

## Case – Vas deferens injury after herniorrhaphy leading to epididymal blowout in a pediatric patient

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Cite as: White J, MacNevin W, Romao RLP. Case – Vas deferens injury after herniorrhaphy leading to epididymal blowout in a pediatric patient. *Can Urol Assoc J* 2023;17(9):E288-90. <http://dx.doi.org/10.5489/cuaj.8316>

Published online July 11, 2023

### KEY MESSAGES

- Injury to the vas deferens during pediatric herniorrhaphy can lead to obstruction, which may result in subsequent epididymal blowout.
- In pediatric patients with prior herniorrhaphy, epididymal blowout should be on the differential diagnosis for testicular pain.
- Thorough communication with radiology regarding clinical history and patient symptoms in cases of testicular pain may lead to optimal imaging and avoidance of unnecessary surgery.

### INTRODUCTION

Epididymal blowout is a potential complication following vasectomy, wherein increased pressure within the tubules of the epididymis results in rupture and leakage of sperm into the surrounding tissue.<sup>1</sup> This may lead to inflammation of the epididymis, causing testicular pain, as well as difficulty with urination and sexual activity. The severity of epididymal blowout pain can vary depending on the extent of damage to the epididymis and ranges from mild to severe pain that interferes with daily activities.

Another potential cause of obstruction is inguinal herniorrhaphy, which carries a risk of iatrogenic obstruction of the vas deferens.<sup>2</sup> If bilateral, these patients may present in adulthood with infertility. These patients may be complex to manage from a fertility standpoint, as the level of obstruction is typically at the external or internal inguinal ring. Further complicating fertility potential, many of these patients may have experienced epididymal blowout, which necessitates vasoepididymostomy (VE) for attempts at natural conception in the future.<sup>1,2</sup>

Epididymal blowout is well-recognized as a cause of acute and chronic scrotal pain in adult patients following vasectomy, although there is a paucity of literature describing this phenomenon in pediatric patients.<sup>3</sup> Herein, we present a pubescent 13-year-old patient who presented with epididymal blowout 10 years following herniorrhaphy wherein injury to the vas was documented. Informed consent by the patient to publish the details of this case was obtained.

### CASE REPORT

A 13-year-old male patient presented to the emergency department (ED) with severe, sudden-onset, right-sided testicular pain that awoke him from sleep. This had occurred intermittently in the preceding three months, although this was the first time he sought medical attention. Ultrasound was performed, however, the pain had subsided and color Doppler ultrasound demonstrated normal vascular flow. There was a 2 mm area of linear echogenic foci at the level of the epididymis with uncertain significance. The urine culture obtained was sterile. The patient was diagnosed with presumed intermittent testicular torsion with a plan for semi-urgent outpatient bilateral orchidopexy.

The patient returned to the ED prior to outpatient surgery with another episode of acute, right-sided testicular pain. Ultrasound was performed while the patient was experiencing acute pain and normal vascular flow was identified. A thorough physical examination was repeated, and it was found that there was focal tenderness at the caudal epididymis. There was no testicular tenderness. A review of the patient's medical records demonstrated that the patient had a history of right open inguinal herniorrhaphy/hydro-

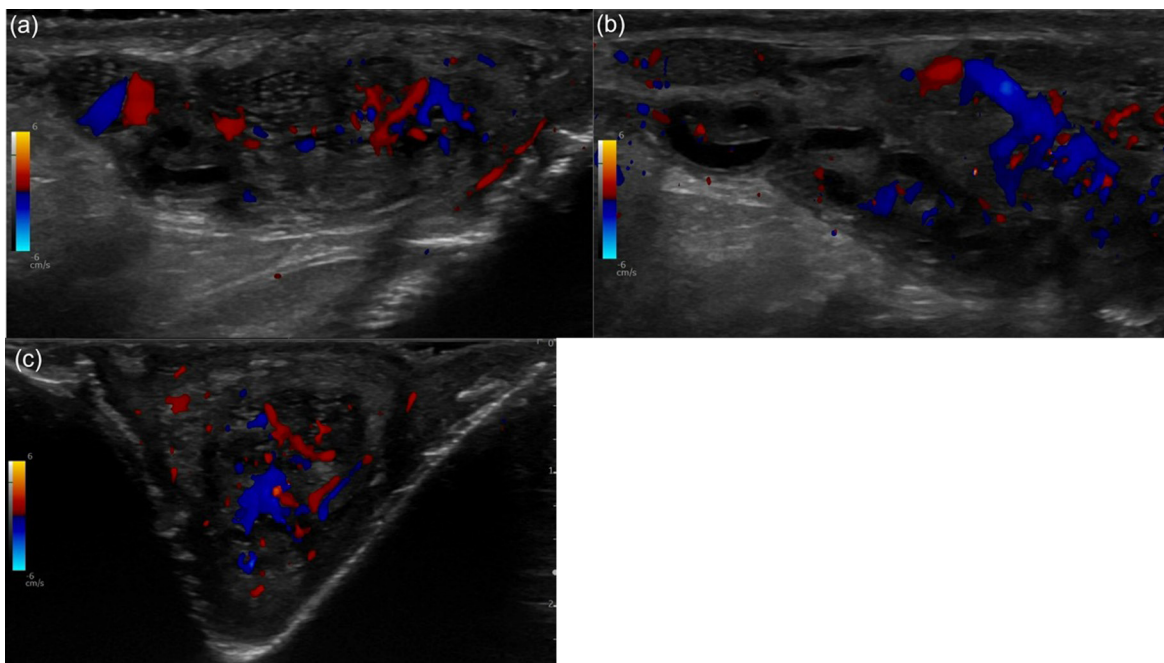
cele repair when the patient was three years old, wherein the vas was transected and repaired with 6-0 monocryl without the use of a surgical microscope.

A scrotal ultrasound was repeated with a focus on the epididymis, which demonstrated enlargement of the right epididymis with hyperemia on Doppler examination (Figure 1). Epididymal ectasia was identified. The right epididymis was enlarged and showed a speckled appearance with numerous dilated tubules. These findings were suggestive of epididymal ectasia likely secondary to spermatic cord obstruction. The patient was Tanner stage 3–4 of development. These findings, in conjunction with the clinical history, favored a change in the primary diagnosis from torsion to an epididymal blowout. We hypothesized this was secondary to intratubular pressure from increased sperm production leading to epididymal blowout and leakage of sperm resulting in an inflammatory, painful response. Anti-inflammatories were prescribed, along with conservative measures to control the discomfort, including scrotal support and cold compress. At six-month followup, the patient had experienced three additional minor pain episodes that resolved with anti-inflammatories and ultrasound showed no change in findings from previous.

## DISCUSSION

There are a few key takeaways that the authors want to highlight. Firstly, in patients presenting with an acute scrotum with a history of inguinal herniorrhaphy, clinicians should consider epididymal blowout as a rare but almost certainly underreported pathology.<sup>2,4</sup> A thorough surgical history should be obtained in all patients presenting with an acute scrotum. Ultrasound findings in equivocal cases of acute scrotum are helpful in identifying blood flow to the testis.<sup>5</sup> We would also recommend reviewing the epididymis to evaluate for epididymal rupture. This may or may not be associated with changes in flow, including inflammatory hyperemia, at that level of the epididymis.<sup>5</sup> Although the exact cause of acute pain in this patient 10 years after herniorrhaphy is unclear, we hypothesize that increased intratubular pressure related to sperm production associated with entering puberty may have contributed to this presentation.

The importance of reviewing images with radiology cannot be overstated. Providing the radiologist with a thorough clinical history improves the diagnostic yield of investigations.<sup>6</sup> Pertinent elements of the patient's history were reviewed at the time of the second ultrasound, where they were able to then target the epididymis more effectively. The diagnosis of recurrent epididymitis was found to be less likely as focal tubular ectasies were appreciated, in keeping



**Figure 1.** (a, b) Longitudinal view of right epididymal tail. (c) Transverse view of right epididymal tail: Doppler ultrasound imaging demonstrating enlargement of the right epididymis with hyperemia, ectasia, and dilated tubules.

with obstruction, compared to a global tubular inflammatory response seen with recurrent epididymitis. In this patient's case, the diagnosis of epididymal blowout avoided unnecessary bilateral orchidopexy, which would have placed the contralateral vas deferens at risk of injury with the potential risk to the patient's fertility.

Another important learning point relates to the initial primary repair of the vas. While there are varying approaches during microsurgical vasectomy reversals, typically 10-0 and 9-0 nylon sutures are used in North America to perform the anastomosis.<sup>7</sup> An infant vas is going to be roughly 50% of the size of adult vas deferens, and consultation with a male infertility specialist trained in microsurgical techniques should be considered. Intraoperative repairs may be attempted, although long-term patency of microsurgical anastomosis performed in pediatric patients with iatrogenic vasal injury is unknown.

The management of epididymal blowout is drastically different from testicular torsion. There are a few different treatment options for epididymal blowout pain. If the pain is mild, it may resolve on its own over time. Some patients find relief from over-the-counter anti-inflammatories. Cold compresses applied to the affected area may also help reduce swelling and pain. If the pain is more severe or does not resolve on its own, patients may ultimately require more invasive surgical management, which may involve epididymectomy.<sup>3,8</sup>

From a fertility standpoint, only one side was documented to be injured. His physical examination was otherwise normal, with age-appropriate-sized testicles. After a discussion with the patient and his family, we elected to forgo fertility assessment. In the event the patient did have obstructive azoospermia from bilateral hernia repair, natural conception may be extremely challenging given the complexity of the repair from the large length of vas lost. Such cases should be referred to urologists with microsurgical expertise.

## CONCLUSIONS

Epididymal blowout is the result of increased tubular pressure from downstream obstruction. The obstruction is most commonly secondary to vasectomy, although pediatric herniorrhaphy with vasal injury is another potential cause of blockage. To our knowledge, this is the first reported case of epididymal blowout in a pubescent patient. We suspect that this is an under-reported phenomenon. Acute management of pain involves conservative measures with over-the-counter anti-inflammatories as needed.

COMPETING INTERESTS: The authors do not report any competing personal or financial interests related to this work.

This paper has been peer-reviewed.

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