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Recurrent Ovarian Torsion Despite Previous Oophoropexy in a 9-Year-Old Prepubertal Girl: A Pediatric Emergency Department Perspective

Authors' Contribution:

Study Design A

Data Collection B

Statistical Analysis C

Data Interpretation D

Manuscript Preparation E

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Funds Collection G

ABCDEF Faisal J. Alqahtani 

Department of Pediatrics, College of Medicine,

Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Corresponding Author: Faisal J. Alqahtani, Department of Pediatrics, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabiae-mail: Fjqahatani@iau.edu.sa**Financial support:** None declared**Conflict of interest:** None declared**Patient:** Female, 9-year-old**Final Diagnosis:** Ovarian torsion**Symptoms:** Abdominal pain**Clinical Procedure:** —**Specialty:** Pediatrics and Neonatology • Surgery**Objective:** Unusual clinical course

Background: Ovarian torsion is an uncommon but time-sensitive gynecologic emergency in children. Diagnosis may be challenging because symptoms can be nonspecific and Doppler ultrasonography may demonstrate residual ovarian blood flow. Although oophoropexy may be performed to reduce recurrence, torsion can recur after fixation.

Case Report: A 9-year-old prepubertal girl with a history of left ovarian torsion treated by laparoscopic detorsion and oophoropexy presented with 2 days of severe intermittent left-sided abdominal pain and 1 day of vomiting. She was afebrile and hemodynamically stable, without peritoneal signs. Transabdominal ultrasonography demonstrated an enlarged left ovary measuring 41 × 37 × 32 mm (approximately 27 mL), with diminished vascularity and faint internal flow on color and power Doppler imaging. Urgent laparoscopy confirmed recurrent left ovarian torsion of approximately 360°. The ovary was viable, and no ovarian cyst or adnexal mass was identified. Detorsion and utero-ovarian ligament plication were performed, preserving the ovary. At 8-week follow-up, ultrasonography demonstrated normalization of the left ovarian size to 16 × 14 × 24 mm (approximately 2.7 mL), with no adnexal lesion or pelvic free fluid.

Conclusions: Recurrent ovarian torsion can occur despite previous oophoropexy. Residual Doppler flow should not exclude torsion when clinical suspicion remains high. Prompt surgical evaluation can permit detorsion and ovarian preservation.

Keywords: Ovarian Torsion • Adnexal Torsion • Child; Oophoropexy • Ovary • Ultrasonography • Case Reports**Full-text PDF:** <https://www.amjcaserep.com/abstract/index/idArt/954118> 1742 — 2 6

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Introduction

Ovarian torsion is a time-sensitive gynecologic emergency caused by rotation of the ovary, often with the fallopian tube, around its supporting structures, potentially compromising ovarian perfusion. In pediatric and adolescent patients, torsion may occur in an otherwise normal ovary without an associated cyst or mass; this has been reported in up to 46% of cases [1]. The typical presentation is sudden-onset abdominal pain that may be intermittent and is frequently associated with nausea and vomiting [1,4].

Transabdominal ultrasonography with Doppler assessment is the preferred initial imaging approach in children with suspected ovarian torsion. Sonographic findings can include unilateral ovarian enlargement, stromal edema, peripheral displacement of follicles, pelvic free fluid, and abnormal vascularity [1,3]. However, the presence of Doppler blood flow does not exclude torsion, and no clinical or imaging criterion is sufficiently reliable to establish or exclude the diagnosis preoperatively [1,3]. Consequently, ovarian torsion remains a surgical diagnosis, and persistent clinical suspicion warrants timely surgical evaluation [1].

Current management favors detorsion and ovarian preservation whenever feasible [1,2]. The role of oophoropexy in preventing recurrence remains uncertain, and recurrent torsion can occur despite previous fixation [2,5,6]. We report a case of recurrent left ovarian torsion in a 9-year-old prepubertal girl approximately 1 year after laparoscopic detorsion and oophoropexy. This case report highlights the possibility of recurrence despite previous fixation, the limitations of residual Doppler vascularity in excluding torsion, and the importance of prompt surgical intervention to preserve the ovary.

Case Report

A 9-year-old prepubertal girl presented to the pediatric emergency department with a 2-day history of severe intermittent abdominal pain, predominantly localized to the left lower quadrant, associated with vomiting for 1 day. The pain was severe, reaching 9/10 in intensity, and had a waxing-and-waning pattern. She was afebrile and had no anorexia. There were no reported changes in bowel habits.

One year before the current presentation, she had experienced left ovarian torsion that was managed laparoscopically with detorsion and oophoropexy. Given this history, recurrent ovarian torsion was considered early in the differential diagnosis despite the previous fixation procedure.

On presentation, the patient was hemodynamically stable. Her heart rate was 97 beats/min, blood pressure was

106/62 mm Hg, respiratory rate was 28 breaths/min, oxygen saturation was 100% on room air, and she was afebrile. Abdominal examination demonstrated left lower abdominal tenderness without clinical signs of peritonitis. A pelvic examination was not performed because consent for the examination was declined by the parent. Laboratory investigations were unremarkable.

Transabdominal pelvic ultrasonography demonstrated marked enlargement of the left ovary, measuring approximately $41 \times 37 \times 32$ mm, with an estimated volume of approximately 27 mL. Color and power Doppler interrogation demonstrated diminished vascularity, with only faint internal vascular signals (Figure 1). A minimal amount of pelvic free fluid was present. No right adnexal solid or cystic mass was identified. The uterus was not visualized on the initial examination. In the context of the patient's symptoms and previous history of left ovarian torsion, the ultrasound findings were considered suspicious for recurrent left ovarian torsion.

The patient received analgesia and preoperative empirical antibiotic therapy and was referred urgently for surgical management. Diagnostic laparoscopy confirmed recurrent left ovarian torsion with approximately 360° rotation. The left ovary was enlarged and congested but remained viable. No ovarian cyst or adnexal mass was identified. The ovary was detorsed, after which reperfusion was observed. Utero-ovarian ligament plication was subsequently performed to reduce the risk of further recurrence. Oophorectomy was not required.

The postoperative course was uncomplicated. At 8 weeks after surgical detorsion, follow-up transabdominal pelvic ultrasonography demonstrated marked normalization of the previously enlarged left ovary, which measured approximately $16 \times 14 \times 24$ mm, with an estimated volume of approximately 2.7 mL (Figure 2). The right ovary measured approximately $24 \times 15 \times 25$ mm. No adnexal cystic or solid lesion or pelvic free fluid was identified. The uterus was visualized in a normal position and measured approximately $26 \times 21 \times 9$ mm. The urinary bladder was normal. The follow-up examination was interpreted by the radiologist as an unremarkable transabdominal pelvic ultrasound.

Discussion

Ovarian torsion is an important cause of acute abdominal pain in children and adolescents, and delayed recognition can compromise ovarian viability. Unlike the typical adult presentation associated with an adnexal lesion, pediatric and adolescent torsion can involve an ovary without an associated mass or cyst in up to 46% of cases [1]. The present case is particularly notable because recurrent torsion occurred in a 9-year-old

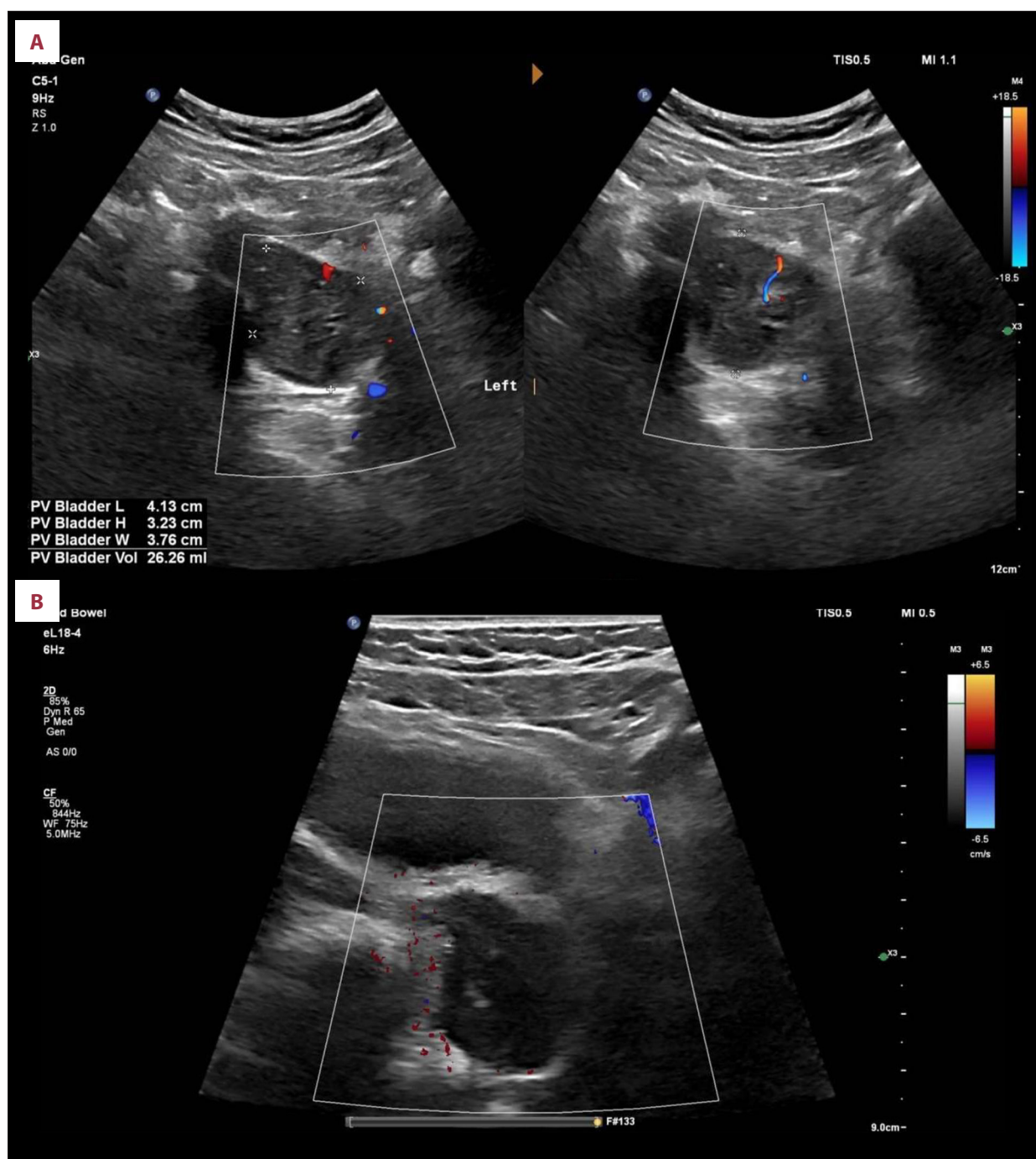


Figure 1. Preoperative transabdominal ultrasonographic findings of recurrent left ovarian torsion. **(A)** Color Doppler transabdominal ultrasonographic images demonstrate an enlarged left ovary with markedly diminished internal vascularity and only faint residual vascular signals. The left ovary measured approximately 41 × 37 × 32 mm, with an estimated volume of approximately 27 mL. **(B)** Power Doppler imaging further demonstrates markedly diminished vascularity within the enlarged left ovary. A minimal amount of pelvic free fluid was identified in the examination. In the setting of acute left-sided abdominal pain, vomiting, and previous left ovarian torsion treated with oophoropexy, the findings were considered suspicious for recurrent ovarian torsion. Subsequent laparoscopy confirmed approximately 360° torsion of the left ovary.

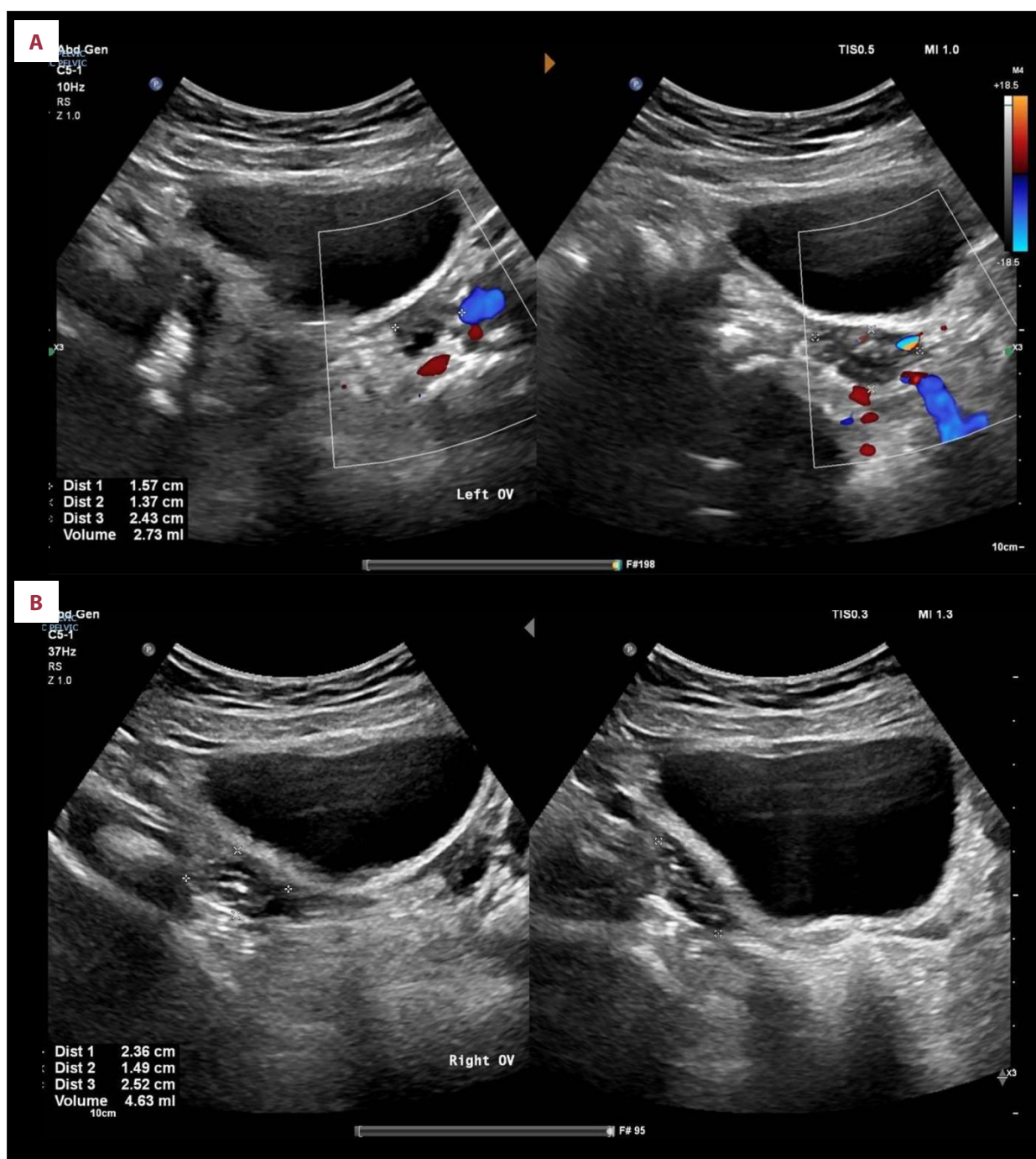


Figure 2. Follow-up transabdominal pelvic ultrasonography 8 weeks after surgical detorsion of recurrent left ovarian torsion. (A) Color Doppler images demonstrate the left ovary following surgical detorsion, measuring approximately $16 \times 14 \times 24$ mm, with an estimated volume of approximately 2.7 mL, representing marked reduction in size compared with the preoperative examination. (B) Grayscale images demonstrate the contralateral right ovary, measuring approximately $24 \times 15 \times 25$ mm. No adnexal solid or cystic lesion or pelvic free fluid was identified on the follow-up examination, which was interpreted by the radiologist as an unremarkable transabdominal pelvic ultrasound.

prepubertal girl despite previous oophoropexy and in the absence of an ovarian cyst or adnexal mass.

The clinical presentation in this patient was consistent with ovarian torsion despite stable vital signs and the absence of peritoneal signs. Intermittent abdominal pain associated with nausea or vomiting is characteristic of adnexal torsion [1,4]. In this patient, the previous history of ipsilateral ovarian torsion further increased concern for recurrence despite the previous fixation procedure.

Transabdominal ultrasonography is the preferred initial imaging modality in children with suspected ovarian torsion. Findings that can support the diagnosis include unilateral ovarian enlargement, stromal edema, peripherally displaced follicles, pelvic free fluid, and a twisted vascular pedicle [1,3]. However, no individual clinical or imaging finding reliably confirms or excludes ovarian torsion before surgery [1,3].

The Doppler findings in this case are particularly instructive. The left ovary was markedly enlarged, measuring approximately $41 \times 37 \times 32$ mm with an estimated volume of 27 mL, yet color and power Doppler imaging demonstrated diminished vascularity with faint internal vascular signals. The presence of Doppler blood flow does not exclude ovarian torsion, and Doppler findings should not be used in isolation to guide clinical decision-making [1,3]. In our patient, laparoscopy subsequently demonstrated approximately 360° left ovarian torsion despite the residual vascular signals. This clinical-imaging correlation illustrates why Doppler findings should be interpreted together with the patient's symptoms, ovarian morphology, and clinical history.

The absence of an ovarian cyst or adnexal mass is also clinically relevant. Pediatric torsion can occur in a morphologically normal ovary [1,2]. This was the situation in our patient: no ovarian cyst or adnexal mass was demonstrated on preoperative ultrasonography or identified during surgery. Therefore, the absence of a structural lead point should not reduce clinical suspicion when other features suggest torsion.

Current surgical management emphasizes detorsion and preservation of the ovary whenever feasible [1,2]. The gross appearance of the torsed ovary does not reliably determine subsequent viability, and ovarian salvage should be attempted unless oophorectomy is unavoidable [1,2]. In the present case, the left ovary was enlarged and congested but remained viable. Detorsion resulted in observed reperfusion, allowing preservation of the ovary without oophorectomy.

Follow-up ultrasonography provided objective evidence of postoperative normalization. The left ovarian volume decreased from approximately 27 mL during the acute episode

to approximately 2.7 mL at 8 weeks. No adnexal solid or cystic lesion or pelvic free fluid was subsequently identified, and the follow-up examination was interpreted as unremarkable.

The role of oophoropexy in pediatric ovarian torsion remains uncertain. The American Pediatric Surgical Association systematic review supports ovarian preservation but found insufficient evidence to recommend routine oophoropexy after every first episode of pediatric ovarian torsion [2].

More recent evidence is particularly relevant to our case. Mandarano et al reported a 14-year single-center experience of primary ovarian torsion in pediatric patients and documented recurrent torsion despite oophoropexy [5]. Their findings emphasize that ovarian fixation does not provide absolute protection against recurrence and that the optimal fixation technique remains uncertain [5].

A subsequent 2026 systematic review and meta-analysis examined oophoropexy specifically for primary pediatric ovarian torsion without an adnexal lesion [6]. The analysis included 12 retrospective studies comprising 209 patients. Although recurrence was numerically lower following detorsion with oophoropexy than following detorsion alone, the pooled difference was not statistically significant [6]. Thus, available evidence suggests that oophoropexy can have a role in selected patients but does not establish complete protection against recurrence or support its routine use after every first episode [5,6].

The present case report provides a direct clinical example of this limitation. Our patient developed recurrent ipsilateral torsion approximately 1 year after her initial detorsion and oophoropexy. At repeat surgery, detorsion was successful and utero-ovarian ligament plication was performed. Previous oophoropexy therefore should not remove ovarian torsion from the differential diagnosis when a child subsequently presents with compatible symptoms.

From a pediatric emergency perspective, severe intermittent unilateral or predominantly unilateral abdominal pain accompanied by vomiting should prompt consideration of ovarian torsion, particularly in a patient with previous torsion [1,4]. Ultrasonography can strengthen diagnostic suspicion and identify alternative pathology, but residual Doppler flow should not delay appropriate surgical consultation when the overall clinical picture remains concerning [1,3]. Ovarian torsion remains a surgical diagnosis, and timely diagnostic laparoscopy is indicated when clinical suspicion is high [1].

This case demonstrates 3 clinically important features: recurrent torsion despite previous oophoropexy, faint residual Doppler vascularity despite surgically confirmed 360° torsion, and successful ovarian preservation followed by sonographic

normalization. Together, these findings emphasize continued clinical vigilance after oophoropexy and support timely surgical assessment and ovarian-preserving management when recurrent pediatric ovarian torsion is suspected [1,2,5,6].

Conclusions

Recurrent ovarian torsion can occur in children despite previous oophoropexy. In this patient, recurrent 360° left ovarian torsion occurred approximately 1 year after fixation, and faint internal vascularity remained detectable on Doppler ultrasonography. Therefore, previous oophoropexy and the presence of residual Doppler flow should not exclude ovarian torsion when the clinical presentation remains concerning. Prompt surgical evaluation allowed successful detorsion and preservation of the ovary, with subsequent ultrasonographic normalization at 8 weeks.

Acknowledgments

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Department and Institution Where Work Was Done

King Fahd University Hospital, Al Khobar, Saudi Arabia.

Consent for Publication

Written informed consent for publication of the patient's clinical information and diagnostic images was obtained from the patient's parent/legal guardian.

AI Disclosure

During the preparation of this manuscript, the author used ChatGPT (OpenAI) to assist with language editing, improvement of readability and clarity, organization of the manuscript, and formatting support. The author subsequently reviewed and edited the AI-assisted content and takes full responsibility for the accuracy, integrity, clinical interpretation, references, and final content of the manuscript. Artificial intelligence was not used to generate patient data, clinical findings, diagnostic images, or clinical decisions.

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