



Pediatric intratesticular abscess managed with a testicular sparing approach: A case report

Kelly Lurz^{a,*}, Shana Santarelli^b, Shaun Hager^a, Ahmad Bani Hani^c

^a Maine Line Health, Department of Urology, Wynnewood, PA, USA

^b Philadelphia College of Osteopathic Medicine, Philadelphia, PA, USA

^c Alfred I. duPont Hospital for Children, Wilmington, DE, USA

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ABSTRACT

Intratesticular abscess is a rare finding associated with advanced or untreated epididymo-orchitis, often in immunocompromised patients. Implicated pathogens can be spread hematogenously, by urine reflux in dysfunctional voiders, through aberrant mesonephric duct anatomy, or via a patent processus vaginalis in the setting of an intra-abdominal infection. A testicular-sparing surgical approach is often used in prepubertal populations and is associated with positive outcomes. We present the case of a 6-year-old male with a polymicrobial intratesticular abscess that was successfully managed with antibiotics, operative incision and drainage of abscess cavity, and primary wound closure with drain placement.

1. Introduction

Intratesticular abscess is rare in the pediatric population. However, it should be considered in the workup of acute scrotal pain as 5.5% of untreated or advanced epididymo-orchitis can result in abscess formation.¹ Risk factors for intratesticular abscess formation are not well described, however, epididymo-orchitis has a known relationship with dysfunctional voiding and aberrant mesonephric duct development.² Specifically, an ectopic ureter with insertion in to the seminal vesicle, posterior urethra, prostatic utricle or ejaculatory duct may lead to recurrent epididymo-orchitis.² Another, less common, cause of epididymo-orchitis is bacterial translocation through a patent processus vaginalis in the setting of an intra-abdominal infection.

Treatment of an intratesticular abscess begins with empiric broad spectrum antibiotic therapy. The need for an orchiectomy is rare, as demonstrated by Banyra et al. who reported successful management with incision and drainage in 88.5% of patients.³ However, historical reports described orchiectomy rates as high as 50% when scrotal exploration was performed.¹ This is of particular importance as a testicular-sparing approach is preferred in the pediatric population.

2. Case presentation

A 6-year-old boy with no significant past medical or surgical history

presented to the emergency department with left lower abdominal pain for 2 days. He denied urinary symptoms. He was afebrile and a physical exam revealed a soft and nontender abdomen with localized tenderness over the superior and lateral aspect of the left testicle. The scrotum was otherwise normal. Urinalysis showed no abnormalities. Scrotal ultrasound displayed normal bilateral testicular parenchyma with normal arterial and venous flow. The left epididymis was enlarged with increased blood flow and reactive hydrocele. An initial diagnosis of possible torsed appendix testis versus sterile epididymo-orchitis was made. The child was discharged home with instructions to limit physical activity for 5 days and to use ibuprofen for pain as needed. Final urine culture showed no growth.

Eight days later, he returned with worsening scrotal pain and swelling. Repeat scrotal ultrasound (Fig. 1) revealed a 4cm large, complex, hypoechoic collection within the left testis. He was started on broad spectrum antibiotics (ceftriaxone and vancomycin) and taken emergently for scrotal exploration. A midline scrotal incision was made. The tunica vaginalis was densely adherent to the tunica albuginea and the testicle was entered. Copious purulent material was immediately drained from the testicular cavity (Fig. 2). The abscess cavity was copiously irrigated and left open. A Jackson Pratt drain was placed in the left hemiscrotum. Primary closure of scrotal incision was performed using 3-0 prolene retention sutures. Postoperative renal bladder ultrasound was performed and revealed a duplicated left kidney with mild

* Corresponding author. 100 E Lancaster Ave, Wynnewood, PA, 19096.

E-mail address: LurzK@mlhs.org (K. Lurz).

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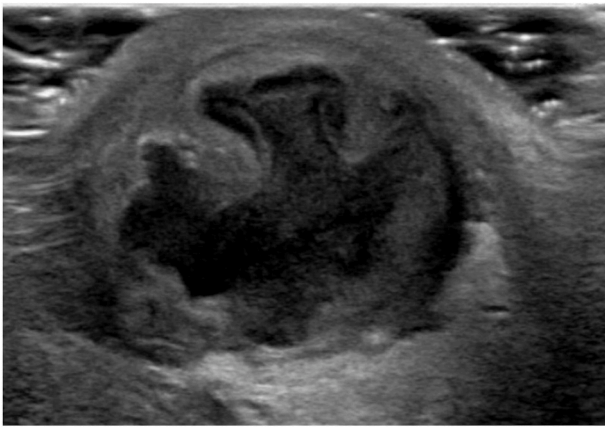


Fig. 1. Scrotal ultrasound revealing a 4 cm large, complex, hypoechoic collection within the left testis.

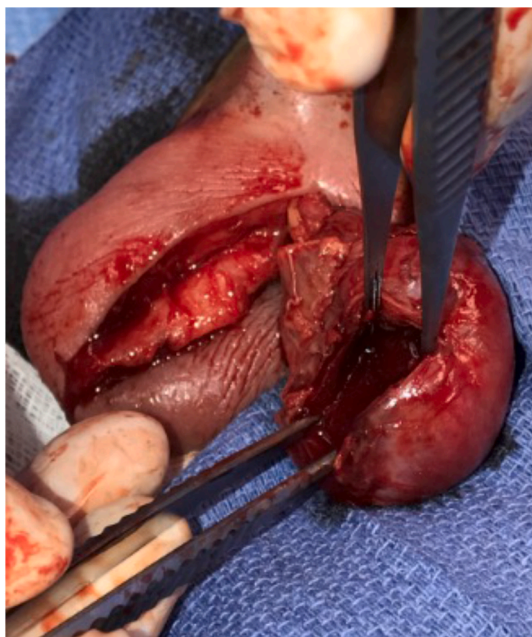


Fig. 2. Left testicular abscess cavity.

cortical thinning of the lower pole, a normal upper pole moiety, a normal right kidney, and scant debris within the urinary bladder. His drain was removed on postoperative day 3. Culture of the intratesticular abscess ultimately grew *Bacteroides fragilis*, *Parvimonas micra*, *Escherichia coli*, and *Streptococcus anginosus*. Based on antibiotic sensitivities, he completed a 14-day course of oral Amoxicillin clavulanate. He was seen 2 months later for follow-up. His scrotal exam was normal and scrotal ultrasound revealed a scalloped, slightly smaller left testis with normal arterial and venous flow (Fig. 3).

3. Discussion

Management of intratesticular abscess can be conservative or with surgical intervention. Antibiotic therapy alone may be adequate, but patients should be monitored with serial scrotal exams and ultrasounds to ensure resolution.^{3,4} Antibiotic regimen should be broad-spectrum covering for anaerobic and aerobic bacteria, as both have been implicated. Banyra and Shulyak reported that 100% of adult patients in their study with acute epididymo-orchitis and testicular or epididymal abscesses >0.5cm in greatest dimension required surgical intervention, as



Fig. 3. Scrotal ultrasound 2 months postoperatively showing a scalloped but otherwise normal left testis.

our patient did.³

Source control of testicular abscesses can be via complete or partial orchiectomy, open incision and drainage as in our patient's case, or percutaneous aspiration and drain placement. Ideally, the testes should be preserved if possible, especially in the prepubertal population. The first documented testicular-sparing approach of intratesticular abscess was in a 35 year-old male in 1982.⁴ Since, many reports of this technique have been made.^{1,3,5} Banyra and Shulyak reported that 79.2% of patients who required surgical intervention for acute epididymo-orchitis with abscess were successfully treated with a testicular sparing approach.³ Primary versus secondary closure success rates remain ambiguous for this disease process. One report from Prajapati et al. comparing 2 adult men who underwent either primary or secondary closures following open incision and drainage of testicular abscesses showed that both approaches resulted in positive outcomes obviating orchiectomy.⁵

We presented a case of pediatric polymicrobial intratesticular abscess formation after advanced sterile epididymo-orchitis. Management must include antibiotic therapy and, in most cases, source control with abscess drainage or testicular sparing surgery. It is paramount to administer empiric antibiotics to treat both aerobic and anaerobic organisms and to act promptly to maximize testicular parenchyma preservation. Our patient underwent open incision and drainage with primary closure and had successful outcomes based on sonographic appearance of the testicle at 2 months postoperatively. Ultimately, long term data needs to be compiled to develop standardized recommendations for intratesticular abscesses.

4. Conclusion

Although rare, testicular abscesses may occur in otherwise healthy patients with untreated or advanced epididymo-orchitis and should be considered when scrotal ultrasound is grossly abnormal. Antibiotic coverage of both anaerobic and aerobic pathogens should be initiated along with a testicular-sparing surgical approach if possible.

References

- Desai KM, Gingell JC, Haworth JM. Localised intratesticular abscess complicating epididymo-orchitis: the use of scrotal ultrasonography in diagnosis and management. *BMJ*. 1986;292(6532):1361–1362. <https://doi.org/10.1136/bmj.292.6532.1361>.
- Dudek-Warchoł T, Szmigielska A, Krzemiński G, Warchoł S. Ectopic ureter, renal dysplasia, and recurrent epididymitis in an infant: case report and review of the literature. *Clinical Case Reports*. 2014;2(1):7–9. <https://doi.org/10.1002/ccr3.36>.
- Banyra O, Shulyak A. Acute epididymo-orchitis: staging and treatment. *Central European Journal of Urology*. 2012;65:139–143. <https://doi.org/10.5173/cej.2012.03.art8>.
- Biswas S, Basu G. Causes & management of testicular abscess: findings of a study on eleven patients. *IOSR-JDMS*. 2013. 2013;9(1):26–30. <https://doi.org/10.9790/0853-0912630>.
- Prajapati DK, Rampal K, Prajapati JM. Review of aetiology and management of testicular abscess and case reports on testicle sparing management of testicular

abscess. *International Journal of Integrative Medical Sciences*. 2016;3(7):332–336.
<https://doi.org/10.16965/ijims.2016.132>.