

# Hydrosalpinx with Adnexa Torsion Treated with a Salpingostomy in a Virgin Woman

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## Abstract

Hydrosalpinx in reproductive-age women without sexual experience is uncommon and may be asymptomatic. Hydrosalpinx-induced torsion of the adnexa is a rare situation and requires prompt and accurate management. This report describes a 21-year-old female without history of sexual intercourse presented with right lower abdominal pain. Ultrasonography revealed right ovary about 4.2 cm × 3.6 cm in size with a well-defined, round cystic mass measuring 6.3 cm × 4.1 cm without septations. Diagnostic laparoscopic surgery showed a darkish right ovary and round-shaped cystic right hydrosalpinx that twisted at the infundibulopelvic ligament. Laparoscopic detorsion and salpingostomy were performed successfully. This case is a rare gynecologic situation with hydrosalpinx induced adnexa torsion, making it a rare presentation. Early diagnosis is important for preventing ovarian gangrene. Laparoscopy is a useful tool for diagnosing and treating tubal and ovarian torsion. It brings good prognosis if detorsion was performed within 24 h.

**Keywords:** Adnexa, hydrosalpinx, laparoscopy, torsion, ultrasonography

## INTRODUCTION

Hydrosalpinx usually results from pelvic inflammatory diseases. It is not a common diagnosis in postmenarchal sexually inactive women.<sup>[1]</sup> A hydrosalpinx with a tubal torsion presenting signs of the acute abdomen is rare in female adolescents and young adults. The incidence of fallopian tube torsion (FTT) was approximately 1/1,500,000. The pathogenesis is still unclear. It is quite challenging to make preoperative diagnosis owing to lack of specific clinical symptoms.<sup>[2]</sup> Although a number of cases of FTT have been reported in reproductive women, the cases of tubal torsion without other predisposing factors are still uncommon. We report a case of 21-year-old virgin with hydrosalpinx-induced adnexal torsion, complicated with ovarian gangrene. Timely surgical intervention is necessary in such a case for the preservation of tubal function and future fertility.

## CASE REPORT

This 21-year-old nulliparous woman presented with the acute onset of the right lower abdominal pain. Her menstrual cycle was irregular – 30–40 days cycle – with occasional

dysmenorrhea, and the last menstrual period had started 30 days before admission. She reported having no history of sexual intercourse and denied having any gynecologic disease previously.

The patient first experienced sudden onset of the right lower abdominal pain. She described a dull and persistent pain with no radiation. She also complained of right flank soreness. There were no relieving or exacerbating factors, nor had she experienced similar symptoms before this event. She vomited once after the onset of the pain. She denied fever, constipation, diarrhea, vaginal bleeding, or dysuria. As her condition did not improve, she visited the emergency room for help.

On examination, the body temperature was 35.4°C, the pulse rate was 82 beats/min, the blood pressure was 117/85 mmHg, the respiratory rate was 20 breaths/min, and the oxygen

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saturation was 99%, while the patient was breathing ambient air. The abdomen was soft without muscle guarding, but deep palpation revealed localized tenderness on the right iliac fossa. Laboratory tests and urinalysis were all normal. Transabdominal ultrasonography illustrated right ovary about 4.2 cm × 3.6 cm in size and a cystic mass measuring in 6.3 cm × 4.1 cm without septations [Figure 1a]. Left adnexa was not obvious, and there was no fluid in Cul-de-sac. A pelvic computed tomography (CT) scan also showed a right pelvic mass of 4.5 cm × 3.6 cm with a cyst of maximum length 7 cm [Figure 1b].

Under the tentative diagnosis of the right ovarian torsion, she was admitted for emergency laparoscopic surgery. During the operation, torsion of the right fallopian tube with twisting of two turns at the right infundibulopelvic ligament was found [Figure 2a-c]. The torted right ovary became gangrenous and was dark-brown [Figure 2d]. The right hydrosalpinx with an obliterated fimbriae end was noted [Figure 3a and b]. The left adnexa was normal in appearance [Figure 3c]. Laparoscopic detorsion and salpingostomy were performed. A salpingostomy was performed by making a hole over the high hydrosalpinx with three stitches of 3-0 prolene suture [Figure 3d]. The patient tolerated the procedure well without apparent complications. After the surgery, the abdominal pain improved. The postoperative course of recovery was uneventful, and the patient was discharged on postoperative day 2.

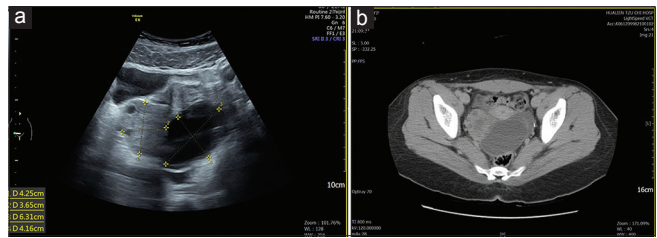
## DISCUSSION

Adnexal torsion is a common etiology of young female with acute abdominal pain.<sup>[3]</sup> A 10-year retrospective study by Varras reported that the adnexal torsion was most commonly associated with benign lesions (89%), and usually occurred in patients <50 years (80%).<sup>[4]</sup> Our case is a rare condition that hydrosalpinx caused adnexal torsion.

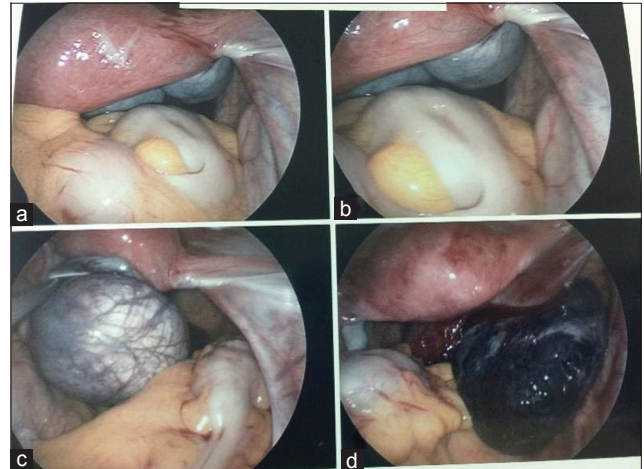
Most of the previous literatures are discussing isolated FTT (IFTT, [only tubal torsion, not including ovarian torsion]) regarding FTT. Although the IFTT is not the real situation of our case, the IFTT represents the most common situation of FTT.

FTT is rare and only sporadic cases are reported each year in reproductive-age women.<sup>[5]</sup> Tubal torsion may occur either in the midportion of the tube itself or around the ligamentous supports of the tube. Torsion of the right fallopian tube is more commonly described in our study than the left fallopian tube. It could be that the mobility of the left tube is limited by the sigmoid colon.<sup>[4]</sup> The incidence of FTT is about 1 in 1.5 million women.<sup>[2,6]</sup> Nevertheless, the lack of particular clinical manifestation, including images and laboratory data, makes the preoperative diagnosis difficult.<sup>[7]</sup> Our report presents a rare situation with a hydrosalpinx induced adnexal torsion.

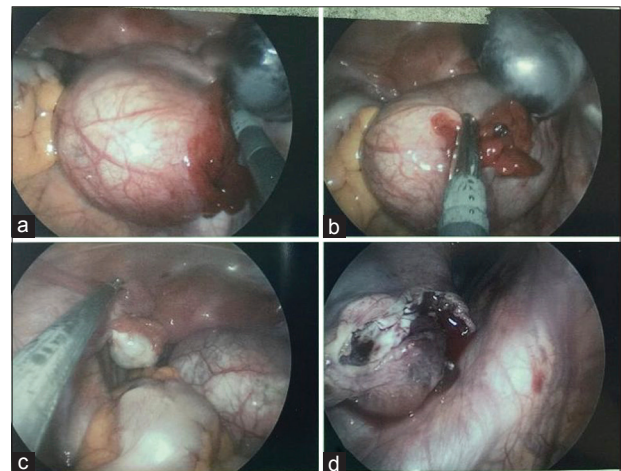
The etiology of FTT was not fully understood. The predisposing factors were divided into two categories as follows: intrinsic and extrinsic causes. The intrinsic causes include surgical



**Figure 1:** Image study of hydrosalpinx. (a) Ultrasonography of dilated fallopian tube (hypoechoic cystic lesion). Ovary was adjacent to the tube. (b) Computed tomography of hydrosalpinx (coronal view, hypodense cystic lesion)



**Figure 2:** Intraoperative view (a and b) torsion of two loops at infundibulopelvic ligament. (c) Hydrosalpinx torsion. (d) The torsion ovary showed a dark-brown in color



**Figure 3:** Intraoperative view. (a and b) Hydrosalpinx with closed fimbriae end. (c) Normal ovary at the left side. (d) Salpingostomy was done

tubal ligation, hydrosalpinx, abnormal peristalsis, pelvic inflammatory disease, hypermovement, primary fallopian tube malignancy, and congenital abnormality. The extrinsic cause is associated with endometriosis, prior pelvic surgery, gravid uterus, malignancy or tumor of the adjacent structures, paraovarian cyst, and adhesion.<sup>[2,8]</sup>

The most common presentations of FTT and ovarian torsion were resembled, including acute lower quadrant pain or pelvic pain that may radiate to the flank or thigh. Sometimes, it could be accompanied by gastrointestinal symptoms such as nausea and vomiting. Genitourinary symptoms such as frequency, urgency, and voiding difficulty were also reported.<sup>[9]</sup> It can also be asymptomatic for over 6 months.<sup>[7]</sup> Prompt diagnosis is important to preserve ovarian and tubal function and to prevent other associated morbidity. Our case was right tubal torsion with hydrosalpinx presented in a 21-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.

The imaging examinations are nonspecific in the preoperative diagnosis of torsed fallopian tubes. The ultrasound image associated with hydrosalpinx may reveal an elongated or folded, tubular, C-shaped, or S-shaped fluid-filled structure. The folds may produce a characteristic “cogwheel” appearance when imaged in cross-section. Incomplete septae may also give a “beads on a string” sign. Doppler evaluation could be helpful to a patient with a history of tubal ligation if high impedance or absence of flow in a tubular structure is noted. A CT scan may be useful, particularly in cases with severe and prolonged abdominal pain. Magnetic resonance imaging is also reported to be helpful for diagnosis.<sup>[5]</sup>

FTT can be managed with either detorsion or simple salpingectomy. However, it should be performed as early as possible to avoid irreversible damage. The goal of the management is the preservation of the fallopian tube to prevent infertility.<sup>[4]</sup> Pregnancy was possible after detorsion of the tube, but ectopic pregnancy was a record if the tubal function has been compromised.<sup>[10]</sup> A complete tubal resection should be considered for prevention recurrence and ectopic pregnancy. Laparoscopic surgery serves not only as a diagnostic tool but also an excellent therapeutic intervention unless contraindicated. The benefit was faster recovery and fewer adhesions, as compared to laparotomy.<sup>[11]</sup> There is a little reported risk of loss of a vital organ, perforation, or sepsis with FTT, and hence, the emergent surgery was not needed in usual case.<sup>[12]</sup> However, if gangrenous change in the tube or accompanied ovarian torsion happened, superinfection and peritonitis may occur later.<sup>[13]</sup> Therefore, early exploration should be considered for prevention of further complications and infertility. Our case received laparoscopic salpingostomy to preserve the function of fallopian tube. Early diagnosis and intervention increased the chance of preserving fallopian tube.

In conclusion, this case is a rare gynecologic situation with hydrosalpinx-induced ovarian torsion, making it a rare presentation. Early diagnosis is important for preventing ovarian gangrene. Laparoscopy is a useful tool for diagnosing and treating tubal and ovarian torsion. It brings good prognosis if detorsion was performed within 24 h.

## Consent

The authors have got approval from the Research Ethical Committee of Buddhist Tzu Chi General Hospital for the use of clinical material in this manuscript (CR107–03).

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Takeda M, Miyatake T, Tanaka A, Kanao S, Miyoshi A, Mimura M, *et al.* Rare hydrosalpinx in a sexually inactive adolescent successfully treated with laparoscopy. *Gynecol Minim Invasive Ther* 2017;6:76-8.
2. Ding DC, Hsu S, Kao SP. Isolated torsion of the hydrosalpinx in a postmenopausal woman. *JSLs* 2007;11:252-4.
3. Huang C, Hong MK, Ding DC. A review of ovary torsion. *Ci Ji Yi Xue Za Zhi* 2017;29:143-7.
4. Varras M, Tsikini A, Polyzos D, Samara C, Hadjopoulos G, Akrivis C, *et al.* Uterine adnexal torsion: Pathologic and gray-scale ultrasonographic findings. *Clin Exp Obstet Gynecol* 2004;31:34-8.
5. Ito F, Tatsumi H, Takahata A, Yamada S, Kusuki I, Kitawaki J. Isolated fallopian tube torsion diagnosed and treated with laparoscopic surgery: A case report. *Gynecol Minim Invasive Ther* 2017;6:89-91.
6. Shukla R. Isolated torsion of the hydrosalpinx: A rare presentation. *Br J Radiol* 2004;77:784-6.
7. Krissi H, Shalev J, Bar-Hava I, Langer R, Herman A, Kaplan B, *et al.* Fallopian tube torsion: Laparoscopic evaluation and treatment of a rare gynecological entity. *J Am Board Fam Pract* 2001;14:274-7.
8. Ardiçlı B, Ekinci S, Oğuz B, Haliloğlu M, Tanyel FC, Karnak İ, *et al.* Laparoscopic detorsion of isolated idiopathic fallopian tube torsion: Conservative treatment in a 13-year-old girl. *Turk J Pediatr* 2013;55:451-4.
9. 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.
10. Blair CR. Torsion of the fallopian tube. *Surg Gynecol Obstet* 1962;114:727-30.
11. Krissi H, Orvieto R, Dicker D, Dekel A, Ben Rafael Z. Torsion of a fallopian tube following pomey tubal ligation: A rare case report and review of the literature. *Eur J Obstet Gynecol Reprod Biol* 1997;72:107-9.
12. Lo LM, Chang SD, Lee CL, Liang CC. Clinical manifestations in women with isolated fallopian tubal torsion; a rare but important entity. *Aust N Z J Obstet Gynaecol* 2011;51:244-7.
13. Ferrera PC, Kass LE, Verdile VP. Torsion of the fallopian tube. *Am J Emerg Med* 1995;13:312-4.