

Case Report

Testicular torsion, time is of the essence: a case for testicular preservation

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ABSTRACT

Testicular torsion around the spermatic cord causes arterial and venous occlusion, which can lead to swelling, ischemia, and eventually necrosis of the testicle. It is a urologic emergency that requires a time-dependent diagnosis to prevent testicular loss. This is a case report of an atypical presentation of a 15-year-old male with a 5-day history of testicular torsion, that resulted in preservation of testes viability immediately after detorsion and at 4-week follow-up.

Keywords: Testicular torsion, Intermittent testicular torsion, Pediatric

INTRODUCTION

Testicular torsion around the spermatic cord causes arterial and venous occlusion, which can lead to swelling, ischemia, and eventually necrosis of the testicle.^{1,2} In adolescent males, the population most at risk, testicular torsion most commonly occurs due to the “bell clapper” deformity, where the tunica vaginalis fails to attach to the epididymis and posterior surface of the testes, thus allowing rotation around a longitudinal axis; this deformity is commonly found bilaterally.^{1,3,4} It is a urologic emergency that requires a time-dependent diagnosis to prevent testicular loss. If no immediate urologic intervention is available, manual detorsion with confirmation through serial scrotal doppler ultrasound should be considered with the primary objective of reducing arterial constriction and hypoxia to the testicle.¹

Here we report a case of a teenager who presented with a 5-day history of testicular torsion, with unusual preservation of testes viability.

CASE REPORT

A 15-year-old male presented to the emergency department (ED) with a 5-day history of gradual worsening left testicular pain, associated with scrotal swelling and tenderness. Three days prior, he was seen in the ED for this pain, but was discharged as the pain had improved and scrotal doppler ultrasound was found unremarkable. The patient denied nausea, vomiting, fever, and chills. On examination, the left testicle was tender and swollen, with an absent cremasteric reflex; the overlying skin on the right scrotum was normal and the right cremasteric reflex was present. On scrotal Doppler ultrasound, absence of left testicular arterial flow raised the suspicion for testicular torsion with infarction. The patient was taken immediately to the operating room. During the procedure, the left testicle, initially dusky and ischemic, was detorsed and then covered with a warm saline moist towel. After 15 minutes, the left testicle regained perfusion in several areas and bilateral orchiopexy was performed. The patient was discharged the same day. Two-weeks later during outpatient follow-up,

the patient reported complete resolution of symptoms. Four weeks later, the patient was still doing well, and a repeat ultrasound (US) showed a well perfused left testicle, albeit slightly smaller than the right with estimated testicular volume of 1 ml and 19 ml, respectively.

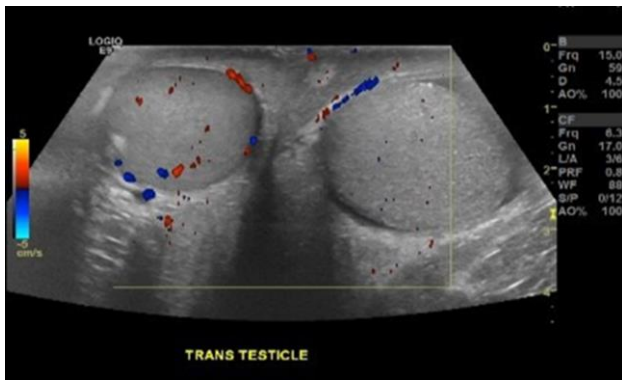


Figure 1: Scrotal doppler ultrasound on day 2, scrotal doppler ultrasound on day 2 of symptoms with preserved bilateral testicular arterial flow.

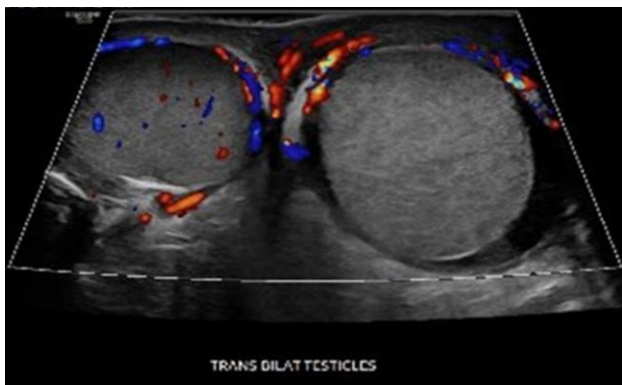


Figure 2: Scrotal doppler ultrasound on day 5, scrotal doppler ultrasound on day 5 of symptoms with absent left testicular arterial flow and preserved right testicular arterial flow.



Figure 3: Scrotal doppler ultrasound on follow-up four weeks post-op, scrotal doppler ultrasound on follow-up showed bilateral arterial flow, with a smaller left testicle compared to the right.

DISCUSSION

Favorable clinical outcomes are directly associated with decreased time to testicular detorsion, with surgical management within the first 6-hours of the onset of symptoms providing the greatest window of viability.^{3,5} Initial assessment on presentation can include a clinical tool such as the testicular workup for ischemia and suspected torsion (TWIST) score, or imaging with scrotal color Doppler ultrasound.⁶⁻⁹ The TWIST score, which includes nausea/vomiting (1 point), testicular swelling (2 points), testicular induration (2 points), high-riding testes (1 point) and an absent cremasteric reflex (1 point), has a positive predictive value and negative predictive value of 93.5% and 100%, respectively, of diagnosing testicular torsion when the score is ≥ 6 for pediatric patients presenting with unilateral acute scrotum to the emergency department.⁹ If the clinical exam is inconclusive, confirmation with scrotal Doppler ultrasound can be performed with a sensitivity of 88.9% and a specificity of 98.8%, with findings consistent with absent testicular perfusion.¹ Testicular survival when surgically managed at 0 to 6 hours from symptom onset is found to be 95.7%, 7 to 12 hours, 77.8%; 13 to 24 hours, 49.2%; 25 to 48 hours, 29.2% and only 9.6% with greater than 48 hours delay.⁴ Surgical intervention in cases of testicular torsion include orchiectomy of the non-viable testicle and orchiopexy of the contralateral side, or bilateral orchiopexy if the affected testicle is found to be viable.

Although our patient had symptoms for approximately 5 days (120 hours), arterial blood flow may have been diminished but not absent for the full duration of his symptoms, as evidenced with scrotal Doppler ultrasound on day 2, which demonstrated bilateral testicular perfusion. These potential intermittent episodes of torsion likely developed into complete testicular torsion, which could explain salvage of the testicle after an extremely prolonged course.⁵ In addition, the degree of torsion also impacts the viability of the testicle. It was found that patients undergoing orchiopexy had a median of 360 degrees of torsion with a median of 12 hours of symptoms, while patients undergoing orchiectomy experienced a median of 540 degrees of torsion with a median of 90 hours of symptoms.¹⁰ Our patient was found to have 360 degrees of torsion at the time of surgical detorsion which may also have contributed to salvageability of the testicle and our ability to perform a bilateral orchiopexy instead of an orchiectomy.

Long-term viability, including volume and function, of the testicle may be affected and should be monitored. Atrophy of the affected testicle can occur in about 50% of cases following surgical detorsion and orchiopexy.¹¹ In addition, reduced semen count and quality after a torsion event has been noted.³ Evidence regarding impact on fertility is lacking, although there have been some findings that future fertility and erectile dysfunction are not significantly affected.¹² It is important to discuss with the patient and parents the potential long-term sequelae in

cases of prolonged time from onset of symptoms to management.

CONCLUSION

To preserve viability of the testes, it is paramount to surgically manage testicular torsion as soon as it is suspected. However, a case-by-case approach should be used as testes may still be salvageable even after the timeframes given by current clinical guidelines.

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