

# ISOLATED TORSION OF THE FALLOPIAN TUBE: A RARE DIAGNOSIS IN AN ADOLESCENT WITHOUT SEXUAL EXPERIENCE

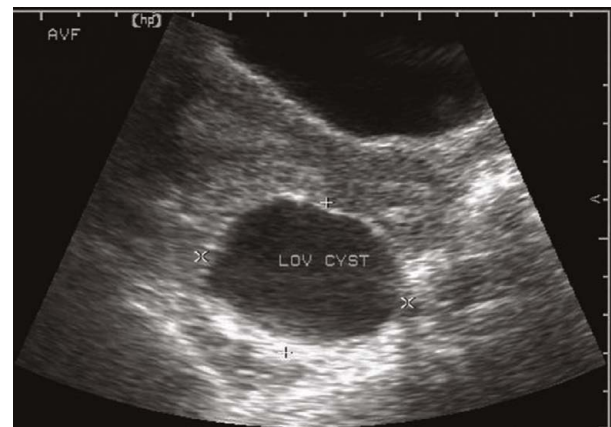
Pei-Ling Ho, So-Jung Liang, Hung-Wen Su, Chuan-Yaw Chang, Chun-Sen Hsu, Tak-Hay Ling\*  
*Department of Obstetrics and Gynecology, Taipei Medical University–Wan-Fang Hospital, Taipei, Taiwan.*

Isolated torsion of the fallopian tube is a rare gynecologic condition [1,2] and was first described by Bland-Sutton [3] in 1890. The incidence is approximately 1 in 1.5 million women [4,5]. The lack of particular clinical findings, specific images and characteristic laboratory data make the preoperative diagnosis difficult [1,5,6]. The diagnosis is usually established after surgical intervention.

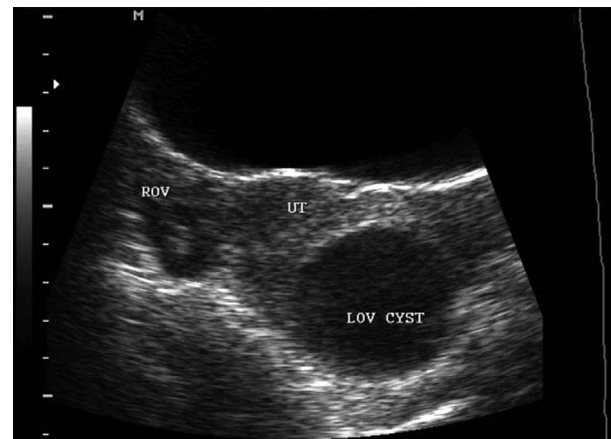
A 19-year-old adolescent, who denied any sexual experience, was twice presented with sudden onset of lower abdominal pain, predominantly in the left lower quadrant, in the last year. The first episode occurred 1 year previously and the patient was brought to our emergency room. The abdominal pain was sharp, persistent, non-radiating and mainly in the left lower quadrant of abdomen, but with no obvious peritoneal signs. Plain abdominal film showed much fecal material retained in the large bowel. Enema and nonsteroidal anti-inflammatory drug were prescribed. The tenderness was relieved. She was discharged with the presumptive diagnosis of stool impaction.

Unfortunately, she experienced a second episode of abdominal pain 5 months later. Similar symptoms were recorded and were also resolved after taking oral analgesics. Subsequently, she visited a gynecologic clinic a few days later. Ultrasonographic evaluation was arranged. Transabdominal sonography revealed a 4 × 4 cm cystic mass in the left adnexa, which resembled an ovarian cyst. Transient torsion of the cyst was suspected, and she was referred to our gynecologic outpatient department for further evaluation. Transabdominal sonography was performed again and illustrated a cystic mass measuring about 5.6 × 4.1 cm at the left adnexa (Figure 1). She denied having any gynecologic disease previously.

Therefore, considering her medical history, age and clinical symptom signs, conservative treatment was instituted. The cystic mass persisted without causing any symptoms and signs for the 6 months that followed, but the cyst continued to enlarge to 6.2 × 4.4 cm when followed up by sonography (Figure 2). Hence, surgical



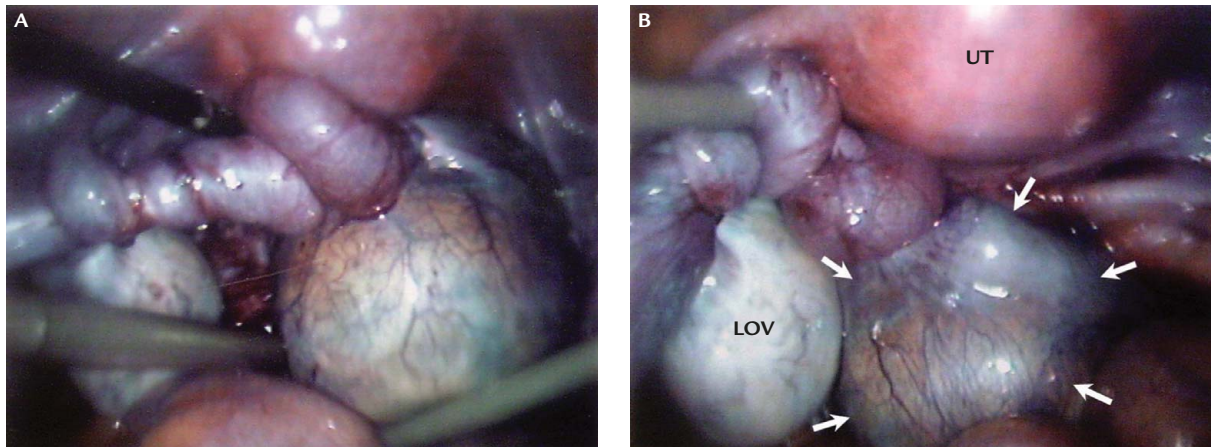
**Figure 1.** Transabdominal sonography reveals a cystic structure of about 5.6 × 4.1 cm on the left ovary. LOV CYST = left ovarian cyst.



**Figure 2.** A cystic mass, persisting for 6 months, measuring 6.2 × 4.4 cm and adjacent to the uterus, is suspected to be a left ovarian neoplasm. LOV CYST = left ovarian cyst; ROV = right ovary; UT = uterus.



\*Correspondence to: Dr Tak-Hay Ling, Department of Obstetrics and Gynecology, Taipei Medical University–Wan-Fang Hospital, 111, Section 3, Hsing-Long Road, Taipei 116, Taiwan.  
E-mail: takhay7777@yahoo.ca  
Accepted: July 18, 2007



**Figure 3.** (A) Torsion of the left fallopian tube with twisting of more than five turns (laparoscopic view). (B) Hematosalpinx secondary to torsion of the left tube (arrows) with normal gross view of the left ovary demonstrated under laparoscopy. LOV = left ovary; UT = uterus.

intervention was suggested. The level of tumor marker CA-125 was 9.24 U/mL prior to the surgery, and her blood cell counts were also within normal limits.

Under videolaparoscopic intervention, the left fallopian tube torsion was seen with a scanty amount of bloody fluid in the cul-de-sac. The left fallopian tube was twisted with several turns (over five times) at the isthmus portion. The torsion obliterated the blood supply, leading to a gangrenous change in the tube with hematoma formed in the ampullary section (Figure 3). The fimbrial end was in a congestive state. Both ovaries were grossly normal. Hence, a laparoscopic left salpingectomy was performed immediately. We also removed the paratubal cyst on the right tube. Pathologic examination of the left fallopian tube revealed a hydrosalpinx with marked focal hemorrhagic and coagulative necrosis. There was focal fat necrosis in the dilated fallopian tubular wall with fresh and old hemorrhages. Microcalcification and giant cell reaction around the necrotic tissue were also noted. The pathologic findings were compatible with surgical diagnosis of left tubal torsion with hydrosalpinx. There was no complication during the postoperative period, and the patient was discharged on the fourth day after surgery.

Varras et al [2] reviewed 92 cases over a 10-year period and reported that adnexal torsion was most commonly associated with benign processes (89%) and usually occurred in patients younger than 50 years (80%). Torsion of the right fallopian tube is more commonly described than that of the left fallopian tube. It could be that the mobility of the left tube is limited by the sigmoid colon or that more cases of right-sided pain are surgically explored for suspected acute appendicitis [7–9]. The exact cause of fallopian tube torsion is unknown, and various theories have been postulated.

Possible etiologies [6–8,10–12] for the fallopian tube torsion are proposed as followed:

1. Anatomic abnormalities, such as long mesosalpinx, tortuous dilated tube (hydro- or hematosalpinx), tubal mass (tubal neoplasm) and adnexal mass (adjacent ovarian or paraovarian tumor);
2. Physiologic abnormalities, such as abnormal peristalsis or periovulatory spasm;
3. Hemodynamic abnormalities, such as adnexal venous congestion;
4. Sellheim theory (sudden body position changes);
5. Trauma, previous surgery or disease, such as pelvic inflammatory disease, pelvic adhesion and tubal ligation;
6. Gravid and enlarged uterus or uterine masses.

The clinical manifestations of tubal torsion include lower abdominal pain, nausea, vomiting, frequent urination, urgency with voiding difficulty, sensitive adnexal mass, and uterine bleeding [4,8,11,13]. Vaginal examination may reveal cervical motion tenderness and an adnexal mass, mimicking a tubo-ovarian abscess [12,14]. The most common presenting sign is pain, which begins in the lower abdomen or pelvis on the affected side but may also radiate to the back, thigh or groin areas [11]. The characteristics of the pain may be constant and dull, or paroxysmal and sharp. But all of these are nonspecific. The differential diagnoses should include acute appendicitis, torsion or rupture of an ovarian cyst or follicle, ectopic pregnancy, pelvic inflammatory disease, endometriosis, degeneration of leiomyoma, intestinal obstruction or perforation, and renal colic [1,4,8,14].

Hydrosalpinx in adolescents is very rare and may be misdiagnosed as a simple ovarian cyst [15]. Krstic [16] described the first case of an adolescent (13 years old) with acute abdominal pain and adnexal torsion

secondary to a unilateral hydrosalpinx. Our case was unusual in that a left tubal torsion with hydrosalpinx presented in a 19-year-old virgin with no obvious risk factors such as pelvic inflammation, making it a rare entity. Therefore, it was more difficult to diagnose preoperatively.

Ultrasonography is always used as a first-line investigation in gynecologic evaluation, because it is non-invasive and real-time. The sonographic features of tubal torsion, which have been reported, include tubal thickening, hematosalpinx, and adnexal mass [17]. The torsion may be intermittent, which may explain the come-and-go abdominal pain seen in our case. Repeated sonographic examinations or radiologic studies such as computed tomography may be necessary, particularly in cases with prolonged abdominal pain and persistent adnexal masses. Common computed tomography and magnetic resonance imaging features of adnexal torsion include fallopian tube thickening, smooth wall thickening of the twisted adnexal cystic mass, ascites, and uterine deviation to the twisted side [18]. However, color Doppler ultrasonography may be beneficial in suspected cases. It may demonstrate high impedance flow with reverse or absence of diastolic flow to the twisted adnexa, although the presence of normal flow does not always rule out torsion [8,9,19].

Unless the tube is totally necrotic or under the condition of suspected malignancy, the goal in management of tubal torsion is the preservation of the tube, in order to preserve the fertility in women of reproductive age [1,8]. Surgical management, whether laparotomy or laparoscopy, is the standard treatment for torsion of the tubes. The surgical options include surgical detorsion, salpingotomy and salpingectomy, depending on the stage of intervention. Pregnancy has been reported after detorsion of the tube [7]. However, if the tubal function has been compromised, detorsion may increase the risk of ectopic pregnancy or recurrence of torsion. Then, a complete tubal resection should be considered [1]. Laparoscopy is currently the preferred diagnostic and treatment tool, which provides a faster recovery and fewer adhesions, as compared with laparotomy [12].

Isolated torsion of the fallopian tube, although rare, should be considered as part of the differential diagnosis of an adnexal mass. Delayed diagnosis of the tubal torsion may lead to irreversible necrotic change, and even damage to the ipsilateral ovary [17]. The complicated superinfection and peritonitis can also occur after gangrenous change in the tube [4]. Hence, early exploration should be considered to salvage the tube and preserve fertility.

## References

1. 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;14:274-7.
2. Varras M, Tsikini A, Polyzos D, Samara Ch, Hadjopoulos G, Akrivis C. Uterine adnexal torsion: pathologic and gray-scale ultrasonographic findings. *Clin Exp Obstet Gynecol* 2004; 31:34-8.
3. Bland-Sutton J. Salpingitis and some of its effects. *Lancet* 1890;136:1146-8.
4. Ferrera PC, Kass LE, Verdile VP. Torsion of the fallopian tube. *Am J Emerg Med* 1995;13:312-4.
5. Hansen OH. Isolated torsion of the fallopian tube. *Acta Obstet Gynecol Scand* 1970;49:3-6.
6. Youssef AF, Fayad MM, Shafeek MA. Torsion of the fallopian tube. A clinico-pathological study. *Acta Obstet Gynecol Scand* 1962;41:292-309.
7. Blair CR. Torsion of the fallopian tube. *Surg Gynecol Obstet* 1962;114:727-30.
8. Milki A, Jacobson DH. Isolated torsion of the fallopian tube: a case report. *J Reprod Med* 1998;43:836-8.
9. Richard HM III, Parsons RB, Broadman KF, Shapiro RS, Yeh HC. Torsion of the fallopian tube: progression of sonographic features. *J Clin Ultrasound* 1998;26:374-6.
10. Dueholm M, Praest J. Isolated torsion of the normal fallopian tube. *Acta Obstet Gynecol Scand* 1987;66:89-90.
11. Chambers JT, Thiagarajah S, Kitchin JD III. Torsion of the normal fallopian tube in pregnancy. *Obstet Gynecol* 1979;54: 487-9.
12. Krissi H, Orvieto R, Dicker D, Dekel A, Ben Rafael Z. Torsion of a fallopian tube following Pomeroy tubal ligation: a rare case report and review of the literature. *Eur J Obstet Gynecol Reprod Biol* 1997;72:107-9.
13. Yalcin OT, Hassa H, Zeytinoglu S, Isiksoy S. Isolated torsion of fallopian tube during pregnancy; report of two cases. *Eur J Obstet Gynecol Reprod Biol* 1997;74:179-82.
14. Maynard SR, Peipert JF, Brody JM. Tubal torsion appearing as acute pelvic inflammatory disease. *J Am Assoc Gynecol Laparosc* 1996;3:431-3.
15. Pinkert M, Klein Z, Tepper R, Beyth Y. Hydrosalpinx with adnexal torsion in an adolescent virgin patient - a diagnostic dilemma: case report and review of the literature. *J Pediatr Adolesc Gynecol* 2006;19:297-9.
16. Krstic K. Acute abdomen of genital origin in a young girl; case of torsion of a hydrosalpinx in a 13-year-old girl. *Srp Arh Celok Lek* 1951;49:26. [In Serbian]
17. Ghossain MA, Buy JN, Bazot M, et al. CT in adnexal torsion with emphasis on tubal findings: correlation with ultrasound. *J Comput Assist Tomogr* 1994;18:619-25.
18. Rha SE, Byun JY, Jung SE, et al. CT and MR imaging features of adnexal torsion. *Radiographics* 2002;22:283-94.
19. Baumgartel PB, Fleischer AC, Cullinan JA, Bluth RF. Color Doppler sonography of tubal torsion. *Ultrasound Obstet Gynecol* 1996;7:367-70.