

# Isolated torsion of bilateral fallopian tubes: a case report

J.X. Ruan\*, Y. Chen\*, Y.Y. Wang, L. Yao, C.Y. He, H.N. Weng

Guangdong Women and Children Hospital, Guangzhou, Guangdong (China)

## Summary

Isolated fallopian tube torsion (IFTT) is a rare entity that is difficult to diagnose its atypical clinical symptoms. Early diagnosis is important to avoid damage or loss of the fallopian tube or even the ovary, as this occurs predominantly in women of child-bearing age. Treatment can range from detorsing the tube to salpingectomy or even salpingo-oophorectomy. Here, the authors present a case of IFTT. A 25-year-old girl was referred to the hospital due to infertility. Bilateral fallopian tube torsion was found by laparoscopy, reamputation of left fallopian tube stump, and partial excision of right fallopian tube were performed. On follow-up examinations within the next six months, postoperative course was uneventful. The diagnosis of IFTT can rarely be made preoperatively, and it has to be considered in differential assessment of infertility.

**Key words:** Isolated fallopian tube torsion; Diagnosis; Salpingectomy; Salpingo-oophorectomy.

## Introduction

Isolated fallopian tube torsion (IFTT) is a rare disease in which the fallopian tube rotates on its own axis without torsion of the homolateral ovary. IFTT is a rare gynecological cause of acute lower abdominal pain, especially in young teenage girls [1]. It primarily affects ovulating women and is rarely seen in postmenopausal women [2]. Also, it is a very rare medical emergency in premenarchal girls [3]. The incidence of this disease is very low and only one case occurs per 1,500,000 [4]. Because of its extremely low incidence and atypical clinical symptoms, IFTT is usually diagnosed perioperatively and is often delayed due to misdiagnosis. Here, the authors report a rare case of isolated torsion of bilateral fallopian tubes.

## Case Report

A 25-year-old patient was attempting a pregnancy for three years. The hysterosalpingography performed in other hospital in March 2013 showed interrupted bilateral fallopian tubes. The patient asked for surgery because of procreative demand. She was admitted to this hospital with sequelae of pelvic inflammatory disease (PID). The patient was previously healthy without histories of operation or severe trauma. The patient had her first menstrual period at 13-years-old which were always regular, with cycles of 28 days, menstrual period of seven days, and moderate menstrual volume, and no history of dysmenorrhea. The patient was married and nulliparous, G0P0A0. Her personal and family histories were unremarkable. Relevant auxiliary preoperative tests and examinations were made after admission, and no abnormality was found, so the patient underwent uterine laparoscopy under general anesthesia on June 19, 2017 (Figure 1).

Laparoscopy showed a uterus of normal size, which adhered to the wall of the pelvic floor. The isthmus and ampullar region were discontinuous, and the latter was strongly adhered to pelvic wall by 3×2×0.5 cm<sup>3</sup> in left pelvic wall. The size of left ovary was normal with membranous adhesion to pelvic wall and a clockwise torsion of linear distal segment (the end of which is densely adherent to greater omentum) were seen in right fallopian tube; the right ovary was normal in size. Multiple layers of membranous adhering zones were found in the rectal sinuses of uterus. Hysteroscopy showed no abnormality of endocervix, uterine cavity and endometrium, and the bilateral uterine horns and tubal ostium were clearly seen. Reamputation of left fallopian tube stump and partial excision of right fallopian tube were given. Intraoperative diagnosis included: bilateral fallopian tube torsion and sequelae of PID. Postoperative pathological histology showed torsion of partial tissues of (bilateral) fallopian tubes and dilatation of (left) fallopian tube, as shown in Figure 2.

Antibiotic therapy was administered to the patient and was discharged from the hospital seven days later in a good general condition. Follow-up at six months was regular.

This study was approved by The Ethics Committee of Guangdong Women And Children Hospital. Participants have provided their written informed consent to participate in this study.

## Discussion

Hydrosalpinx is the more common type of chronic salpingitis. The 'dropsy' is derived from three major sources. Adhesion and occlusion in the isthmus and fimbriated extremity of fallopian tube caused by inflammation can easily lead to pyosalpinx which can cause the lumen of fallopian tube to dilate. Then, pus cells and necrotic tissue in the lumen eventually become a water-like fluid after decom-

\*First authors.

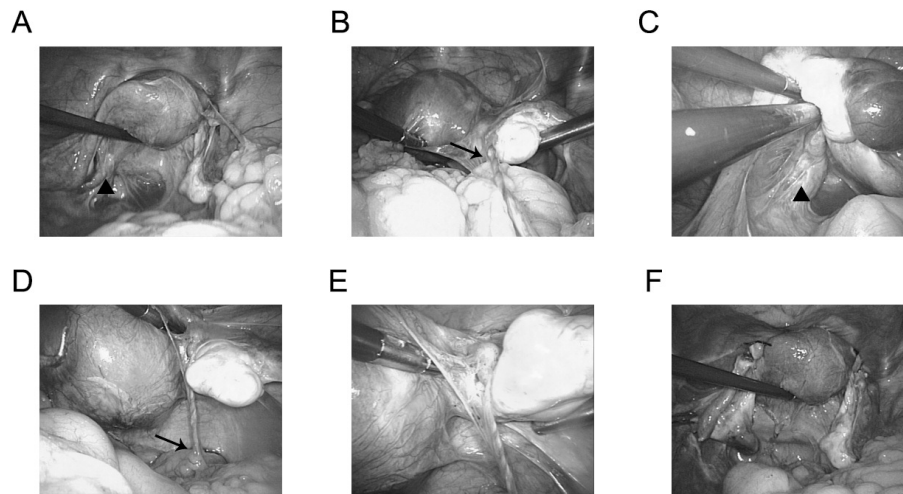


Figure 1. — Uterine laparoscopy. A) The stump of the left fallopian tube is seen as a triangle. B) The right fallopian tube torsion is seen as an arrow. C) The stump of the left fallopian tube is seen as a triangle. D) The adhesion of the right fallopian tube to greater omentum is seen as an arrow. E) Torsion of the long and thin right fallopian tube is seen. F) Operative procedure.

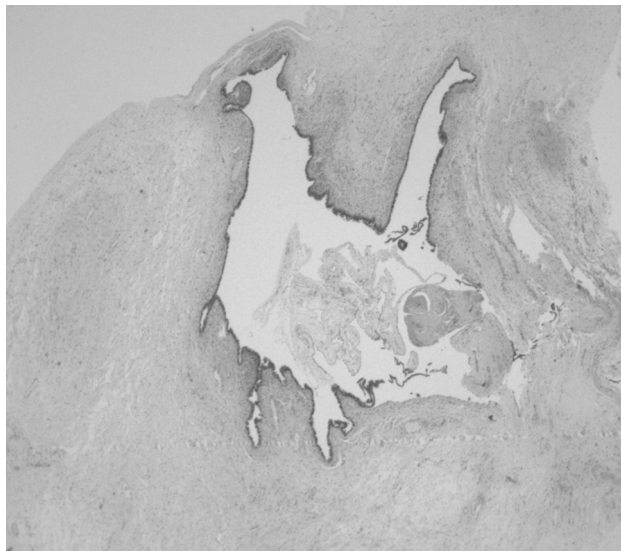


Figure 2. — Postoperative pathological histology showing torsion of partial tissues of both fallopian tubes and dilatation of the left fallopian tube.

position and clearance of phagocytic cell. After both ends of the lumen are obstructed due to adhesion, more and more secretory juice of mucosal cells, which are flattened due to compression, but not losing all function accumulates in the lumen and eventually, a large amount of water-like fluid formed in the lumen becomes hydrosalpinx. It must be mentioned that not all hydrosalpinx is caused by inflammation, for example, tubal ligation can also occasionally lead to hydrosalpinx. Hydrosalpinx is mainly bilateral, however, the lumen of unilateral fallopian tube after dropsy can be significantly more enlarged than the one in the opposite side. At this time, the shape of bilateral fallopian tubes is retort-like, and the segments closer to fimbriated extremity become thicker with a maximum diameter of more than 10 cm. The fallopian tubes are characterized by

thin tubal wall, smooth surface, and less adhesion to surrounding tissues, so they can twist with the isthmus axis [5].

The etiology of IFTT is still not clear. According to previous research, the main high risk factors include fallopian tube-related intrinsic and extrinsic factors [6-8]. The intrinsic factors include congenital abnormality of fallopian tube (e.g. long or excessive torsion of fallopian tube or mesosalpinx), acquired lesions of fallopian tube (e.g. hydrosalpinx, hemosalpinx, cyst of fallopian tube and tubal ligation), functional disorder, and abnormal peristalsis or spasm of fallopian tube. The extrinsic factors include oophoritic or parovarian cysts, tubal adhesion, hysterauxesis caused by pregnancy or tumors, excursion or contraction of organs adjacent to intrapulmonary air containing space, sudden change in body position or abdominal trauma, venous congestion of ovary or pelvic cavity during premenstrual phase or ovulation period, and so on.

There is no previous history of pelvic surgery in the patient in this case. The discontinuation of isthmus and absence of segments from ampullar region to distal end are seen in left fallopian tube, with suspected dilated fimbriated extremity of fallopian tube in left pelvic wall. Clockwise torsion of linear distal segment (the end of which is densely adherent to greater omentum) was seen in right fallopian tube during the operation. The patient received ligation of the proximal segments of both fallopian tubes, reamputation of left fallopian tube stump, and partial excision of the right fallopian tube. The postoperative pathological examination confirms that partial tissues of bilateral fallopian tubes are resected. The patient is considered to present with torsion of the left fallopian tube due to dropsy and autoamputation of its distal segment due to postischemic necrosis. The distal segment of right fallopian tube twists more than ten times and becomes as thin as a thread over a protracted period of time due to postural change and intestinal excursion, after adhering to the greater omentum. If the condi-

tions cannot be dealt with in time, the autoamputation of distal segment of the right fallopian tube may occur and may include the left fallopian tube.

Torsion of the fallopian tube is a kind of acute abdominal disease in gynecology, in which the main clinical manifestations usually are sudden persistent pain in unilateral lower abdomen or intermittent pain in unilateral lower abdomen followed by gradually-aggravated or unaggravated persistent pain with nausea, vomiting, and discomfort. Lower abdominal pain may radiate to the thigh and groin [9]. However, the patient in this case had no previous histories of sudden lower abdominal pain or acute pelvic inflammatory disease. The findings of this case suggest that patients with fallopian tube torsion may be delayed and lose the best treatment opportunity because of no obvious abdominal pain symptoms. In this case, a definite diagnosis was made laparoscopically which showed that the development and maturation of modern adjuvant reproductive technologies, and procreative demands of patients with fallopian tube torsion could be effectively resolved by in vitro fertilization and embryo transfer.

In conclusion, although IFTT has already been reported, it continues to surprise both clinicians and radiologists, hence occasional reports of IFTT cases are important as a reminder and a way of saving tubes in ovulating women. Its diagnosis can rarely be made before operation, often due to an absence of characteristic sonographic whirlpool sign, or due to inexperience of radiologist or gynecologist to recognize it. Familiarity with Doppler whirlpool sign can enable a timely diagnosis and treatment of IFTTs. However, the diagnosis is rarely made preoperatively. For this reason, laparoscopy is often necessary to establish the diagnosis. Laparoscopic treatment in women of reproductive age is warranted as a means of preserving fallopian tube integrity, and thus maintaining fertility. Unfortunately, in many cases,

unlike in the present, surgery is performed too late for tube preservation. Therefore, IFTT has to be considered in the differential diagnosis of acute pelvic pain or infertility.

## References

- [1] Rajaram S., Bhaskaran S., Mehta S.: "Isolated fallopian tube torsion in adolescents". *Case Rep. Obstet. Gynecol.*, 2013, 2013, 341507.
- [2] Comerci G., Colombo F.M., Stefanetti M., Grazia G.: "Isolated fallopian tube torsion: a rare but important event for women of reproductive age". *Fertil. Steril.*, 2008, 90, 1198.e1123.
- [3] van der Zanden M., Nap A., van Kints M.: "Isolated torsion of the fallopian tube: a case report and review of the literature". *Eur. J. Pediatr.*, 2011, 170, 1329.
- [4] Hansen O.H.: "Isolated torsion of the Fallopian tube". *Acta Obstet. Gynecol. Scand.*, 1970, 49, 3.
- [5] Bertozzi M., Magrini E., Riccioni S., Giovenali P., Appignani A.: "Isolated fallopian tube torsion with hydrosalpinx: Review of a debated management in a pediatric population". *J. Pediatr. Surg.*, 2017, 52, 1553.
- [6] Bernardus R.E., Van der Slikke J.W., Roex A.J., Dijkhuizen G.H., Stolk J.G.: "Torsion of the fallopian tube: some considerations on its etiology". *Obstet. Gynecol.*, 1984, 64, 675.
- [7] Krissi H., Shalev J., Bar-Hava I., Langer R., Herman A., Kaplan B.: "Fallopian tube torsion: laparoscopic evaluation and treatment of a rare gynecological entity". *J. Am. Board Fam. Pract.*, 2001, 14, 274.
- [8] Chambers B., Laksito M., Long F., Yates G.: "Unilateral uterine torsion secondary to an inflammatory endometrial polyp in the bitch". *Aust Vet. J.*, 2011, 89, 380.
- [9] Visnjic S., Kralj R., Zupancic B.: "Isolated fallopian tube torsion with partial hydrosalpinx in a premenarcheal girl: a case report". *J. Med. Case Rep.*, 2014, 8, 197.

Corresponding Author:  
H.N. WENG, M.D.  
Guangdong Women And Children Hospital  
521 Xingnan Road  
Panyu District, Guangzhou City  
Guangdong Province, 510000 (China)  
e-mail: hnw2018@aliyun.com