

# Isolated fallopian tube torsion during pregnancy: a case report

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## Summary

Isolated fallopian tube torsion is a rare pregnancy-related complication. It is frequently misdiagnosed as acute appendicitis or ovarian torsion owing to the lack of specific symptoms or signs. Here, the authors report a case of a 35-year-old primigravida at 30 weeks and six days of gestation who had presented with right isolated fallopian tube torsion and a history of right oophorectomy. The authors propose that isolated fallopian tube torsion should be included in the list of differential diagnosis when encountered with patients complaining of lower abdominal pain.

**Key words:** Fallopian tube; Torsion; Pregnancy; Isolated; Ipsilateral oophorectomy.

## Introduction

Among the possible causes of acute abdominal pain during pregnancy, the most common is acute appendicitis [1]. Many non-obstetric conditions mimic acute appendicitis, such as adnexal torsion, pyelonephritis, urinary calculi, cholecystitis, and bowel obstruction. If the patient presenting with abdominal pain is pregnant, obstetrical causes such as preterm labor, abruptio placentae, chorioamnionitis, and torsion or degeneration of a leiomyoma should be considered [1].

Because isolated fallopian tube torsion usually presents with right lower quadrant abdominal pain, it is difficult to differentiate it from acute appendicitis. Thus, it may be initially misdiagnosed as acute appendicitis. An accurate diagnosis may be obtained only in the operating room.

## Case Report

A 35-year-old woman, gravida 0, para 0, was referred to the present hospital with mild consistent right lower abdominal pain, which had commenced five days prior. She was at 30 weeks and six days of gestation, and antenatal care had been well performed at a local clinic. At onset, she visited the local clinic due to vague lower abdominal pain, which was considered suggestive of preterm labor and she was thus admitted for tocolysis. During the first few days, tocolytic therapy was effective in relieving pain. However, on the fifth day of therapy, she complained of right lower abdominal pain with increasing intensity and was referred to the present hospital for a second opinion. On reviewing her history and physical examination, no noticeable symptoms or signs were found, except for mild right lower quadrant abdominal pain and tenderness. Her vital signs were stable, and initial laboratory findings revealed mild leukocytosis (white blood cell, 11.34 K/ $\mu$ l [range, 4–10 K/ $\mu$ l] and elevated C-reactive protein, 3.497 mg/dl [range, 0–0.5 mg/dl]). Routine urinalysis results were normal.

Cardiotocography revealed no uterine contractions. Preoperative ultrasonography revealed no adnexal cyst or signs of acute appendicitis. Because the patient had undergone right oophorec-

tomy due to a mature cystic teratoma six years prior, right adnexal torsion was not included in the differential diagnosis at first. For further assessment, magnetic resonance imaging (MRI) was performed. MRI showed a normal appendix, and no abnormal focal lesion was identified. Because the correct diagnosis could not be established, an exploratory operation was performed in light of possible acute appendicitis. Laparotomy with small right paramedian incision was performed by the general surgical team. The findings revealed a normal appendix; however, a hyperemic edematous right fallopian tube was observed. In addition, the right fallopian tube had twisted twice counterclockwise (Figure 1). Right salpingectomy was performed by the on-call gynecology team. No adhesion band was found around the right fallopian tube despite having undergone surgery previously. The right fallopian tube showed no abnormalities such as cysts, fluid-filled hydrosalpinx, or pyosalpinx. Although the appendix seemed to be grossly normal, appendectomy was performed to rule out microscopic inflammation. Histopathology confirmed a slightly congested fallopian tube, measuring  $7.5 \times 1.2$  cm. Pathological reports showed fallopian tube congestion and hemorrhage resulting from ischemic damage and normal appendix. After the operation, the radiologist revisited the MRI and attempted to locate the twisted right fallopian tube, but was unable to do so.

After surgery, the patient was kept under observation by using cardiotocography. Preterm labor occurred on the first postoperative day and intravenous infusion of ritodrine was maintained until the fourth postoperative day. She was discharged on the seventh postoperative day. At the two-week follow-up at the outpatient clinic, both the patient and fetus were doing well.

## Discussion

Isolated fallopian tube torsion during pregnancy is extremely rare; Origoni *et al.* retrieved only 19 cases treated surgically from 1936 to 2009 [2]. In 2011, isolated torsion of the left normal fallopian tube during pregnancy and laparoscopic management of an isolated fallopian tube torsion with a large right paratubal cyst at 35 weeks of gestation were reported [3, 4].

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Figure 1. — The right fallopian tube twisted twice counter-clockwise.

Torsion generally occurs in abnormal fallopian tubes; however, it may develop in normal ones as well [3]. The main predisposing factors for isolated fallopian tube torsion during pregnancy are paraovarian cysts such as Morgagni hydatis and hydrosalpinges and ovarian cysts [2,5].

Torsion without an apparent adnexal mass is uncommon. It is, however, seen in children in whom the adnexa are especially mobile, allowing torsion at the mesosalpinx [6].

In the present case, the left fallopian tube was normal and the left ovary was absent due to an oophorectomy performed six years prior. This fact is noteworthy. Generally, torsion of the adnexal structures involves the tube or the ovary, but more often it involves both and a common predisposing factor is an ipsilateral adnexal mass [7]. Hence, the present authors did not consider adnexal torsion as a diagnosis at first. However, it is possible that the fallopian tube had moved about freely without the ovary and thus had a greater chance for twisting.

Fallopian tube torsion has been reported more often on the right side, and this may be related to the presence of the sigmoid colon, which prevents excessive adnexal movements or slow venous flow on the right side resulting in congestion of the tube. Surgeons correlate right lower abdominal pain with appendicitis, and this often leads to related operations [8, 9].

The most common symptom of tubal torsion is lower abdominal pain with or without nausea, vomiting, and sometimes uterine bleeding. Abdominal tenderness is observed in almost all patients [5]. However, these features are not pathognomonic, and imaging studies can help in diagnosing acute abdomen. In previous reports, transvaginal ultrasonography, computed tomography (CT), and MRI have been used [7,10]. In the present case, the authors avoided CT.

Ultrasonography is usually the first examination performed in an emergency setting [7]. Color Doppler ultrasonography can be used to reveal arterial and venous flow to the adnexal structures. However, it is limited in its capacity

for displaying adnexal torsion [11]. The present authors were unsure of the existence of any abnormality in the pelvic cavity as detected by ultrasonography; hence, MRI was performed. CT or MRI is recommended for the detection of appendicitis, twisted vascular pedicle, thickened fallopian tube, and pelvic mass [7].

Even though imaging studies play an important role in diagnosis, the correct diagnosis is not usually established prior to operation, and it is almost always necessary to remove the tube [12]. Early diagnosis and treatment make it possible to conserve the twisted adnexa by untwisting the pedicle and resecting the cysts or tumors. However, when the patient presents with nonspecific clinical and laboratory findings, surgery is often delayed and irreversible necrotic change has occurred in majority of the cases, thereby requiring salpingectomy [13].

In conclusion, although isolated tubal torsion is extremely rare, it should be included in the list of differential diagnoses of pregnant women with lower abdominal pain, even if the ipsilateral ovary had been removed previously.

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