Pediatrics

Acute vasitis presenting as a concerning paratesticular mass in an adolescent, a case report

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Abstract

The differential diagnosis of scrotal pain and swelling in adolescent males includes testicular and appendage torsion, epididymitis, epididymo-orchitis, trauma and incarcerated hernia. Physical examination, ultrasound and urinalysis often can identify the etiology of the scrotal pain and swelling. We present a case of left scrotal pain and swelling that was initially concerning for a paratesticular mass. Repeat examination and further imaging during pre-operative assessment was consistent with left-sided vasitis. The diagnosis of vasitis is difficult with ultrasound and commonly requires CT or MRI to differentiate from incarcerated inguinal hernia. Recognition of this uncommonly reported condition may prevent unnecessary surgeries.

Introduction

Acute vasitis, inflammation of the vas, is an uncommonly reported condition that presents similarly to other causes of an acute scrotum. In contrast to vasitis nodosa (a common, asymptomatic condition in men with a history of vasectomy), acute vasitis is most commonly attributed to ascending infection of common urogenital pathogens such as E. coli. Funiculitis, inflammation of the spermatic cord, is an overlapping condition when caused by extension of inflammation of the vas. Reports of vasitis typically do not distinguish extent of inflammation, making vasitis the more commonly used term in the identified literature.

Case presentation

A 14-year-old male presented to the emergency department with a complaint of left testicular pain and swelling of 48 hours duration. The pain was described as throbbing and aching, “as if he had been kicked in the testicle”, but without a history of trauma or heavy lifting. He reported the pain as progressive, 7 out of 10 severity, worse when walking, and improved with resting. He denied dysuria, frequency, urgency, fevers, nausea, vomiting, or other symptoms. Relevant past medical history included a left inguinal hernia that was surgically corrected at 12 months of age. On physical exam the patient was uncircumcised with phimosis and the left hemiscrotum was larger than the right, erythematous, and had a soft mass tender to palpation extending into the inguinal region. The urinalysis was positive for 2–5 rbc’s/hpf, 10–25 wbc’s/hpf and 2–7% bacteria.

Ultrasound doppler showed normal and symmetric blood flow to the testes. The left testis volume was estimated at 17.8 mL with a ±7% differential in volume from the right. The left inguinal canal was wider than the right with a small hydrocele in the scrotum. The epididymal head was mildly hypervascular, but otherwise unremarkable. A 6.5 cm × 3.0 cm heterogenous, predominantly hyperechogenic and hypervascular supratesticular mass was identified extending into the distal portion of the left inguinal canal (Fig. 1). These findings were reminiscent of herniated omentum and collapsed bowel, but no peristalsis was demonstrated and no connection to the abdominal cavity could be demonstrated. A CT scan was obtained which excluded an incarcerated hernia and confirmed the supratesticular lesion and left spermatic cord thickening (Fig. 2). CT scan also revealed ipsilateral renal agenesis. There were no identifiable stigmata of lower urogenital tract anomalies such as seminal vesicle cysts or congenital absence of the vas deferens, but such anomaly cannot be completely excluded.

Urinalysis suggested a possible infectious cause of his symptoms, so the patient was given 1000 mg of ceftriaxone IV and was prescribed sulfamethoxazole-trimethoprim 800-160 mg PO BID x 7 days before discharge to home. The urine culture eventually grew E. coli, pansensitive. Due to concerns of a possible malignancy he was scheduled for further evaluation with a CT scan of the abdomen and pelvis. Ultrasound doppler of the left testis demonstrated normal and symmetric blood flow to the testis. After reviewing the imaging and the patient’s clinical course, it was determined that the persistent left haemiscrotum was likely due to a possible incarcerated hernia.

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for biopsy of the lesion. However, on presentation the morning of surgery after 5 days of antibiotic therapy, evaluation in the pre-operative area showed a marked clinical improvement in the patient’s condition. Ultrasound with doppler of the scrotum was repeated and showed the “mass” had significantly reduced in size and showed near complete resolution of the previously noted hypervascularity. An additional follow up ultrasound demonstrated resolution of the mass (Fig. 3). The patient underwent elective circumcision due to phimosis and documented history of UTI.

Discussion

We identified three published cases of acute, symptomatic vasitis in pediatric patients through a PubMed search.\textsuperscript{1,2} Of the three cases, two were related to lower urological anomalies and one presented with concurrent epididymitis. The reported lower urological anomalies were a hypospadias with bifid scrotum and posterior urethral valves with a Mullerian duct remnant.\textsuperscript{2} Ipsilateral renal agenesis has an association with ectopic vas deferens insertion, which has been reported to present with scrotal infections.\textsuperscript{3} No lower urological anomaly could be identified on this patient’s imaging, although further urologic evaluation such as voiding cystourethrography was not completed due to resolution of the complaint.

With a lack of urinary symptoms at the time of presentation, the positive urine culture was consistent with possible asymptomatic bacteriuria and non-infectious etiologies for the scrotal mass were considered. The patient’s clinical course and response to antibiotics were suggestive of an infectious etiology, and the urine culture was

Fig. 1. A. Longitudinal US scan though the cephalic pole of the left testicle shows a normal size, although mildly hypervascular left epididymal head (dashed arrows). B. Longitudinal US scan through the distal portion of the left inguinal canal shows a thickened, markedly hypervascular left spermatic cord (arrows). The intervening fat shows marked increase in echogenicity consistent with inflammatory change.

Fig. 2. Coronal (A), sagittal (B) and axial (C) contrast enhanced CT images show a thickened left spermatic cord with stranding of the intervening and surrounding fat, distally (curved arrows) more than proximally (straight arrows). No left inguinal hernia is present. Notice the normal size and appearance of the right spermatic cord (arrowheads).
retrospectively presumed to represent a UTI.

Scrotal or inguinal ultrasound is the most common initial radiologic evaluation. Commonly reported ultrasound findings in acute vasitis include a heterogeneous, hypoechoic spermatic cord, echogenic surrounding fat, and hypervascularity of the vas deferens. In cases where the diagnosis is unclear, CT is frequently obtained. CT findings include thickening of the vas deferens, edema of the spermatic cord, and peripheral fat stranding. The literature supports use of either CT or MRI for further delineation of the anatomy and to exclude an incarcerated inguinal hernia. Previous work has demonstrated that vasitis can be diffuse or focal and confined to segments of the vas deferens. In the presented case, inflammation was localized to the distal vas deferens. This feature was suggestive of a paratesticular mass on CT imaging. Although MRI has the advantage of not exposing the child to radiation, the availability of CT in the acute setting led to its use in this patient as well as previously reported cases.

We report a case of infectious vasitis in a 14-year-old male presenting with a left paratesticular mass and asymptomatic urinary tract infection. Unlike other reported cases of vasitis in children, this child did not have identifiable lower genitourinary tract abnormalities or symptomatic epididymitis/orchitis. Exclusion of common causes of scrotal pain and swelling such as testicular torsion, epididymitis, epididymo-orchitis and incarcerated hernia is critical. Further radiologic evaluation with MRI or CT scan is recommended to confirm the diagnosis of acute vasitis and avoid the unnecessary surgical explorations and orchiectomies that have been reported. Urinalysis and culture are important clues to etiology and close monitoring is essential if a concern is raised for a solid neoplasm, such as rhabdomyosarcoma.

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Declaration of competing interest

None.

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