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Open Access Case Report

Recurrent Testicular Torsion Following Previous Bilateral Orchidopexy: A Case Report and Review of Diagnostic Pitfalls

Review began 09/15/2026
Review ended 10/13/2026
Published 10/19/2026

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DOI: 10.7759/cureus.118194

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Abstract

Testicular torsion is a time-critical urological emergency requiring prompt diagnosis and surgical intervention to preserve testicular viability. Recurrent testicular torsion (RTT) following previous orchidopexy is uncommon and may result in diagnostic uncertainty due to the misconception that prior fixation eliminates the risk of future torsion. We report the case of a 30-year-old male with recurrent left testicular torsion on the background of bilateral orchidopexy for right testicular torsion four years prior. This case highlights that prior orchidopexy does not eliminate the risk of future torsion. Clinicians should maintain a high index of suspicion and a low threshold for surgical exploration in patients presenting with acute scrotal pain despite a history of previous orchidopexy.

Categories: Urology, General Surgery
Keywords: acute scrotum, orchidopexy, recurrent testicular torsion, testicular salvage, testicular torsion

Introduction

Testicular torsion is a surgical emergency affecting one in 4,000 males younger than 25 years. Twisting of the spermatic cord obstructs venous outflow, with subsequent impairment of arterial inflow resulting in testicular ischemia. The degree of ischemia is dependent on the duration and degree of torsion, with ischemia occurring as early as four hours upon symptom onset [1]. Delay in presentation and diagnosis may necessitate orchidectomy, which is associated with infertility [2,3]. Patients typically present with acute onset of scrotal pain associated with nausea and vomiting. Physical examination may reveal an oedematous, tender, high-riding, horizontal-lying testis with absent cremasteric reflex on the ipsilateral side [4]. Diagnosis is based on a high index of clinical suspicion, with standard management involving scrotal exploration, detorsion of the affected testis, and bilateral orchidopexy [3]. Orchidopexy involves fixing the testis to the scrotal wall to reduce mobility. Testicular viability is assessed intra-operatively, with orchidectomy performed on non-viable testes. A history of previous orchidopexy may contribute to diagnostic uncertainty, as clinicians may incorrectly assume that torsion has been definitively prevented. However, cases of recurrent testicular torsion (RTT) following prior fixation have been reported, highlighting that prior orchiopexy does not eliminate the risk of RTT [5].

Case Presentation

A 30-year-old male presented to the emergency department overnight with worsening left-sided scrotal pain on a background of a four-day history of intermittent pain. He had a history of right-sided testicular torsion at the age of 26, for which he underwent bilateral orchidopexy at another institution. Details of the previous operation were unavailable.

On examination, the left hemiscrotum appeared oedematous and low-riding. The left testis was only tender on the superior pole, and the cremasteric reflex was difficult to appreciate. The contralateral hemiscrotum and testis were unremarkable on examination. Laboratory investigation demonstrated non-elevated inflammatory markers. Urinalysis was positive for leukocytes and negative for nitrites. Scrotal ultrasound, as shown in Figure *1*, demonstrated spermatid cord torsion, which prompted scrotal exploration.

How to cite this article
Leh J, Liew A, Tan P (October 19, 2026) Recurrent Testicular Torsion Following Previous Bilateral Orchidopexy: A Case Report and Review of Diagnostic Pitfalls. Cureus 18(10): e118194. DOI 10.7759/cureus.118194

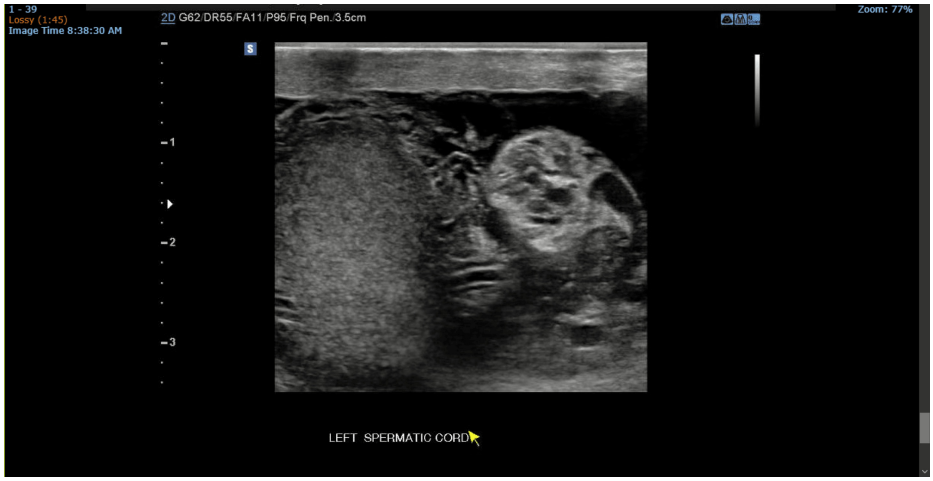


FIGURE 1: Scrotal ultrasonography showing torsion of the spermatic cord

Urgent left scrotal surgical exploration revealed a 360° testicular torsion, as shown in Figure *2*. It was evident that previous fixation with permanent suture was ineffective and loose, with laxity of both the tunica vaginalis from the underlying fascial layers and of the suture, giving mobility to the testis. The testis appeared viable post-detorsion with good perfusion. This was reflected by the pink appearance with reduced congestion of the testis after several minutes of wrapping with warm saline-soaked gauze. Three-point deep fixation down to the underlying fascial and cremasteric layers with 3-0 Vicryl was performed.



FIGURE 2: Intraoperative appearance demonstrating 360° torsion of the left spermatic cord despite previous orchidopexy

The right scrotum was explored with evidence of prior single-point fixation with non-absorbable suture noted. A single additional fixation on the anterior aspect was added for reinforcement.

The patient was discharged on the same day. He presented on day 5 post-operation with concerns of bleeding from the midline incision site. A repeat ultrasonography revealed no hematoma. Minor bleeding from the inferior aspect of the suture line resolved with manual pressure. He was seen at the six-week follow-up and subsequently discharged from the surgical unit.

Discussion

Testicular torsion is a time-critical surgical emergency in which timely diagnosis and intervention increase the probability of testicular salvage. Obstruction of venous outflow with subsequent compromise of arterial inflow results in testicular ischemia. Salvage of testicles is dependent on the degree and duration of torsion [1]. Mansbach et al. identified that delayed presentation is a major independent risk factor for orchidectomy

[6]. As such, factors that lower the index of clinical suspicion may significantly compromise outcome.

RTT following prior orchidopexy is a rare phenomenon [7]. A 2022 systematic review identified 46 published cases across 26 studies, demonstrating that recurrence may occur as early as six months to as late as 27 years following the initial fixation [8]. Due to the assumption that prior orchidopexy prophylactically prevents future torsions, clinicians may be falsely reassured by a prior surgical history and subsequently attribute symptoms to other benign causes of acute scrotum, such as epididymitis, orchitis, or post-surgical pain [5]. Previous surgery may alter scrotal examination findings. Our patient notably did not have a high-riding testis and had an equivocal cremasteric reflex.

Ultrasonography is a useful tool for the diagnosis of testicular torsion. Findings of a rotated spermatic cord support the diagnosis despite colour Doppler ultrasound displaying persistent vascular flow [9]. As mentioned by Mellick, thorough evaluation utilising history, examination and imaging are key in the diagnosis of testicular torsion [10]. In our case, ultrasonography revealed preserved venous and arterial flow, though a suspicious torted spermatic cord was present, which prompted urgent exploration in theatres. Intraoperative findings noted 360° spermatic cord torsion, confirming intermittent torsion-detorsion over the preceding four days with incomplete vascular compromise.

The reason for RTT is multifactorial. The type of sutures, adequacy of fixation, number of fixation points, and correction of bell-clapper deformity have all been suggested [8]. Earlier reports frequently described recurrence following fixation with absorbable sutures; however, recurrence has also been reported following non-absorbable sutures, suggesting that suture material alone does not determine the durability of orchidopexy [5,8]. In our case, intraoperative findings demonstrated residual testicular motility despite prior fixation with permanent suture.

Kapoor and van Welie et al. advocate for urgent surgical exploration where clinical suspicion for recurrent torsion remains high, particularly when imaging findings are equivocal or discordant with the clinical presentation [4,8]. Exploration is both diagnostic and therapeutic, with redo orchidopexy using multiple-point fixation recommended to minimise residual rotational mobility [8].

Urgent surgical exploration remains the definitive management of suspected recurrent torsion, serving both for diagnostic and therapeutic purposes [4,8]. Current standard of practice supports redo orchidopexy with multiple-point fixation to minimise residual rotational mobility on both the ipsilateral and contralateral sides, given the shared anatomical predisposition [8].

Conclusions

Prior orchidopexy does not exclude the diagnosis of torsion in patients presenting with acute scrotal pain. A high index of clinical suspicion in conjunction with careful interpretation of imaging findings is essential in the management of these patients.

This report is limited by its single-case design, short follow-up, and unavailable details of the previous orchidopexy, which restrict assessment of the mechanism of recurrence and long-term outcomes.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Johann Wei Zuan Leh, Pee-Yau Tan

Acquisition, analysis, or interpretation of data: Johann Wei Zuan Leh, Amos Nepacina Liew

Drafting of the manuscript: Johann Wei Zuan Leh

Critical review of the manuscript for important intellectual content: Johann Wei Zuan Leh, Amos Nepacina Liew, Pee-Yau Tan

Supervision: Pee-Yau Tan

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have

declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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