Case Report

When the unexpected happens: Isolated fallopian tube torsion with large hematosalpinx mistaken for ovarian cyst torsion in a pediatric patient: A case report

Naina Kumar[1], Annapurna Srirambhatla[2], Shailaja Prabhala[3], Mishu Mangla[4]

From [1]Additional Professor, [4]Associate Professor, Department of Obstetrics and Gynecology, [2]Additional Professor, Department of Radiology, [3]Additional Professor and Head, Department of Pathology, All India Institute of Medical Sciences, Bibinagar, Hyderabad, Telangana, India

ABSTRACT

Isolated fallopian tube torsion (IFTT) in adolescent girls is an infrequent but significant cause of acute abdominal pain in gynecology, often misdiagnosed as ovarian torsion. A 13-year-old unmarried virgin girl presented to the gynecological outpatient department with acute abdominal pain lasting 5 days, accompanied by nausea, vomiting, and fever for 2 days. Pelvic ultrasound revealed a normally sized uterus and a normal right ovary, while the left ovary was slightly enlarged (4 × 5 cm) and displaced medially, demonstrating a "whirlpool sign" indicative of vascular pedicle twisting, suggestive of left ovarian torsion. A large exophytic lesion measuring 8 × 6 cm was also noted in the left adnexa, raising concerns for a left exophytic or paraovarian cyst. Given her clinical presentation, the patient underwent an emergency laparotomy. Intraoperative findings revealed minimal hemoperitoneum (50–80 mL), a normally sized uterus deviated to the left, and a left fallopian tube tightly twisted 3 times, with large hematosalpinx (8 × 6 cm), distended with clots. Due to complete damage to the left fallopian tube, left salpingectomy was performed, with histopathological examination confirming hematosalpinx. Hence although IFTT is uncommon, it should be included in the differential diagnosis for acute abdominal pain in young girls and women of reproductive age. Early recognition and prompt surgical intervention are crucial to prevent complications and preserve tubal function.

Key words: Acute abdomen, Hematosalpinx, Isolated fallopian tube torsion, Ovary, Salpingectomy

Isolated fallopian tube torsion (IFTT) in adolescent girls is an exceptionally rare cause of acute abdominal pain, often misdiagnosed as ovarian torsion [1]. IFTT was first identified by Bland-Sutton in 1890 and is recognized as a rare yet significant cause of acute abdominal pain in gynecology [1,2]. To date, there are very few reported cases of hematosalpinx resulting from fallopian tube torsion in the absence of outflow tract obstruction [2,3]. Hematosalpinx, characterized by the accumulation of blood within the fallopian tube, is typically associated with conditions such as ectopic pregnancy, pelvic inflammatory disease, tubal cancer, pelvic trauma, and endometriosis. In addition, non-tubal obstructive factors, such as tumors, adhesions, an imperforate hymen, and uterine abnormalities can contribute to its development [3,4]. The presence of hematosalpinx alongside tubal torsion in a young girl adds a layer of complexity to diagnosis and management. With an average incidence of isolated tubal torsion estimated at 1 in 1,500,000 women, this condition remains exceedingly rare [3,4]. Accurate diagnosis frequently occurs only during exploratory surgery, and delayed intervention can lead to serious complications such as necrosis, irreversible damage to the fallopian tube, and infection [1,5].

IFTT is a rare gynecological emergency with significant fertility implications. Its non-specific symptoms and rarity often lead to misdiagnosis and delayed treatment. This case report highlights a pediatric patient with IFTT and a large hematosalpinx initially mistaken for ovarian cyst torsion, emphasizing the need for increased clinical awareness to ensure timely and accurate diagnosis.

CASE REPORT

The present case report was conducted after informed written consent from the patient's mother (as the patient was a minor). A 13-year-old unmarried virgin girl presented to the Gynecological Outpatient Department with acute abdominal pain

Access this article online	
Received - 20 November 2024 Initial Review - 09 December 2024 Accepted - 04 March 2025	Quick Response code
DOI: 10.32677/ijcr.v11i3.4926	

Correspondence to: Naina Kumar, Department of Obstetrics and Gynecology, All India Institute of Medical Sciences, Bibinagar - 508126, Hyderabad Metropolitan Region, Telangana, India. E-mail: drnainakumar@gmail.com

lasting 5 days, accompanied by nausea and vomiting for 3 days. She also reported experiencing a fever over the past 2 days. The patient attained menarche at age 12 and has had regular menstrual cycles since (4–5 days every 28–30 days), with her past menstrual period occurring on September 17th. She denied any history of dysmenorrhea, irregular cycles, or heavy bleeding.

On examination, the patient was alert and oriented to time, place, and person. She had a thin build, with a temperature of 99.8°F, blood pressure of 120/70 mmHg, and a pulse rate of 110 beats/min. Abdominal examination revealed tenderness, rigidity, and guarding, with a large tender mass palpable in the left lower abdomen, comparable in size to a 12–14 weeks gestational uterus. Local examination showed healthy labia majora and minora, with no vaginal bleeding. A per rectal examination revealed a large, tender cystic lesion in the left adnexa with restricted mobility, though its exact size was difficult to ascertain due to pain.

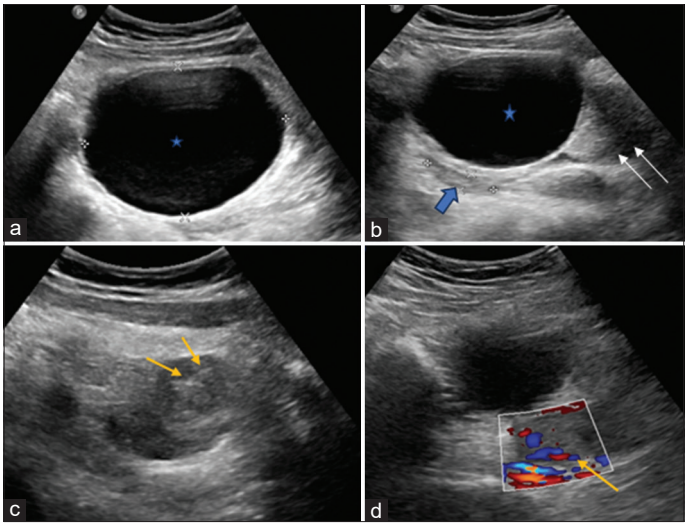

Figure 1: Ultrasonographic image revealing- (a) A thin-walled cystic lesion (asterisk) in the midline arising from left adnexa with few dependent internal echoes. (b) The enlarged left ovary (arrows) was seen abutting the lesion. Possible para ovarian/exophytic ovarian cyst was considered. (c and d) a whirl-like echogenic lesion in left adnexa (arrows) with minimal peripheral vascularity - whirlpool sign s/o twisted pedicle

An urgent transabdominal ultrasound demonstrated a normally sized uterus, deviated to the left, with an endometrial thickness of 6 mm. The right ovary appeared normal, while the left ovary was slightly enlarged (4 × 5 cm) and displaced medially, showing a "whirlpool sign" indicative of vascular pedicle twisting, suggestive of left ovarian torsion. In addition, a large exophytic lesion measuring 8 × 6 cm was observed in the left adnexa extending toward the midline, with no solid components or septations, raising the possibility of a left exophytic cyst or paraovarian cyst (Fig. 1a-d).

Given the acute abdominal presentation and ultrasound findings consistent with left ovarian torsion, the patient was taken for emergency laparotomy. Intraoperative findings revealed minimal hemoperitoneum (50–80 mL), a normally sized uterus deviated to the left, and the left fallopian tube was found to be tightly twisted 3 times, with a large hematosalpinx measuring 8 × 6 cm, distended with clots (Fig. 2). The left ovary appeared enlarged and hemorrhagic due to the torsion of the fallopian tube.

Due to complete damage to the left fallopian tube, a left salpingectomy was performed, along with resection of a part of severely necrosed ovarian tissue. The gross appearance of the tube was dark red to black (Fig. 3), and upon sectioning, it was filled with dark reddish-black clots.

Microscopic examination revealed extensive ischemic necrosis of the fallopian tube with extensive hemorrhage throughout, congested blood vessels, and a barely discernible outline of the fallopian tube with no viable tubal tissue (Fig. 4a and b). The part of ovarian tissue also revealed extensive ischemic necrosis with near-total loss of ovarian parenchyma.

The patient experienced an uneventful post-operative recovery and was discharged in satisfactory condition following stitch removal on the 8th day.

DISCUSSION

The incidence of IFTT is estimated at just 1 in 1.5 million women of reproductive age, making it exceedingly rare in adolescent girls [6,7]. While the precise cause remains unclear, research suggests several associations, including prior tubal ligation, hydrosalpinx, pelvic inflammatory disease, a long or congested

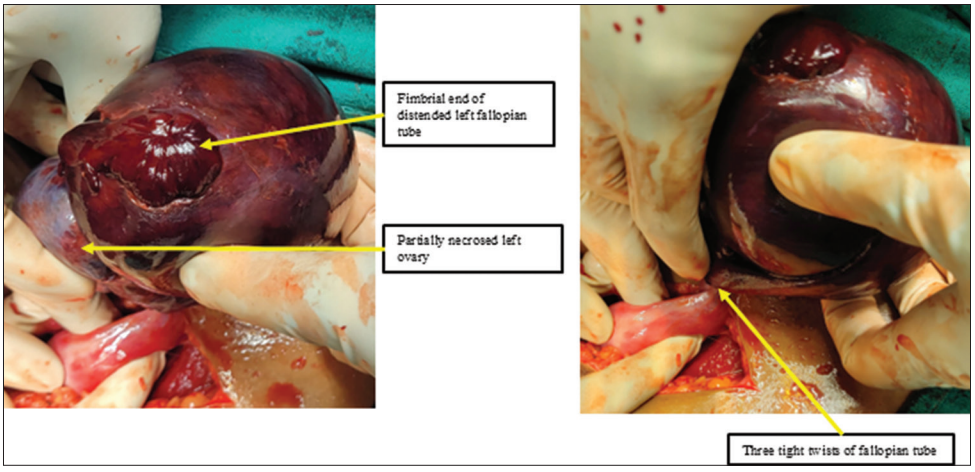

Figure 2: Intraoperative image showing left fallopian tube with three tightly twisted turns, with a large hematosalpinx

Table 1: Comparison of IFTT cases across different age groups, their clinical presentation, and management [15-22]

Author and study year	Presentation	Final diagnosis	Management
Ziogas *et al*., 2020 [15]	A 47-year-old with acute abdomen	Left-sided IFTT without ovarian involvement with left hydrosalpinx	Left salpingectomy with preservation of ovaries
Qian *et al*., 2021 [16]	A 13-year-old girl with a 10-day history of right lower abdominal pain	Triple torsion of the right fallopian tube with a 6-cm paraovarian cyst	Tubal conservation surgery
Ali *et al*., 2022 [17]	A 32-year-old with 4 days history of severe right lower abdominal pain	Twice-fold twisted ischemic right fallopian tube with hydrosalpinx	Right salpingectomy
Almandeel *et al*., 2023 [18]	A 25-year-old newly married woman with acute abdomen	Right-sided IFTT	Right salpingectomy with preservation of right ovary
Thanasa *et al*., 2023 [19]	A pregnant multiparous woman at 40 weeks gestation immediately after vaginal delivery presented with acute lower abdominal pain, nausea, dizziness, and vomiting	Left-sided IFTT with left para-tubal cyst	Left salpingectomy with the removal of a para-tubal cyst
Pignataro and Schindler, 2023 [20]	A 15-year-old girl with acute lower abdominal pain, and nausea	IFTT and ipsilateral hemorrhagic ovarian cyst	Unilateral salpingectomy with cystectomy
Jajoo *et al*., 2024 [21]	A 33-year-old with a history of bilateral tubal ligation with acute abdomen	Right-sided IFTT with hydrosalpinx	Right salpingectomy with preventive left salpingectomy. Both ovaries were preserved
Toumi *et al*., 2024 [22]	A 27-year-old primigravida woman at 37 weeks gestation with severe right lumbar pain	Right-sided IFTT with distal right hydrosalpinx	Cesarean section with right salpingectomy, and ovarian suspension

IFTT: Isolated fallopian tube torsion

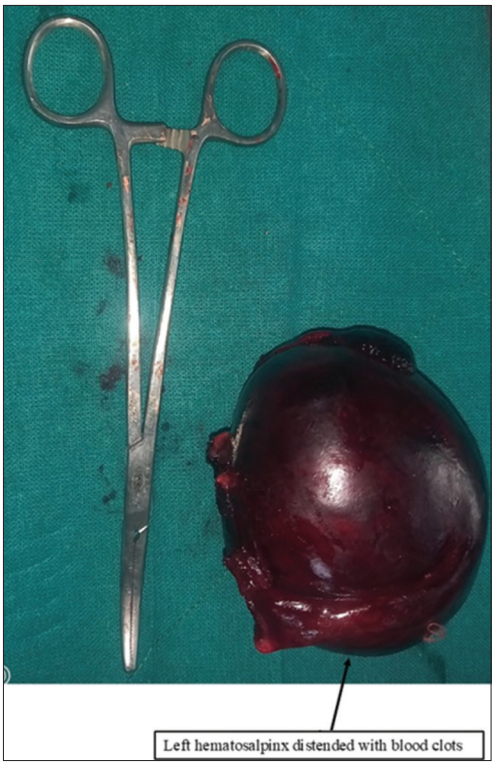

Figure 3: Gross appearance of a large hematosalpinx distended with hemorrhage

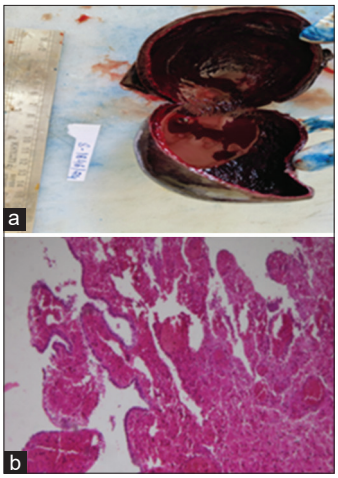

Figure 4: (a) Hematosalpinx on the cut surface of the fallopian tube, filled with hemorrhage. (b) Complete ischemic necrosis of fallopian tube with outlines of luminal plicae (black arrow) (hematoxylin and Eosin stain, ×40)

mesosalpinx, tubal tumors, Morgagni hydatids, and trauma [1,8]. In pubertal girls, the condition may also be linked to congenitally elongated fallopian tubes or developmental anomalies [9]. Moreover, IFTT is predominantly found on the right side, likely due to anatomical considerations. The presence of the sigmoid colon in the left pelvic cavity may restrict mobility in that area, making the right fallopian tube more susceptible to torsion [1]. Common presenting symptoms of IFTT include an acute onset of lower abdominal pain, reported in all cases. This pain may be accompanied by nausea, vomiting, and signs of localized peritoneal irritation. Fever is uncommon, occurring only in the presence of complications such as infection or necrosis [1,10].

IFTT may, in rare instances, be associated with a significant hematosalpinx. Both partial and complete torsion of the fallopian tube can lead to the formation of a hydrosalpinx. If the arterial supply is compromised, this can result in hemorrhagic infarction and subsequently hematosalpinx [11]. In addition, while

exceedingly rare, autoamputation of the fallopian tube may occur as a complication of this condition [12].

Typical ultrasound findings in cases of IFTT include a dilated tube with thickened echogenic walls, the presence of internal fluid with debris, and surrounding inflammation; however, these indicators alone are insufficient for a definitive diagnosis. A key feature is the "beak sign," which presents as a dilated tubular structure with internal debris and a tapered end. In addition, the "whirlpool sign" may be observed by moving the endovaginal ultrasound transducer over the twisted vascular pedicle. Identifying a normal ovary through ultrasound can further aid in the diagnosis. Ultimately, laparoscopy remains the gold standard for both diagnosing and managing these cases [3,10,11].

Similar to the present case report, a study reported a rare case of hematosalpinx with torsion at its pedicle, accompanied by hemoperitoneum, in a 28-year-old female who presented with acute abdominal pain that closely resembled ovarian torsion [13]. A recent case study described an unusual presentation of hematosalpinx with torsion in a 13-year-old virgin girl who presented with acute abdominal pain accompanied by nausea and vomiting [3]. Another recent case study highlighted an instance of IFTT associated with hydrosalpinx in a 12-year-old girl presenting with acute abdominal pain. She underwent a left salpingectomy, and the histopathological analysis revealed a fallopian tube affected by hemorrhagic infarction [14].

IFTT currently lacks distinct symptoms, clinical findings, imaging characteristics, or laboratory results for definitive identification [10,13]. Imaging studies frequently present non-specific findings, complicating the pre-operative diagnosis and often mimicking other conditions, such as ovarian torsion, paratubal or paraovarian cyst torsion, and ruptured ectopic pregnancy. Consequently, many cases are diagnosed late, delaying essential interventions that can compromise tubal function. Torsion can lead to serious complications, including hematosalpinx, hemoperitoneum, and necrosis of the tube, all of which necessitate urgent surgical management [3,13]. Management typically involves the surgical removal of the affected fallopian tube. If the ovary cannot be preserved, the tubo-ovarian mass may also need to be excised. With timely surgical intervention, the overall prognosis is favorable [3]. Table 1 compares IFTT cases across different age groups, their clinical presentation, and management [15-22].

CONCLUSION

Hence, IFTT though uncommon, must be considered in the differential diagnosis of acute abdomen in young girls and women of reproductive age. Early recognition and timely surgical intervention are vital to preventing complications and preserving tubal function, as partial or complete torsion can lead to serious issues such as hematosalpinx, hemoperitoneum, and necrosis of the tube. This underscores the critical need for clinicians to maintain awareness of this rare yet significant condition.

REFERENCES

1. Zijun L, Yaqin Z, Weiwen P. A rare case of isolated fallopian tubal torsion in adolescent girls: A case report and system review of literature. SAGE Open Med Case Rep 2023;11:2050313X231215207.
2. Comerci G, Colombo FM, Stefanetti M, Grazia G. Isolated fallopian tube torsion: A rare but important event for women of reproductive age. Fertil Steril 2008;90:1198.e23-5.
3. Raju S, Kashyap S, Jobran AW, Shrivarshini K, Shravya N. A rare presentation of hematosalpinx with torsion in a thirteen year-old virgin: A case report. J Surg Case Rep 2024;2024:rjae549.
4. Sulaman H, Hussain SA, Nawaz S, Anwar A. Case report of an un-usually large hematosalpinx. J Obstet Gynaecol Res 2021;47:1914-6.
5. Güney C, Coskun A. A fifteen-year analysis of rare isolated fallopian tube torsions in adolescent children: A case series. Diagnostics (Basel) 2019;9:110.
6. Hagege R, Sharvit M, Hamou B, Barzilay E, Pansky M, Barel O. Isolated fallopian tube torsion: An underdiagnosed entity with debatable management. J Minim Invasive Gynecol 2022;29:158-63.
7. Meyer J, Steinhoff-Kellner A, Stehr M, Schäfer FM. IFTT in children and adolescents-single-center experience and systematic review of literature. Pediatr Surg Int 2024;40:143.
8. 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;170:1329-32.
9. Vadukkut AS, Mangeshikar A, Jadhav S, Kumar S. Laparoscopic salpingectomy for an isolated case of left fallopian tube torsion in a premenarcheal 13 years old. Gynecol Minim Invasive Ther 2020;9:245-7.
10. Kolovos GN, Meytap E, Samartzis N, Kalaitzopoulos DR. Isolated torsion of the fallopian tube in a 16-year-old girl: A case report and review of the literature. Case Rep Womens Health 2019;23:e00132.
11. Bharathi A, Gowri M. Torsion of the fallopian tube and the haematosalpinx in perimenopausal women- a case report. J Clin Diagn Res 2013;7:731-3.
12. Sankaran S, Shahid A, Odejinmi F. Autoamputation of the fallopian tube after chronic adnexal torsion. J Minim Invasive Gynecol 2009;16:219-21.
13. Khairnar V, Valecha SM, Pandeeswari. Isolated twisted hematosalphinx misleading with ovarian cyst torsion. Int J Reprod Contracept Obstet Gynecol 2019;8:1219-22.
14. Martín-Vallejo J, Garrigós-Llabata EE, Molina-Bellido P, Clemente-Pérez PA. Isolated fallopian tube torsion associated with hydrosalpinx in a 12-year-old girl: A case report. J Med Case Rep 2020;14:165.
15. Ziogas AC, Thanasas IK, Oikonomou IT, Tsiamanta C. Torsion of the left fallopian tube without ovarian involvement in a 47-year-old woman: A case report. Case Rep Womens Health 2020;26:e00179.
16. Qian L, Wang X, Li D, Li S, Ding J. Isolated fallopian tube torsion with paraovarian cysts: A case report and literature review. BMC Women's Health 2021;21:345.
17. Ali AM, Mohamed AN, Omar AA, Mohamed YG. Laparoscopic management of ischemic right fallopian tube torsion mimicking perforated appendicitis. Int J Surg Case Rep 2022;93:106914.
18. Almandeel A, Saleem HA, Elzewawi N, Al Anazi L, Al Anazi B. Isolated fallopian tube torsion with preservation of ipsilateral ovary. A case report. Case Rep Womens Health 2023;40:e00565.
19. Thanasa A, Thanasa E, Xydias EM, Kamaretsos E, Paraoulakis I, Ziogas AC, *et al.* Pueperal paratubal cyst torsion and secondary fallopian tube torsion without ovarian involvement: A case report. Cureus 2023;15:e36540.
20. Pignataro JN, Schindler L. Isolated fallopian tube torsion: Diagnosis and management of a gynecologic emergency. Cureus 2023;15:e46260.
21. Jajoo S, Jajoo S, Naval R. Isolated unilateral hydrosalpinx torsion in a post-tubal ligation patient: A case report and review of literature. Cureus 2024;16:e56351.
22. Toumi D, Medemagh M, Ghaddab I, Zoukar O, Chaouch MA, Bergaoui H. Torsion of distal right hydrosalpinx in a primiparous woman at term: A case report. Int J Surg Case Rep 2024;123:110255.

Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Kumar N, Srirambhatla A, Prabhala S, Mangla M. When the Unexpected Happens: Isolated Fallopian Tube Torsion with Large Hematosalpinx Mistaken for Ovarian Cyst Torsion in a Pediatric Patient: A Case Report. Indian J Case Reports. 2025; 11(3):136-139.