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Case Report
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Pediatric Ovarian Torsion in an 8-Year-Old Girl: A Rare Case Report and Clinical Insights

Sumathi Senthilkumar[1], Virushnee S[1] and Raeshmi R[2]*

[1]*SS Medical Centre, Salem, Tamil Nadu, India*

[2]*Ramalingam's Hospital, Salem, Tamil Nadu, India*

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Author : Dr. Sumathi Senthilkumar

Abstract

Background: Ovarian torsion (OT) is a rare but significant gynaecological emergency that requires prompt diagnosis and intervention to preserve ovarian function. It results from the twisting of the ovary and fallopian tube around the vascular pedicle, leading to ischemia and potential necrosis. In pediatric patients, OT is particularly challenging to diagnose due to its nonspecific clinical presentation, often mimicking other causes of acute abdominal pain.

Case Presentation: We present a case of OT in an 8-year-old girl, emphasizing the diagnostic challenges, surgical management, and clinical outcomes. The baby was admitted with severe left-sided lower abdominal pain and multiple episodes of vomiting. Notably, her pain was initially misdiagnosed as pain due to renal stones (nephrolithiasis) and was managed with analgesics for 3-4 days before the correct diagnosis was made. Imaging studies confirmed OT, showing an enlarged left ovary with a haemorrhagic cyst and absence of vascularity on Doppler ultrasound. An emergency laparoscopy revealed a left ovarian torsion with three twists, engorgement, haemorrhagic changes, and necrosis, necessitating a left salpingo-oophorectomy. Postoperative recovery was uneventful, and the patient was discharged in stable condition with follow-up advice.

Conclusion: This case underscores the importance of early diagnosis and prompt intervention in pediatric OT. High clinical suspicion, combined with timely imaging and surgical exploration, is crucial for optimal outcomes. While ovarian preservation is ideal, cases with irreversible necrosis necessitate oophorectomy. Future research should focus on improving diagnostic accuracy and conservative management approaches in young patients. The baby was reviewed after one month, and no issues were reported.

Keywords: Ovarian Torsion; Pediatric Gynaecology; Emergency Surgery; Oophorectomy; Laparoscopy

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Correspondence:
Dr. Sumathi Senthilkumar, SS Medical Centre, Salem, Tamil Nadu, India, E-mail: senthilkumar.sumathi@gmail.com

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Background

Ovarian Torsion (OT) is a rare but significant gynaecological emergency that results from the twisting of the ovary and fallopian tube around the vascular pedicle, leading to ischemia and potential necrosis. The incidence of OT in children under 18 is estimated to be 4.9 cases per 100,000 girls, with the highest prevalence occurring between the ages of 9 and 14 years [1]. The condition presents with nonspecific symptoms such as acute abdominal pain, nausea, and vomiting, which can mimic other conditions, including appendicitis, gastroenteritis, and urinary tract infections [2]. This diagnostic challenge often leads to delays in intervention, increasing the risk of ovarian necrosis. The exact etiology of OT is often idiopathic, but risk factors include ovarian cysts, previous torsion, and congenital anomalies of the reproductive tract [3]. Imaging, particularly ultrasound with Doppler, is crucial in identifying OT, although its sensitivity varies. The absence of blood flow on Doppler ultrasound highly suggests torsion, but normal blood flow does not exclude the diagnosis [4]. Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) can provide additional information, particularly in ambiguous cases. Prompt surgical intervention is essential to restore blood flow and preserve ovarian function whenever possible.

Case Presentation

A healthy 8-year-old female child presented to the emergency department with severe left-sided lower abdominal pain and multiple episodes of vomiting (6-7 times) since early morning. The pain was sudden in onset, continuous, and progressively worsened, prompting hospital evaluation. There

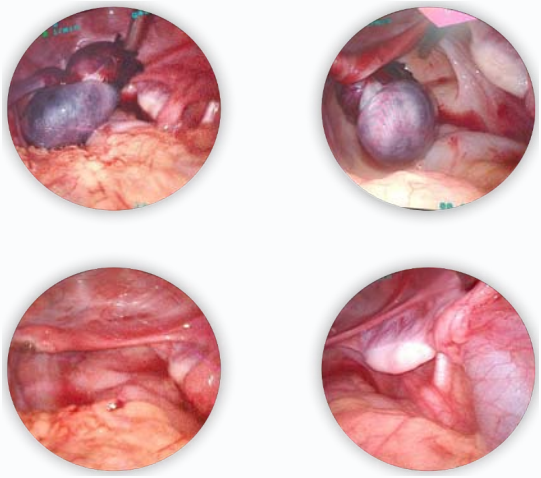

Figure 1: Emergency laparoscopy revealed a nonviable, twisted ovary and fallopian tube, necessitating salpingo-oophorectomy due to irreversible ischemia.

was no history of fever, loose stools, urinary symptoms, or recent infections. The patient had been initially managed with analgesics at an outside facility without significant relief. Notably, her pain was initially misdiagnosed as pain due to renal stones (nephrolithiasis) and was managed with analgesics for 3-4 days before the correct diagnosis was made.

Clinical examination revealed an alert and afebrile child with stable vital signs. Abdominal examination was significant for severe tenderness in the left iliac fossa without peritoneal signs. Laboratory investigations showed leucocytosis (WBC: 18,680/μL), suggesting an inflammatory process, while coagulation parameters and serology were within normal limits. Imaging studies were immediately performed, with an ultrasound revealing an enlarged left ovary (50x26 mm) containing a haemorrhagic cyst and absent Doppler vascularity, highly suggestive of ovarian torsion. A contrast-enhanced CT scan confirmed left adnexal torsion, with a twisted, engorged vascular pedicle and a displaced uterus. Given the clinical and radiological findings, an emergency diagnostic laparoscopy was planned.

Intraoperatively, the left fallopian tube was found twisted three times around its pedicle, appearing edematous, haemorrhagic, and discoloured, with associated blood-stained fluid in the pouch of Douglas (Figure1). The left ovary was significantly enlarged, bluish, and cystic, showing no signs of reperfusion despite detorsion. The right ovary and fallopian tube were normal. Due to the absence of viable ovarian tissue and the risk of further complications, a left salpingo-oophorectomy was performed. The specimen was retrieved through the supra-pubic port and sent for histopathological analysis. Intraoperative blood loss was minimal (50-100 mL), and hemostasis was achieved successfully. Postoperatively, the patient was managed with IV fluids, antibiotics (Inj. Xone), analgesics, and supportive care. Recovery was uneventful, and the child was discharged with dietary recommendations, early mobilization, and wound care instructions.

Histopathological examination of the excised ovary and fallopian tube confirmed haemorrhagic necrosis of the ovarian parenchyma with severe congestion, consistent with prolonged torsion and ischemia. No viable ovarian tissue was observed, reinforcing the necessity of oophorectomy.

Follow-up: The patient was reviewed after one month, and no issues were reported.

Discussion

Ovarian torsion in pediatric patients is frequently misdiagnosed due to its overlapping symptoms with conditions such as acute appendicitis, urinary tract infection, and gastroenteritis [2]. The absence of specific clinical markers further complicates diagnosis. While ultrasound remains the first-line imaging modality, its limitations necessitate a high index of clinical suspicion. A review of previous cases indicates that Doppler ultrasonography, though useful, may yield false-negative results due to intermittent torsion allowing transient blood flow [3]. Studies by Haghjoo *et al.* and De Silva *et al.* describe cases where timely intervention enabled ovarian salvage. However, in cases where necrosis has occurred, as in this patient, oophorectomy becomes the only viable option [5]. In pediatric cases, fertility preservation remains a significant concern. Recent literature suggests that oophoropexy, a surgical procedure to fix the ovary in place, may reduce the risk of recurrent torsion and should be considered in selected cases [4]. The role of conservative management in viable ovarian tissue is being increasingly explored, with some studies advocating for untwisting the ovary followed by close postoperative monitoring. However, in cases where necrosis is evident, immediate oophorectomy is necessary to prevent complications such as peritonitis. Emerging techniques, including laparoscopic detorsion with ovarian salvage and post-surgical hormonal evaluation, may improve long-term reproductive outcomes in affected individuals [1].

Conclusion

Ovarian torsion is a rare but serious condition in pediatric patients, requiring early suspicion and rapid intervention. Delay in diagnosis can lead to irreversible ischemia and loss of ovarian function. This case highlights the critical role of timely imaging, laparoscopic evaluation, and appropriate surgical decision-making in optimizing outcomes. Future advancements in early detection protocols and conservative approaches may help improve ovarian salvage rates in similar cases.

Key Learning Points from the Case Report

Diagnostic Challenges in Pediatric Ovarian Torsion

1. Ovarian torsion in children is often misdiagnosed due to overlapping symptoms with appendicitis, urinary tract infection, and renal colic.
2. In this case, initial misdiagnosis as nephrolithiasis delayed appropriate management, emphasizing the need for heightened clinical suspicion in pediatric acute abdominal pain.

Limitations of Doppler Ultrasound in Diagnosing Torsion

1. While Doppler ultrasound is the first-line imaging modality, it may yield false-negative results due to intermittent torsion allowing transient blood flow.
2. A contrast-enhanced CT was required to confirm adnexal torsion in this patient, highlighting the importance of multimodal imaging for accurate diagnosis.

Need for Early Surgical Intervention to Prevent Ovarian Loss

1. Delayed diagnosis leads to prolonged ischemia and necrosis,

making oophorectomy inevitable, as seen in this case.

2. In viable cases, conservative management with detorsion and close postoperative monitoring can help preserve ovarian function.

Consideration of Oophoropexy for Future Prevention

1. In cases of recurrent torsion risk, surgical fixation of the ovary (oophoropexy) may help prevent future episodes.

2. Literature suggests that oophoropexy should be considered in select pediatric patients to improve long-term reproductive outcomes.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her clinical information and images to be reported in the journal. The patient understands that her name and initials will not be published, and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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