

CASE REPORT

Pediatrics

A case of torsion of the undescended testes

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Abstract

Abdominal pain and vomiting are common presenting symptoms in young children, and there are a myriad of differential diagnoses ranging from benign to life-threatening. We present the case of a 20-month-old boy who came to the emergency department with abdominal pain, fever, and vomiting. Initially, he was thought to have intussusception with a necrotic lead point based on clinical signs, laboratory findings, and ultrasonography, but was taken to the operating room after air enema failed to demonstrate an intussusceptum. He was ultimately diagnosed with torsion of an undescended testicle. Few cases of torsion of the undescended testes are reported in literature.

KEYWORDS

abdominal pain, emergency department, intussusception, pediatric, testicular torsion, undescended testes (cryptorchidism), vomiting

1 | INTRODUCTION

Cryptorchidism (undescended testis [UDT]) is one of the most common congenital disorders in pediatrics. UDT is reportedly 10 times more likely to torsion, although there are only a few published cases of UDT torsion. It is very important to perform adequate genitourinary examinations, including a testicular examination in the emergency department (ED), as this may prevent missing the diagnosis. We present a rare case that illustrates torsion of the undescended testes.

2 | CASE REPORT

A 20-month-old boy presented to the ED with a 2.5-day history of abdominal pain, crying, tactile fevers, and 5 to 6 episodes of non-bloody, non-bilious vomiting. He was having a normal number and caliber of bowel movements. He had no surgical history.

Initial vital signs were temperature, 38°C; heart rate, 149; blood pressure, 119/88; respiratory rate, 30; and oxygen saturation, 99% on

room air. Physical examination revealed an inconsolable infant who appeared well hydrated with an unremarkable cardiovascular and pulmonary exam. Abdominal exam was notable for soft, rounded, non-distended abdomen with generalized abdominal tenderness to palpation with no evidence of guarding, rebound, or peritoneal irritation. Genitourinary exam was notable for uncircumcised, normal penis, and testicular exam was notable for lack of mass, tenderness, or swelling and no change in scrotal color. The presence of 2 separate testes was not documented. Skin exam was notable for residual hyper-pigmented papules, as the patient had been diagnosed with chickenpox a month prior.

There was concern for intussusception, and an immediate abdominal ultrasound was ordered. The ultrasound results stated, "Right lower quadrant intussusception, difficult to determine if this is ileocolic or small bowel. No flow in the intussusceptum, and there is an adjacent fluid-filled bowel loop containing an avascular isoechoic structure with central fluid, which may represent a necrotic polyp. Overall, the findings are concerning for intussusception with lead point and ischemia to the intussusceptum, and surgery consultation is recommended" (Figure 1). Surgery was consulted at that time and additional blood tests—complete blood count (CBC), comprehensive metabolic panel (CMP),

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FIGURE 1 Ultrasound of the right lower quadrant (RLQ) demonstrates a targetoid structure that measures ≈ 3.0 cm in axial dimension. This structure appeared to have some gut signature

lactic acid, C-reactive protein (CRP), coagulation panel (PT/PTT), and a urine analysis (UA)—were ordered.

White blood cell count was 16.9, hemoglobin was 10.2, platelet count was 386, lactic acid was 1.2, CRP was 2.2, PT/PTT were 15.1/34.2, and CMP was unremarkable with the exception of CO_2 of 17. UA was unremarkable with the exception of ketonuria.

The patient was evaluated by the surgery team who recommended an immediate air enema. Air enema was attempted with the following results: "No definite intussusception was encountered. Air was instilled into the colon to the proximal ascending colon, but progressed no further retrograde, and did not reflux into small bowel" (Figure 2). "Multiple attempts were made to reduce the suspected intussusception. However, air was not seen to enter the small bowel or the cecum."

The patient was then taken to the operating room after the failed air enema for diagnostic laparotomy. Intraoperatively, the small bowel and colon were found to be grossly normal; however, the right testes were found to be undescended and torsed; testes appeared enlarged, and epididymis appeared ischemic (Figure 3). Decision was made to resect and send for pathology.

3 | DISCUSSION

Cryptorchidism (UDT) is a common childhood condition where the testes are not located in the scrotum. It is one of the most common congenital disorders in boys, affecting 2% to 4% of full-term and up to a third of preterm male infants.¹⁻³ UDT may be located within the abdomen, the inguinal canal, the superficial inguinal pouch, or the upper scrotum. Orchiopexy is recommended in UDT by the first year of age.¹

Testicular torsion is a surgical emergency in which the testes twist around the spermatic cord, causing decreased blood flow and ultimately tissue death.⁴ Few cases of torsion of the UDT have been reported in the literature.¹ According to the limited data, UDT is at



FIGURE 2 Coronal image during air enema demonstrates air from the rectum to the mid ascending colon. No intussusception was encountered, but air did not reflux into the small bowel during the course of the enema

≈ 10 times higher risk of torsion.⁵⁻⁹ The pathophysiology behind the increased risk is poorly understood; some hypothesize that it relates to the inability of the spermatic cord to fully extend, and others posit that the increased weight of the UDT predisposes torsion. In the descended testes, patency of the vaginal process is associated with torsion. In 1 study of 85 patients with UDT, all abdominal testicles had a patent vaginal process.¹⁰

Management of torsion of the UDT is similar to that of the descended testes: surgical detorsion within 6 hours to prevent necrosis of tissue. Constitutional symptoms are consistent with those of descended torsion: abdominal pain, malaise, and nausea or vomiting. Physical exam findings (namely, swelling) depend on the location of the UDT. Approximately 70% of UDT are palpable; the remainder is found within the inguinal-scrotal area or is intra-abdominal.^{2,10,11} UDT torsion should be considered in all children with appropriate symptomatology and an empty ipsilateral hemiscrotum.¹ Color Doppler imaging may demonstrate edema and decreased flow and may also rule out alternative diagnoses. Computed tomography, magnetic resonance imaging, or technetium (Tc-99m) scrotal scintigraphy may aid in diagnosis but should not delay time-sensitive definitive surgical management.¹

Intussusception is a consequence of intestinal in-folding, most commonly where the ileum enters the cecum.¹² It occurs most often in male children aged 5 to 18 months.¹² Symptoms include intermittent abdominal pain and nausea/vomiting. Diagnosis is made with imaging, generally ultrasound with the classic "target sign"—usually ≈ 3 cm in diameter—confirming diagnosis.¹² Treatment is enema (barium, water

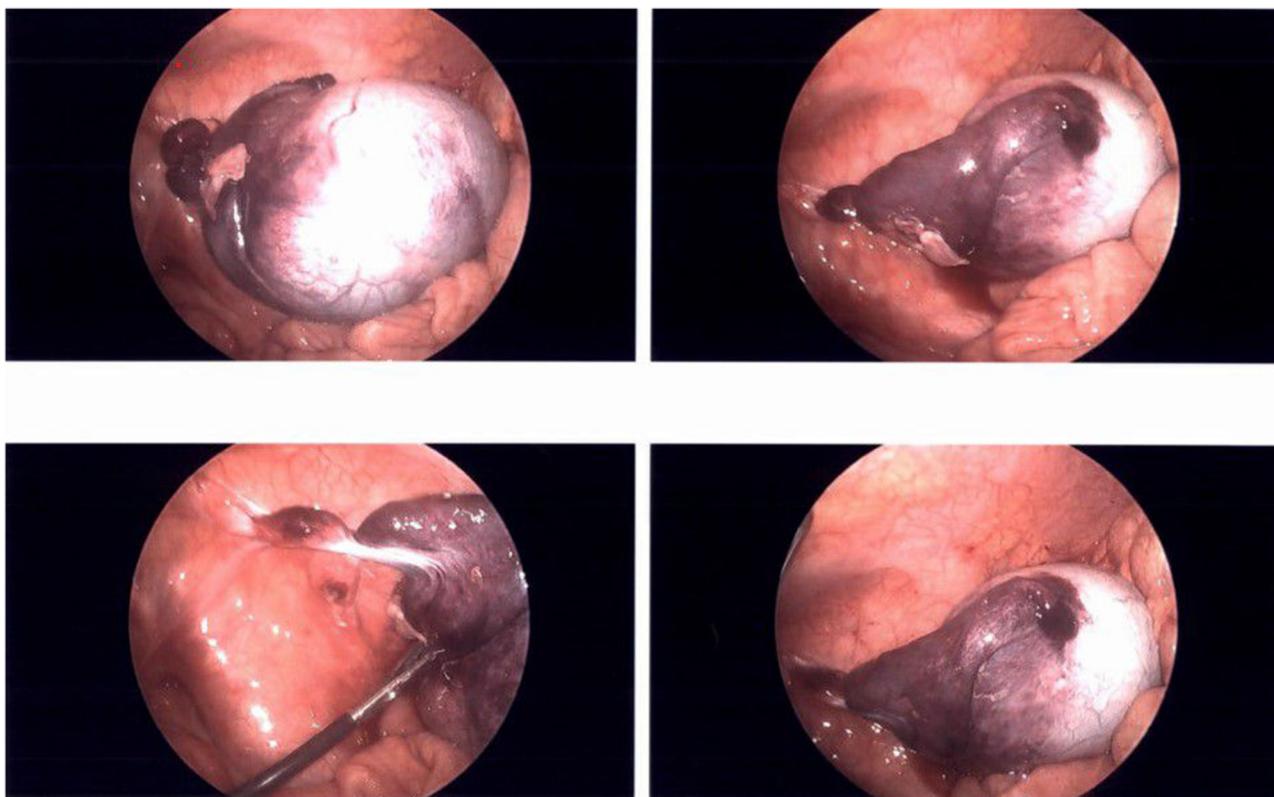


FIGURE 3 Laparoscopic view of the torsed testes seen at surgery

soluble, or air contrast), although intractable cases require surgical reduction. Untreated intussusception can lead to death via necrosis, bowel perforation, and sepsis.¹²

In this case, a testicular exam was performed by multiple physicians from various specialties (ED attending, ED resident, surgery resident, fellow and attending). When specifically looking for typical evidence of torsion (inflamed, tender, or erythematous testis), the absence of the right¹² testes was not appreciated. In addition, the ultrasonographic findings that appeared to confirm a diagnosis of intussusception were ultimately misleading. In either UDT torsion or intussusception with failed enema, surgical exploration was the next appropriate step in management. Because of the delay in presentation (2.5 days of symptoms at home), salvage of the necrotic testis was highly unlikely and ultimately not possible.

4 | CONCLUSION

UDT are at high risk of torsion compared with descended testes. Consider torsion of the UDT in a child in which 2 testes are not appreciable on scrotal examination. In either diagnosis, consider early imaging and appropriate surgical consultation.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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