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**Case Report** **Open Access**

# Testicular Torsion in Adolescents: A Case Report and Surgical Management Approach

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## *ABSTRACT*

***Background:*** *Testicular torsion is a surgical emergency caused by twisting of the spermatic cord, which impedes blood flow to the testicle. If not treated within 4–6 hours of symptom onset, this condition can lead to ischemia, necrosis, and permanent testicular damage. Prompt treatment is crucial to prevent complications.*
***Case Description:*** *A 19-year-old man presented to the emergency department (ED) with severe pain and swelling in the left scrotum for three days. His pain score (VAS) was 5/10. No systemic symptoms were found. Physical examination revealed edema and tenderness in the left scrotum. Scrotal ultrasound revealed an enlarged, heterogeneous, and avascular left testicle, while the right testicle was normal, and left testicular torsion was diagnosed. The patient subsequently underwent orchidectomy for the necrotic left testicle and orchidopexy for the right testicle.*
***Conclusion:*** *Early diagnosis of testicular torsion is crucial to prevent further damage. Doppler ultrasonography was helpful in confirming the diagnosis. The definitive treatment for testicular necrosis is orchidopexy, and orchidopexy is an appropriate approach to prevent recurrence and preserve the function of the remaining testicle.*

***Keywords:*** *Adolescent; testis; orchidectomy*

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## INTRODUCTION

Testicular torsion is a surgical emergency that requires immediate diagnosis and treatment to prevent permanent damage to the testicle. This condition occurs due to twisting of the spermatic cord, which impedes blood flow to the testicle and surrounding structures.[1] If not treated promptly within 4-6 hours of symptom onset, testicular torsion can lead to ischemia, necrosis, and ultimately, permanent testicular damage.[2] Therefore, prompt and appropriate treatment is crucial to maintain the patient's reproductive and endocrine function.

Testicular torsion most often occurs in adolescence, particularly between the ages of 12 and 18, although it can occur at any age. The estimated incidence of testicular torsion is approximately 4.5 per 100,000 males per year under the age of 25, peaking during puberty due to rapid testicular growth.[3] Clinical symptoms typically include sudden and severe scrotal pain, which may be accompanied by swelling, redness, and changes in testicular position. However, in some cases, systemic symptoms such as fever, nausea, or vomiting may be absent, potentially misleading the diagnosis. Scrotal Doppler ultrasonography can aid in the diagnosis, although the decision to proceed with surgery must often be based on clinical suspicion.[4]

Testicular torsion can be primary or secondary. Torsion occurs when the patient has previously experienced torsion that resolved spontaneously or has undergone treatment that has not been definitive. This condition typically occurs in individuals with anatomical predispositions such as a "bell-clapper deformity," where the testicle is not properly fixed in the scrotum, allowing it to move and twist easily. Therefore, in the management of testicular torsion, especially in adolescents, orchidopexy is recommended to prevent recurrence, even in the unaffected testicle.[5]

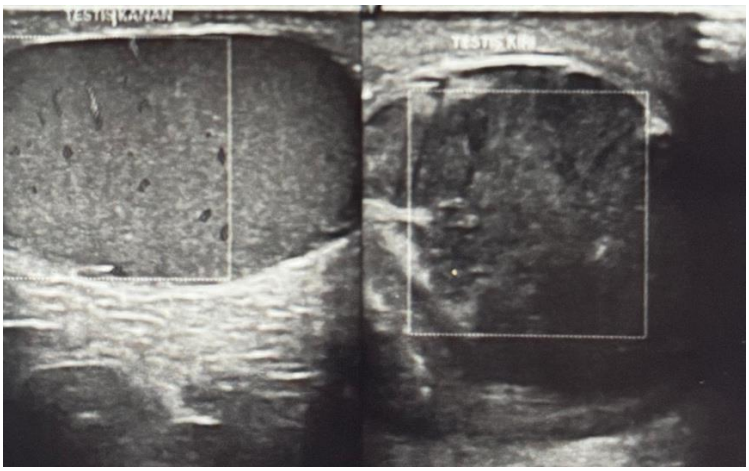
## CASE REPORT

A 19-year-old man presented to the Emergency Department of Ibnu Sina Hospital with a chief complaint of pain and swelling in his left testicle that had been present from three days ago. The pain was continuous and described as a stabbing sensation. The patient did not complain of fever, nausea, vomiting, or abdominal pain. There was no history of trauma.

Physical examination showed a pain score (VAS) of 5/10. On physical examination of the local status of the testicles, edema was seen in the left scrotum. Palpation showed positive tenderness in the left scrotal region. Phren test (+), angel sign (+), deming sign (+), creamaster reflux (-), so the patient is included in the high-risk patient. USG finding was that the left testis is heterogeneously enlarged with a

Doppler scan and appears avascular, with no mass. Right testis: The shape, size, and echo of the right testis are within normal limits, SOL(-). Conclusion: Torsion of the Left Testis (Fig.1). Laboratory finding was WBC 9.700, Hb 14,8 and PLT 277.000.

**Figure 1. Ultrasonography (USG) of the Left Scrotum: The left testis is heterogeneously enlarged with a Doppler scan and appears avascular, with no mass. Right Scrotum: The shape, size, and echo of the right testis are within normal limits, SOL(-). Impression: Torsion of the Left Testis**



The patient received initial treatment with analgesic injections and then underwent a surgical procedure in the form of testicular exploration.

**Figure 2a. Orchiectomy on the left testis**

**Figure 2b. Suturing of the left scrotum**

**Figure 2c. Orchidopexy on the right testis**

**Figure 2d. Operation Completed**

Intraoperatively, left testicular torsion was found and necrosis persisted after detorsion, therefore (Fig. 2a), a left testicular orchidectomy was performed. To prevent contralateral testicular torsion, a right testicular orchidopexy was performed. On follow-up, the patient received ceforoxime 1 gram IV injection every 8 hours, metamizole IV injection every 8 hours, and lansoprazole ampule injection every 24 hours. Four days postoperatively, the patient's condition improved and he was discharged home.

## DISCUSSION

Testicular torsion is a urological emergency that requires rapid diagnosis and immediate surgical intervention to save the testicle and prevent long-term complications, such as infertility and psychosocial impairment.[5] The main pathophysiological mechanism of torsion is rotation of the spermatic cord resulting in ischemia due to the interruption of arterial blood flow to the testicle, so time is a critical factor in management.[6] Recent studies have suggested that intervention within the first 6 hours of pain is crucial to prevent permanent damage.[7]

In this case, a 19-year-old male patient presented with pain and swelling in the left scrotum for three days without fever or other systemic symptoms. This presentation is less typical and often presents a diagnostic challenge, as studies have shown that subacute or less painful presentations can lead to delayed diagnosis and increased risk of testicular damage. The late onset can be caused by parsial ischemic at the beggining.[8]

Doppler ultrasonography remains the primary diagnostic tool in the assessment of patients with acute scrotal pain. Ultrasonography allows visualization of blood flow and helps differentiate torsion

from other conditions such as epididymitis or orchitis. 9 In this case, ultrasound demonstrated torsion of the left testis, confirming the clinical diagnosis and guiding surgical decisions. This is consistent with modern clinical guidelines that emphasize the importance of ultrasound as an adjunctive examination to expedite diagnosis and intervention.[10]

Surgical procedures for testicular torsion include detorsion and orchidopexy to secure both testicles and prevent recurrence.[11] Orchidectomy is performed when the testicles are no longer viable, which is the option in this case for the left testicle that has experienced long-standing ischemia. Research confirms the importance of orchidopexy because the risk of contralateral torsion reaches 10–15% if not prevented. [12] This approach is consistently applied in these patients with left orchidectomy and right orchidopexy.

Postoperatively, patients experience reduced pain without any other symptoms that could indicate serious complications. Studies show that postoperative pain in testicular torsion can generally be controlled with standard analgesics and usually improves within a few days. Close postoperative monitoring is necessary to detect potential complications such as infection or testicular atrophy, which can occur long-term.[14]

Orchidectomy for a non-viable testis and orchidopexy as a preventative measure are appropriate management measures and have proven effective based on current evidence. This case also demonstrates the importance of proper fixation technique and patient education in reducing the risk of torsion and long-term complications. Patient education also plays a crucial role. Research shows that a lack of public awareness of the urgency of scrotal pain leads to delayed medical attention and poor outcomes.[15] This case highlights the need for education about the signs and symptoms of testicular torsion, especially among adolescents and older adults, so that early diagnosis and treatment can be initiated. Next work up is semen analysis to make sure the fertility of the patient.

## CONCLUSION

Testicular torsion is a urologic emergency requiring rapid diagnosis and immediate surgical intervention to salvage the testicle. This case of testicular torsion in a young patient with atypical scrotal pain highlights the importance of careful clinical evaluation and Doppler ultrasonography as the primary diagnostic aid. Optimal treatment includes orchidectomy for the non-viable testis and orchidopexy to prevent recurrence. Educating the patient and family about the signs and symptoms of testicular torsion is crucial to expedite the search for the medical team.

**Conflicts of Interest**

There was no conflict of interest in this case report.

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