fever and raised inflammatory markers [6]. In our case, the patient had leukocytosis with increased inflammatory markers, such as CRP, but no fever and a urine culture indicating *S. aureus* infection. Acute vasitis can be categorized into three groups related to the affected portion of the vas deferens: scrotal, supra scrotal, and prepubic sections. It can be easy to misdiagnose if there is an isolated site of involvement [7].

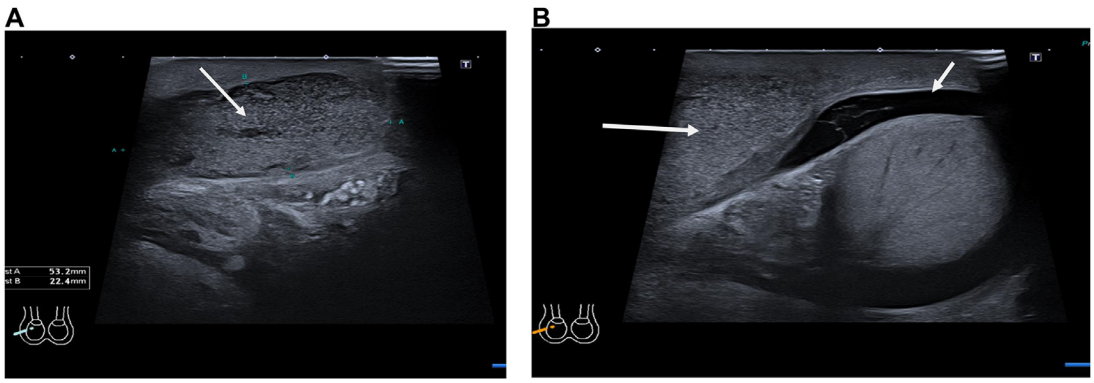

Fig. 1 – Ultrasound of the right testicle showed the presumed herniated peritoneal fat in the right inguinal canal measuring 5.3 x 2.2 cm (long white arrow) and mild septated right hydrocele (short white arrow).

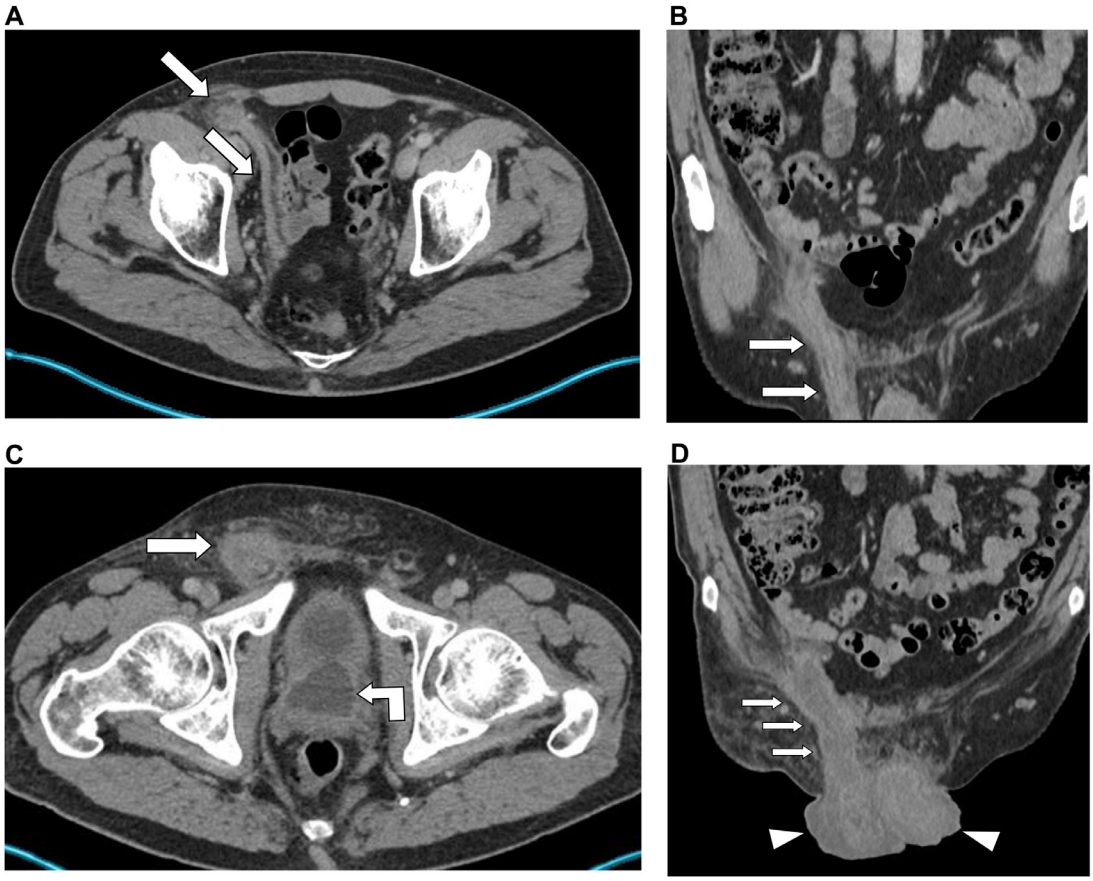

Fig. 2 – Initial CT portovenous phase axial (A) and coronal (B) slices show a thickened oedematous right vas deferens (white arrows) with peripheral hyperenhancement with central hypodensity and surrounding fat stranding. Follow-up CT 6 days later showed axial (C) and coronal (D) slices with the worsening appearance of the right-sided acute vasitis (white arrows) and bilateral hydrocele (white arrowheads) with a collection at the site of the prostatic bed (bent arrow).

A literate search shows that most reported vasitis cases are associated with a history of previous surgical interventions in close proximity to the vas deferens. Clavijo et al. evaluated 11 patients with vasitis, 8 of which were found to have previous surgeries in the neighboring regions, such as herniorrhaphy, prostatectomy, and perianal fistulectomy. Additional risk factors include a history of trauma, human immunodeficiency virus or herpes simplex virus infections, and smoking [3]. The patient in this case report had undergone HoLEP due to benign prostatic hypertrophy (BPH), which was the most probable cause of his acute vasitis.

HoLEP is an established safe and effective therapeutic modality for BPH. The use of HoLEP in the management of BPH has become widespread in the urological field and has been shown to result in similar postoperative outcomes when compared to transurethral resection of prostate or prostatectomy, but with lower morbidity [8].

The more common differential diagnoses for testicular/inguinal pain include orchitis, epididymitis, testicular torsion, and inguinal hernia, and the less common differential diagnoses include Amyand's hernia and neoplasms [3,9]. It is crucial to establish a correct diagnosis early on as vasitis is treated using antibiotics and surgical intervention is not required in the majority of cases. However, radiological diagnosis of vasitis can be challenging due to its rarity and unclear image findings. Therefore, it is vital to use appropriate imaging modalities [6].

Ultrasound can be used to exclude epididymitis, orchitis, or testicular torsion via the use of color Doppler. Acute vasitis typically presents as a heterogenous, hypoechoic spermatic cord with surrounding echogenic fat. However, differentiating vasitis from the herniated bowel can be challenging on ultrasound, as seen in our case, and therefore cross-sectional imaging would be more sensitive [3]. A case study conducted by Eddy et al. confirmed that ultrasound was also inconclusive, and CT was used to diagnose vasitis cases and exclude differential diagnoses of incarcerated inguinal hernia [5]. This does not mean ultrasound should not be used as the initial imaging modality but rather illustrates the importance of cross-sectional imaging in making an accurate diagnosis when there is a possibility of a surgical abdomen.

CT is one of the best imaging modalities for a surgical abdomen, particularly in diagnosing abdominal hernias. In our case, the question was to assess for the inguinal hernia, which was diagnosed on the ultrasound [10]. CT has a greater resolution, allowing for an accurate assessment of the under-

lying anatomy. Its ready availability with a short scanning time makes it perfect for radiological investigation in acute settings. However, it carries a risk of ionizing radiation. On CT, acute vasitis will be visualized as a unilateral oedematous spermatic cord which will be different from the herniated bowel [3,6,11].

An MRI was not performed in our case. However, it can provide a greater level of soft tissue detail compared to CT or ultrasound, showing abnormal signal intensities in the inflamed or ischaemic structures with no exposure to ionizing radiation [6]. MRI may need to be considered in other cases of similar etiology. However, the availability and real-life application of this happening in most district general hospitals, particularly out-of-hours, is questionable.

Conclusion

In summary, this case report presents a patient with rare acute vasitis, which was originally misdiagnosed as inguinal hernia via ultrasound, before a correct diagnosis was reached using CT. This case shows the importance of cross-sectional imaging in establishing the correct diagnosis when a patient has known risk factors for acute vasitis. This will help avoid unnecessary surgical interventions and speed up the patient's recovery by earlier commencement of oral antibiotics.

Patient consent

I confirm that the patient has provided an informed written consent for a publication of this case report.

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