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Isolated Fallopian Tube Torsion in an Adolescent - A Case Report

Authors

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CASE REPORT

Isolated Fallopian Tube Torsion in an Adolescent - A Case Report

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Introduction: Isolated fallopian tube torsion is rare and can be challenging to diagnose given its non-specific presentation. Although this condition is often associated with older women of reproductive age, young adolescents are not spared. Despite advances in imaging, the diagnosis is almost exclusively made by direct visualization during surgery, as occurred with this case.

Clinical Findings: The patient's initial presentation mimicked appendicitis, and subsequent imaging led us to prioritize diagnoses other than fallopian tube torsion. Although ovarian torsion was high on the differential, we did not make the correct diagnosis—isolated left fallopian tube torsion—until direct visualization in the operating room.

Clinical Course: Due to the extent of necrosis, the fallopian tube could not be salvaged, and the patient underwent an uncomplicated unilateral salpingectomy. Her recovery was uncomplicated, and her future fertility outcomes are unknown.

Conclusions: In hindsight, earlier surgical exploration could have led to a timelier diagnosis and preservation of the affected fallopian tube.

Keywords: torsion, adolescent, fallopian tube, laparoscopic surgery, pediatric gynecology

A female who is 13 years old, has regular menses, and is not sexually active presented to a local hospital after experiencing emesis and the sudden onset of crampy, persistent abdominal pain in her left lower quadrant. She was afebrile and denied changes in bowel habits; she had no peritoneal signs on exam. Her laboratory results, which included a complete blood count and lipase assessment, were normal apart from mild leukocytosis. The beta-hCG qualitative result was negative.

Computed tomography and transabdominal pelvic ultrasound both showed a large (~10 cm) multiloculated cystic mass anterior to the uterus (Figure 1). The pelvis contained free fluid, and fat

stranding extended near a mildly dilated appendiceal tip. Gynecology evaluated the patient and referred them to follow up at the pediatric surgery clinic at our tertiary hospital.

Two days later, the patient presented to our pediatric surgery clinic, reporting continued, severe abdominal pain and requiring a wheelchair for transportation. She was admitted. Her laboratory results were normal for the following tumor markers: alpha-1-fetoprotein, cancer antigen 19-9, carcinoembryonic antigen, beta-human chorionic gonadotropin, and lactate dehydrogenase. During diagnostic laparoscopy, we identified a large cystic lesion in the pelvis (Figure 2). We obtained washings and decompressed the cystic components.

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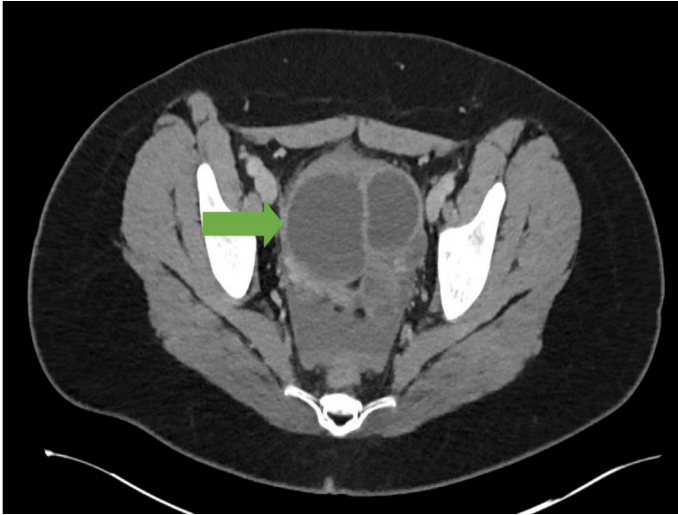


Figure 1. Preoperative Computed Tomography Showing Multiloculated Pelvic Cyst (Green Arrow)

The left fallopian tube was torsed, and all other anatomy appeared edematous but normal. The gynecology service was consulted intraoperatively, and a joint decision was made to detorse the left fallopian tube and perform a salpingectomy while preserving the left ovary.

The cytology results were negative for malignancy. The left fallopian tube pathology showed a benign cyst wall with extensive stromal hemorrhage and necrosis.

The patient progressed quickly through postoperative recovery and was discharged on postoperative day 1.

DISCUSSION

Isolated fallopian tube torsion rarely occurs in adolescent females. The exact incidence of this condition is difficult to ascertain, and the most recent estimates are from nineteenth- and mid-twentieth-century literature.¹ Given the rarity of the condition, most published literature on isolated fallopian tube torsion is in the form of case reports or case series.

Although uncommon, isolated fallopian tube torsion can occur in adolescents and therefore should remain in the differential diagnosis when evaluating abdominal and pelvic pain. The risk factors for fallopian tube torsion in young adolescents include: presence of a cyst or neoplasm, a long utero-ovarian ligament, congenital anomaly, infection, altered tubal function leading to pathology (eg, hydrosalpinx), adhesions, endometriosis, or

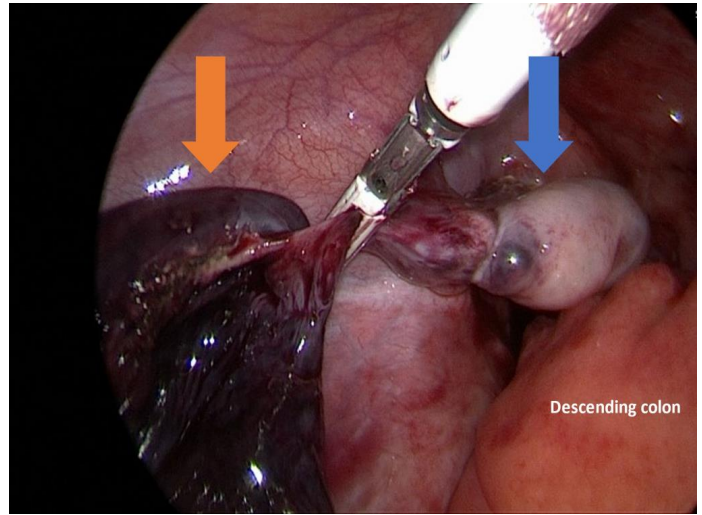


Figure 2. Left Ovary (Blue Arrow) and Detorsed Left Fallopian Tube (Orange Arrow) Showing Clear Demarcation of the Torsion

sudden movement.² One study suggests that adnexal cysts are a likely cause of torsion,³ and other studies suggest that sudden movement might contribute to torsion in adolescents.^{4,5} Although our patient did not have clear risk factors, imaging and clinical presentation ruled out appendicitis, which increased the likelihood of some form of adnexal torsion. Given the cystic appearance of the pelvic mass on imaging and surgical pathology results including a benign cyst, a cyst was the likely nidus of the torsion. However, altered tube function, congenital anomaly, or sudden movement are possible or exacerbating factors.

Fallopian tube torsion is difficult to diagnose.^{4,6} Given its vague and non-specific symptoms, this condition is not often suspected preoperatively,^{5,7,8} which can delay diagnosis and treatment. The diagnosis is seldom made until the time of surgery. This difficult process of diagnosing isolated fallopian tube torsion preoperatively is demonstrated by this case study and emphasized in the literature. In one study, preoperative imaging led to a diagnosis of isolated fallopian tube torsion in only 1 of 8 adolescents.⁹ Despite this low diagnostic rate, the study identified a common ultrasound finding that could suggest the diagnosis: the presence of a midline cystic mass in the setting of a normal ipsilateral ovary.⁹ This finding was consistent with a review of 5 cases in which isolated fallopian tube torsion was identified preoperatively based on ultrasonographic images. In the review, 3 of 5 cases had a cystic mass, 1 had hydrosalpinx, and 1 had a normal tubal structure. The authors noted that progression of torsion can lead to hematosalpinx and peritubal hematomas,

which can make the diagnosis of fallopian tube torsion more challenging.¹⁰ This process was likely the case with our patient.

Although we attempted conservative management, we could not salvage our patient's fallopian tube due to the extent of necrosis and edema. Detorsing and observing the tissue could resume blood flow to the previously strangulated tissue, thus reviving the tissue and negating the need for a salpingectomy. We attempted this approach in our patient, but the tissue remained necrotic. If the necrotic tissue was left behind, the patient would be at risk for developing sepsis; therefore, the safest approach was a salpingectomy. A salpingostomy was not possible, nor advisable. Extrapolating from ectopic literature, salpingectomy may be slightly favorable to salpingostomy for future intrauterine pregnancies.¹¹ We do not know the exact implications of the salpingectomy on our patient's future fertility. If her fallopian tube had an inherent issue, the remaining tube may have the same issue, also be at risk for torsion, or have intrinsic issues leading to difficulties with conception. Given the uncertainty, we recommended that the patient establish care with a gynecologist.

HIGHLIGHTS

- The presentation of isolated fallopian tube torsion can mimic other (more common) conditions but should remain on the differential.
- On imaging, a midline cystic mass in the setting of a normal ipsilateral ovary may suggest isolated fallopian tube torsion.
- If torsion is suspected, immediate surgical exploration is indicated as it increases the likelihood of salvaging the fallopian tube.
- Isolated fallopian tube torsion can occur in patients of any age, including adolescents.

Conflicts of Interest: None.

Acknowledgments:

We acknowledge the patient and her family for their willingness to share the patient's story so that others might learn. We also thank all the individuals involved in this patient's care.

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