Pediatrics

Non-traumatic testicular rupture following episode of epididymo-orchitis

Christopher T. Brown a,*, Joseph C. Wan b, Daniel G. DaJusta a

a Nationwide Children’s Hospital, Columbus, OH, USA
b The Ohio State University, Columbus, OH, USA

1. Introduction

Epididymo-orchitis is not uncommon in pediatric patients, and typically responds well to conservative treatment and antibiotics without additional sequelae. Testicular rupture is most commonly associated with testicular trauma, but has been reported in the adult population. We report the first case to our knowledge of non-traumatic, spontaneous testicular rupture in a pediatric patient being treated conservatively for epididymo-orchitis.

2. Case presentation

A 17 year old male with no significant past medical or surgical history was transferred to our institution with six days of progressive right testicular pain, nausea and fevers to 102.6°F. Blood and urine cultures were drawn at the outside facility prior to administration of ceftriaxone and transfer. In our emergency department physical exam revealed an enlarged right testicle, diffusely tender to palpation without any induration or fluctuance. He was tachycardic to 126, had a WBC of 16.4, and scrotal ultrasound demonstrated acute right epididymo-orchitis without evidence of abscess or other drainable collection. He reported an upper respiratory infection 2 weeks previously with associated left facial swelling. The patient denied any prior sexual activity or illicit drug use. He was admitted for administration of IV antibiotics. His pain improved, fevers resolved and physical exam remained stable. Urine culture from outside facility eventually grew >100,000 cfu/mL pan-sensitive E. Coli. Qualitative PCR for Mumps RNA was negative. Seventy-two hours after admission, a scrotal ultrasound was repeated to ensure stability prior to discharge, again demonstrating a hyperemic right testicle and epididymis without abscess. He was discharged home with a 10 day course of levofloxacin.

He returned to our office 3 weeks later for repeat examination with a follow-up scrotal ultrasound. His pain and swelling continued to improve after discharge. He denied any genital trauma. Physical exam showed enlargement of right testicle that was decreased since discharge, with a new, small area of fluctuance. The scrotal ultrasound showed a heterogeneous testicle with evidence of necrosis and extrusion of intratesticular tissue through a defect in the tunica albuginea (Fig. 1). As we could not identify precisely when the testicular rupture had occurred, and due to the concern for possible development of infection, we elected to proceed with surgical exploration to increase chances of testicular salvage and decrease the likelihood of delayed orchiectomy. At time of exploration, there was a significant inflammatory reaction surrounding the right testicle, and the inflamed tunica vaginalis was dissected off the testicle with some difficulty. There was a distinct, round defect in the lateral aspect of the tunica albuginea, approximately 1cm in diameter with extrusion of necrotic intratesticular tissue. This defect was extended cephalad, and the necrotic tissue debrided. There was viable testicular tissue remaining, so we elected to repair the tunical defect rather than performing an orchiectomy. After copious irrigation, the tunica albuginea was closed and a ¼ inch Penrose drain was placed in the dependent portion of the scrotum and secured to the skin with chromic suture. The testicle

* Corresponding author. 700 Children’s Drive, Columbus, OH, 43205, USA.
E-mail address: Christopher.brown@nationwidechildrens.org (C.T. Brown).

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was returned to the right hemiscrotum, secured with two 4-0 vicryl sutures, and the overlying dartos and skin was loosely reapproximated with absorbable suture. Pathology revealed necrotic seminiferous tubules.

The patient was observed overnight, and discharged home the following day with a 10-day course of levofloxacin. The Penrose drain was removed in clinic on POD#4. He returned 6 weeks later for repeat examination, renal ultrasound and VCUG. His pain and scrotal swelling had completely resolved, and he had no voiding complaints. His incision was well healed. The right testicle was slightly smaller than the left, but otherwise there were no abnormalities on physical exam. Renal ultrasound and VCUG were normal. He will follow up as needed.

3. Discussion

Epididymo-orchitis in the pediatric population is not uncommon, and most often is diagnosed clinically based on physical exam and Doppler ultrasound findings from a scrotal ultrasound. Conservative treatment with analgesics and antibiotics has been shown to be a safe and acceptable initial management strategy. Pediatric testicular rupture is rare, and most commonly associated with trauma. Non-traumatic testicular rupture secondary to epididymo-orchitis is far less common. Even in the adult population only a few case reports exist, which describe the testicular rupture as a sequela of testicular infarction from the infection. This is theorized to result from compression of the testicular vessels by inflammation and swelling of the epididymis. In addition, endothelial damage from bacterial toxins resulting in venous thrombus has also been reported to contribute. In most reported cases, patients experienced progression of pain, scrotal swelling or purulent drainage from the scrotum prior to documentation of testicular rupture. The testicular rupture in our patient was not heralded by worsening of his symptoms; to the contrary he was clinically improving prior to the finding of testicular rupture. Unfortunately, standard clinical evaluation with physical exam, laboratory evaluation, and Doppler imaging do not reliably predict which patients with epididymo-orchitis are at risk for developing infarction and subsequently testicular rupture. Close follow up and repeat imaging are important in making the diagnosis, which can then be confirmed intraoperatively. Timely recognition of testicular rupture is important; delayed diagnosis can lead to sepsis, testicular atrophy, necrosis or loss, chronic pain and infertility. While 1/3 of patients managed nonoperatively may experience testicular salvage, approximately half will eventually require surgery for pain, infection, or delayed orchiectomy. Despite our patient’s clinical improvement we felt that his atypical presentation and concern for development of infection warranted surgical exploration rather than continued observation. Clinical awareness and expedient intervention in this instance resulted in successful surgical debridement and avoidance of orchiectomy.

4. Conclusion

Here we report a rare case of testicular rupture secondary to epididymo-orchitis in a pediatric patient, as well as the results of our management. This represents an uncommon but significant sequela of epididymo-orchitis, of which clinicians should remain aware.

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