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Isolated Fallopian Tube Torsion Caused by a Mature Cystic Teratoma: A Rare Case Report

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Abstract:

- ***Introduction***

Isolated torsion of the fallopian tube is a rare but significant cause of acute pelvic pain in women of reproductive age. We present a rare case of tubal torsion caused by a mature para-tubal cystic teratoma arising from the right fallopian tube.

- ***Case Presentation***

A 27-year-old woman presented to the gynecological emergency department with acute right iliac fossa pain of five days' duration, associated with vomiting. Imaging revealed an adnexal mass suggestive of a teratoma and a twisted fallopian tube. Surgical exploration confirmed an isolated right tubal torsion with a mature cystic teratoma arising from the infundibulum. Due to tubal necrosis, a retrograde right salpingectomy with cystectomy was performed. Histopathology confirmed a mature cystic teratoma.

- ***Conclusion***

Although dermoid cysts typically arise from the ovary, rare para-tubal or tubal localizations can cause isolated tubal torsion. Early diagnosis and surgical intervention are essential to prevent complications and preserve fertility when possible.

Keywords: *Isolated Fallopian Tube Torsion; Mature Cystic Teratoma; Para-Tubal Dermoid; Adnexal Torsion.*

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I. INTRODUCTION

Isolated fallopian tube torsion (IFTT) is a rare gynecological emergency, accounting for less than 1% of all adnexal torsions [1,2]. It typically occurs in the presence of predisposing factors such as hydrosalpinx, para-tubal cysts, or congenital anomalies [3]. While mature cystic teratomas (dermoid cysts) are common benign ovarian tumors, their para-tubal localization is exceedingly uncommon [4,5]. Even more exceptional is their direct attachment to the fallopian tube, leading to torsion [6].

Due to the non-specific clinical presentation, IFTT often poses a diagnostic challenge, resulting in delayed management and potential loss of the fallopian tube [7]. This report presents a rare case of isolated right tubal torsion caused by a mature para-tubal cystic teratoma attached to the infundibulum via a pedicle. Through this case, we emphasize the importance of considering unusual adnexal masses in the differential diagnosis of acute pelvic pain.

II. CASE PRESENTATION

Ms. L.S., a 27-year-old woman, presented to the gynecological emergency department with acute right iliac fossa pain evolving over five days. The pain was described as intense and paroxysmal, resembling torsion, and was associated with three episodes of vomiting. She was afebrile and in good general condition.

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On clinical examination, she was hemodynamically stable and apyretic. Abdominal palpation revealed right iliac fossa tenderness. Vaginal examination showed pain upon mobilization of the uterus, particularly on the right side. Laboratory tests were unremarkable: hemoglobin 12 g/dL, white blood cell count 7,500/µL, negative C-reactive protein (CRP), and negative β-hCG.

Pelvic ultrasound revealed an enlarged right adnexa with a well-circumscribed oval mass showing the characteristic "spoke wheel" appearance. The mass measured 35 × 47 × 47 mm (volume ≈ 40 cc), with triple-density content (fatty, calcified, and hyperechoic areas). Doppler showed preserved vascularity. A twisted and thickened ipsilateral fallopian tube with a "whirlpool" appearance and minimal fluid collection was also noted. A CT scan confirmed these findings.

Emergency laparotomy revealed isolated torsion of the right fallopian tube, twisted at its infundibular portion. A cystic mass was attached by a pedicle to the infundibulum (Figure 1). The uterus, left ovary, and left fallopian tube were normal. A small amount of clear serous peritoneal fluid was observed.

Despite detorsion and warm saline irrigation, the right tube showed no signs of revascularization. Consequently, a cystectomy and retrograde right salpingectomy were performed (Figure 2).

Upon sectioning the excised specimen, the cystic content revealed hair fragments, a hallmark feature of mature cystic teratomas (Figure 3).

Histopathological analysis confirmed the diagnosis of a mature para-tubal cystic teratoma.

III. DISCUSSION

Isolated fallopian tube torsion (IFTT) is a rare gynecological emergency, with an estimated incidence of less than 1 in 1.5 million women, accounting for under 1% of all adnexal torsions [1,2]. This rarity, combined with non-specific clinical symptoms, often leads to delayed diagnosis and irreversible tubal damage [3,4].

The underlying pathophysiology involves torsion of the fallopian tube around its vascular pedicle, resulting initially in venous and lymphatic obstruction, followed by arterial ischemia [5]. Predisposing factors include pelvic adhesions, hydrosalpinx, tubal neoplasms, para-tubal or para-ovarian cysts, and congenital anomalies [6,7].

The uniqueness of our case lies in the presence of a mature para-tubal cystic teratoma—also known as a dermoid cyst—attached by a pedicle to the infundibulum. This rare localization likely acted as a pivot point, triggering torsion [8]. While dermoid cysts are common benign ovarian tumors, accounting for 10–20% of ovarian neoplasms, para-tubal localization is exceptional [9]. It is hypothesized to originate from ectopic germ cells displaced during embryogenesis [10,11].

Clinically, IFTT often mimics other causes of acute abdomen such as appendicitis, ovarian torsion, or ectopic pregnancy, typically presenting with unilateral pelvic pain, sometimes associated with nausea and vomiting [2,12]. In our patient, the five-day delay in consultation contributed to the ischemic damage, ultimately requiring salpingectomy.

Ultrasound is usually the first-line imaging modality and may reveal an adnexal mass, thickened tube, and occasionally the characteristic "whirlpool sign" of a twisted pedicle [6,13]. However, this sign is not always visualized, and Doppler studies may be falsely reassuring due to preserved arterial flow despite venous compromise [7,14]. In our case, the ultrasound findings—triple-density mass, twisted tube—were confirmed by CT scan.

When sonographic findings are inconclusive, CT and MRI can help identify fat, calcifications, or sebaceous material typical of dermoid cysts [11,15]. These features aid in distinguishing para-tubal teratomas from other adnexal masses.

Surgical exploration remains the gold standard for diagnosis and treatment. Laparoscopy is preferred when feasible due to its minimally invasive nature, but laparotomy may be necessary in uncertain diagnoses or when necrosis is suspected [16]. Early detorsion may restore tubal viability, particularly in women desiring fertility. In delayed cases like ours, irreversible ischemia precludes conservative management.

Preservation of reproductive potential depends largely on the status of the contralateral tube and timing of intervention [7,17]. This case underscores the importance of considering isolated tubal torsion—even in the presence of atypical adnexal masses like para-tubal dermoid cysts—in the differential diagnosis of acute pelvic pain in reproductive-age women.

IV. CONCLUSION

This case highlights a rare instance of isolated fallopian tube torsion caused by a mature para-tubal cystic teratoma originating from the infundibulum. Although dermoid cysts most commonly arise from the ovary, para-tubal localizations—particularly those directly attached to the fallopian tube—are exceptional and should be considered in the differential diagnosis of acute pelvic pain in reproductive-age women [1,9]. The non-specific clinical presentation of IFTT often delays diagnosis and increases the risk of irreversible ischemia. Prompt imaging and early surgical intervention remain essential to prevent tubal loss and preserve fertility when feasible [2,16].

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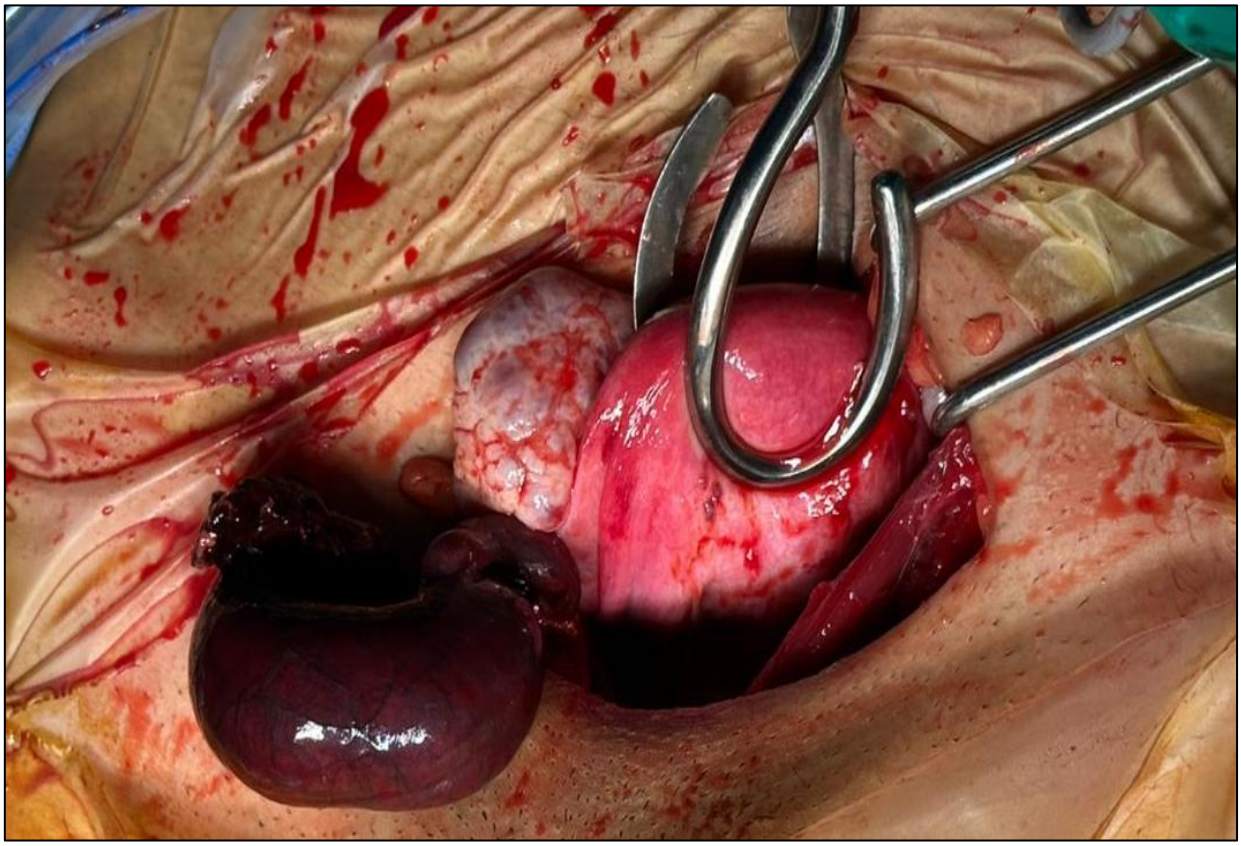
FIGURE LEGENDS

- Fig 1. Intraoperative View Showing an Isolated Torsion of The Right Fallopian Tube at the Infundibular Portion. The Twisted, Necrotic Tube Appears Darkened and Edematous. A Para-Tubal Cystic Mass, With Features Suggestive of a Mature Teratoma, Is Seen Attached by A Pedicle.

- Fig 2. Gross Specimen of the Twisted Fallopian Tube with Adherent Para-Tubal Dermoid Cyst. The Specimen Appears Congested and Necrotic, With Clear Delineation of the Cystic Component Attached to the Infundibulum.

- Fig 3. Macroscopic View of the Excised Specimen After Resection Showing a Necrotic Fallopian Tube Associated with a Para-Tubal Mature Cystic Teratoma. The Cut Surface Reveals Sebaceous Material and Hair Elements Characteristic of a Dermoid Cyst.



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