



Recurrent Acute Vasitis: A Case Report

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Abstract

Vasitis is a rare infectious process that involves the vas deferens. Given that vasitis presents with an acute onset of severe inguino-scrotal pain and swelling, other common emergency surgical conditions such as acute scrotum and incarcerated inguinal hernia should be ruled out. With a high index of suspicion and proper imaging, vasitis can be diagnosed and an unnecessary surgery can be avoided. Treatment of vasitis involves antibiotics and non-steroidal anti-inflammatory drugs. We report a 40-year-old male patient who presented with eight months history of a severe recurring right inguinal pain and swelling. During our evaluation he was in pain and had right groin tenderness. MRI revealed acutely inflamed vas deferens. He was started on PO cephalexin and diclofenac, and his symptoms improved. This case underscores the importance of using imaging to recognize recurrent acute vasitis, preventing unnecessary surgical procedures. If ultrasound findings are inconclusive, further evaluation with a CT scan or, preferably, MRI imaging should be considered.

Keywords: Vasitis; Inguinoscrotal Pain and Swelling; Incarcerated Hernia; Acute Scrotum

Introduction

Vasitis is a rare condition which involves inflammation of the vas-deferens [1-5]. It results from an acute infection due to the retrograde spread of urinary pathogens, as is seen in epididymitis [1-4,6]. The pathogens commonly associated are *Escherichia coli* and *Haemophilus influenzae*, however, other rare pathogens such as *Brucella* and *Mycobacterium tuberculosis* have also been described [1-6]. However, urinary culture is usually negative [1,4]. Acute vasitis can present diagnostic dilemmas owing to disease rarity and more common alternative diagnosis [3]. Its presentation is acute onset of groin pain and swelling which mimics incarcerated inguinal or femoral hernia and acute scrotal conditions such as testicular torsion and epididymo-orchitis [2-7]. It is an unusual condition, but one that can present clinicians with a diagnostic dilemma, and if not identified and treated appropriately, may lead to unnecessary surgery with increased morbidity for the patient [2].

The other inflammatory condition of vas deferens is the relatively more common and benign condition is vasitis nodosa which requires no specific treatment [1,6]. Vasitis nodosa was reported for the first time by Benjamin et.al in 1943 [1,4-6,8], who described it as a non-tuberculosis cause of vasal beading [6,8]. Vasitis nodosa is a chronic type infection [4] and is a mild to asymptomatic disease [4,6]. Most commonly vasitis nodosa follows any procedure that involves manipulation of the inguinal contents such as vasectomy [3-6,9], herniorrhaphy, prostatectomy and trauma in the area [1,4-6]. Infectious vasitis is often associated with cystitis, epididymis, or prostatitis [7,10]. Testicular biopsy, epididymitis, history of RVI, and history of smoking were mentioned as risk factors by R. I. Clavijo., et al. [5]. Rare cases of primary infectious vasitis have been reported [7]. It is usually self-limiting and resolves spontaneously [4].

The initial diagnostic approach is with ultrasound [4]. Ultrasound is considered to be the gold standard for excluding conditions such as epididymitis, orchitis, and other diseases [10]. In Vasitis, color Doppler ultrasound shows a heterogeneously hypoechoic mass within the inguinal canal with increased vascularity [10]. However, some studies revealed equivocal ultrasound results, thus advocating the use of further imaging modalities [4]. Particularly ultrasound is less sensitive for distinguishing vasitis from incarcerated inguinal hernias [10]. Further imaging modalities are warranted and can be used if the ultrasound report is equivocal or does not correlate with the clinical findings [4]. A contrast CT scan is valuable and can provide detailed information on the anatomy of each case; thus, an incarcerated inguinal hernia can easily be identified by this technique [4,10]. Some have reported that MRI is a preferred modality over CT because it detects abnormal signals in and around the vas that indicate edema and inflammation [10].

The relevance of this case report is to show that acute inguinoscrotal conditions need careful evaluation to reach a specific diagnosis and avoid unnecessary emergency surgery along with its possible complications.

Case Report

A 40-year-old male patient presented with an 8 months history of intermittent right inguinal severe pain and swelling. Eight months back he was first seen at a nearby clinic where he was given analgesics and advised to come back if symptoms persist. After 7 months of symptom free period, he started to have severe inguinal pain and swelling went to the same facility. With suspicion of incarcerated inguinal hernia, he was immediately referred to a general surgeon for re-evaluation. The surgeon ordered an ultrasound which revealed acute vasitis. The patient took doxycycline for 7 days, azithromycin 500mg stat and analgesics and he showed improvement. But symptoms recurred after 02 weeks. On his second visit to the same surgeon, he was given ciprofloxacin 500mg PO BID for 07 days but didn't show any improvement. Finally, he was referred to us for urologist evaluation.

During our evaluation he was complaining about right groin pain and swelling. The pain was excruciating which worsened during physical activity and swelling comes at the end of an active day. At lying position and adequate rest the severity of the pain decreases and swelling disappears. He had intermittent similar 3 attacks for the past 8 months period; received antibiotics twice. He

is married, has no history of urinary complaints, no history of any procedure, no history of trauma, not involved in strenuous physical activity and has no history of dangerous sexual behavior. He has a history of STI 15 years back. No history of chronic medical illnesses like hypertension, diabetes, RVI, or bronchial asthma. No history of smoking.

On physical examination he was in pain and in distress. No visible groin mass; had right groin tenderness which made appreciating the mass difficult. No positive finding in other systems. All the CBC, urine analysis, and abdominopelvic ultrasound were unremarkable. Urine culture was also negative.

We sent him for pelvic and inguinoscrotal CT-Scan but because of the radiologist's recommendation an MRI was also done. Both CT-Scan (with some reservation by radiologist) and MRI revealed acutely inflamed vas deferens, vasitis.

After diagnosis of acute vasitis confirmed we started him on oral cephalixin and diclofenac. On the third day of initiation of treatment came to us for re-evaluation and claims showed marked improvement. The treatment continued for a total of 10 days and on the fourth month of follow up the patient had no pain or swelling; inguinoscrotal ultrasonography showed normal study.

Ultrasound, revealed thickening in the region of the spermatic cord and vas deferens on the right side, accompanied by increased Doppler flow. Additionally, bilateral inguinal lymph nodes were noted, appearing hypoechoic. Importantly, no abscess collection or mass was identified during the ultrasound evaluation.

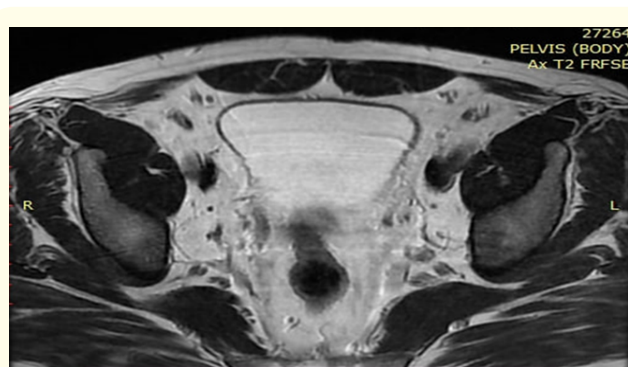


Figure 1: Inguinoscrotal MRI showing right edematous inguinal canal with vas deferens soft tissue stranding.

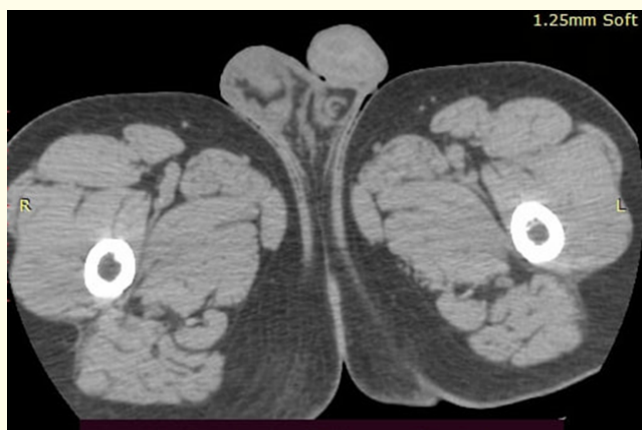


Figure 2: Axial CT scan showing right supra-spermatic cord nodular thickening with soft tissue strands and inflammatory changes.



Figure 3: Inguinoscrotal MRI showing right dilated vas deferens with wall thickening, inguinal canal edema and fat stranding seen adjoining the ipsilateral vesicles.



Figure 4: Axial MRI revealing enhancing right spermatic cord apex to vas deferens with inguinal lymph nodes.

Discussion

Vasitis or inflammation of the vas deferens has been classified by Chan and Schlegel as either asymptomatic vasitis nodosa, or acutely painful infective [1,3,5,6]. Vasitis nodosa is a chronic inflammatory disorder associated with obstruction of the vas deferens; this causes leakage of spermatozoa into the spermatic cord; and it is most common in patients who have undergone vasectomy [2,3,6]. In the majority of cases, vasitis nodosa requires no treatment [9]. In patients who are symptomatic, surgical resection of the involved area is generally curative [9].

Patients with acute vasitis may present with localized pain, swelling and/or a mass in and around the scrotal and groin area; [1,3,5,6] some patients may have fever and leukocytosis [1]. This can be confused with other conditions in an acute setting, such as an incarcerated inguinal hernia, epididymo-orchitis or even a testicular torsion [1,2,5]. Treatment is usually conservative with antibiotics without the need for surgical exploration [1-3,5].

Grossly, vasitis nodosa lesions are nodules measuring up to a little more than 1.0 cm in diameter and may exude a milky fluid on cross section. Microscopically, there is a proliferation of irregular small ductules that haphazardly infiltrate the wall of the vas or the interstitium of the epididymis [9].

The vas deferens is a highly muscular tube and the only structure in the body with its lumen thinner than the wall [9]. This implies that any pathology in it will cause increased resistance to the flow of its content [9]. Both conditions are characterized by proliferation of small ducts and gland-like structures in the walls of the vas deferens and epididymis in response to fluid and sperm dissection into the interstitium secondary to mechanical obstruction and increased intraluminal pressure [1,6]. They have similar histological features and pathogenesis [9]. These lesions are thought to be associated with tubular obstruction which results in increased luminal pressure, “blow out” injury and leakage of spermatozoa, causing a characteristic inflammatory reaction with excessive regeneration of the epithelial lining [5,9]. Ductal obstruction is commonly accompanied by extravasation of spermatozoa into the surrounding soft tissues, inducing an inflammatory response with formation of a sperm granuloma in up to 70% of cases [5,9]. Sperm granulomas are characterized by an initial influx of neutrophils that are replaced by epithelioid histiocytes and sometimes multinucleated giant cells, which engulf the extravasated spermatozoa [5,9]. Progressive fibrosis and deposition of ceroid pigment (remnants of spermatozoa) occur gradually [9].

Historically many cases of acute vasitis would find the diagnosis ultimately by surgery [2,3,5,6]. This is likely because of less readily available diagnostic adjuncts such as ultrasound, CT or magnetic resonance imaging (MRI) [3,10]. Compared with the traditional approach with only sonography, the more recent introduction of computed tomography in the diagnostic process has provided higher quality imaging and more detailed anatomy [4]. Currently the literature has recommended using CT or MRI to confirm the diagnosis [2,3].

MRI is the preferred modality to CT to detect vasitis as it would show a focal abnormal signal in and around the vas [4,10], as well as protecting those who pose a risk to ionizing radiation [3]. The MRI shows the oedema and inflammation were isolated in and around the spermatic cord [4,9]. Compared with the equivocal findings that CT scans may yield in unusual cases such as Amyand's hernia, inguinal herniation of mesenteric fat or cyst, MRI has higher values on soft tissues so that the tract of the vas deferens can be clearly traced from the seminal vesicle [4]. Vasitis must be considered in the differential diagnosis when a tubular inflamed structure (for e.g. Amyand's hernia) is radiologically identified inside the inguinal canal [11]. Even if characterized by many advantages, MRI is unfortunately still not readily applicable in the acute setting [4].

Based on the available literature, the majority of the reported vasitis can be resolved with the use of anti-inflammatories and antibiotics alone [1,3,6]. Surgical exploration and drainage may be necessary in more severe cases that are not responsive to antibiotic treatment; [1,6,7] or when other scrotal pathology, such as testicular torsion, is present [7].

This case presents a rare condition of recurrent vasitis which should not be missed in acute settings risking unnecessary emergency surgery.

Conclusion

Acute vasitis is a rare condition which is an infectious inflammatory condition of the vas deferens. It can potentially be a recurrent disease. It presents with acute onset of inguinoscrotal pain and swelling. Rarity of the condition and its presentation mimicking other common emergency surgical conditions such as incarcerated inguinal hernia as well as acute scrotum may lead to unnecessary emergency surgery and possible complication from

the surgery and/or anesthesia. High index of suspicion and proper imaging can avoid such mishaps. CT scan or preferably MRI play an important role in diagnosing this rare condition. In most cases, oral antibiotics and NSAIDs are the first line of management. Regarding optimal duration of antibiotics treatment and antibiotics choice, standard treatment guidelines should be developed.

Patient Consent

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

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Conflict of Interest

None.

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