


*Case Report***Isolated tubal torsion associated with hydrosalpinx**Esra Tamburaci^{1,*} ¹Department of Gynecology and Obstetrics, Antalya Training and Research Hospital, 07100 Antalya, Turkey*Correspondence: dresratamburaci@gmail.com (Esra Tamburaci)

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Abstract

Background: Isolated tubal torsion associated with hydrosalpinx is a rare pathology. Our aim was to analyze clinical and imaging features. **Case:** A 15-year-old girl was admitted to the gynecological emergency department with lower abdominal pain. She was virgin and did not have gynecological examination. In ultrasonography a 10 cm cystic lumen was observed in the right tube. Right salpingectomy was performed. In the pathological examination, there was ischemic changes due to torsion. **Conclusion:** Isolated tubal torsion is extremely rare in early adolescent period. Early surgical intervention after diagnosis is important for fertility.

Keywords: Tubal torsion; Hydrosalpinx; Salpingectomy**1. Introduction**

Isolated tubal torsion associated with hydrosalpinx (ITTH) is a very rare cause of acute abdomen with a frequency of 1/1.5 million [1]. Although the underlying mechanism is not fully understood, it can be classified as intrinsic and extrinsic factors. Intrinsic factors are tube-related causes such as congenital anomalies, neoplasm, and hypermobility of the tube, and extrinsic factors are ovarian para tubal masses, pregnancy or tumor-induced uterine growth, pelvic inflammatory disease, adhesions and pelvic organ trauma [2]. The diagnosis is usually made during surgical exploration. Since early diagnosis is important for the protection of the tube, this rare situation should also be considered in young patients presenting with an acute abdomen.

2. Case presentation

A 15-year-old girl was admitted to the gynecological emergency department with lower abdominal pain. She also had nausea and vomiting and a temperature of 37.6 °C. In the complete blood count, WBC (white blood cell): 10,200, Hb (hemoglobin): 10.2, Htc (hematocrit): 32.8%, Plt (platelet): 194,000, and biochemical parameters, complete urinalysis and coagulation parameters were normal. Our patient denied any urinary or bowel symptoms or recent vaginal discharge. Menarche had begun one month before. Her medical and family histories were benign. She was not taking any medications. She was virgin and did not have gynecological examination. In transabdominal USG (ultrasonography), a 10 cm cystic lumen was fully observed in the right tube (Fig. 1). In the lower abdominal tomography (CT), a 10 cm mass was observed near the adnexa. Due to the increase in pain, emergency mini-laparotomy was performed on the patient. In the observation, it was seen that the necrotic edematous right tube was suffocated by rotating a double turn on its axis (Fig. 2). Right salpingectomy was

performed because the areas of necrosis did not improve although detorsion. Left tube and uterus were normal. In the pathological examination, it was reported that the right fallopian tube contained congestion and ischemic changes due to torsion (Fig. 3). There were no complications in the postoperative period and the patient was discharged on the 2nd day after surgery.

This case report was prepared with the consent of the patient and written informed consent was obtained for publication with all the documents in terms of literature.

3. Discussion

Although the cause of isolated tubal torsion is not known exactly, we can list the possible etiologies in paediatric patients as follows: physiological abnormalities such as long meso-salpingx, hydro/hematosalpinx, tubal and adnexal mass, anatomical abnormalities, abnormal peristalsis or periovulatory spasm, hemodynamic abnormalities such as venous congestion, Sellheim's theory, which indicates sudden body position changes, trauma. Tubal torsion occurs more often on the right side. Since the left tube is close to the sigmoid mesentery, its mobility is less than the right tube. Since right lower quadrant pains are evaluated as surgery more frequently in terms of appendicitis, isolated tubular torsion is diagnosed at this time [3]. Even in our case, there was isolated torsion in the right tube. Detorsion in cases of impaired tubal function increases the risk of recurrence of ectopic pregnancy and torsion. It should be kept in mind that superinfection and peritonitis may occur after gangrenous changes occur in the tube. In the study of Mazouni *et al.* [4], it was emphasized that more than 10 hours between the onset of pain and surgery increased the risk of tubal necrosis. Ultrasonography is the first method of choice in the diagnosis of isolated tube torsion. Knowledge of the ultrasonographic appearance of an ITTH might assist





Fig. 1. USG image of the torsioned cystic lumen.

radiologists in making the correct diagnosis and increase the likelihood of preserving the fallopian tubes. In children with acute or subacute-onset pelvic pain, trans-abdominal ultrasound is the preferred initial imaging modality, cost-effective and very safe to use. However, considering the prevalence of right-sided isolated tubal torsion, it is seen that ultrasonographic evaluation has less specificity to exclude acute appendicitis. In the differential diagnosis, acute appendicitis, rupture or torsion of the ovarian cyst, ectopic pregnancy, pelvic inflammatory disease, endometriosis, leiomyoma degeneration, intestinal obstruction or perforation, and renal colic should be considered. MRI is more sensitive in showing a cystic mass in addition to a normal appearing ovary, and gives clearer information, especially in showing isolated tubal torsions [5]. Abdominal ultrasound, which shows the fallopian tubes as fluid-filled tubular structures that fold over themselves and separate from the ovaries to form a C or S shape, is consistent with the diagnosis of hydrosalpinx (Fig. 2). Color Doppler ultrasonography is helpful in the differential diagnosis of tubal torsion, but the presence of normal flow may be insufficient to rule out tubal torsion, especially if there is an uncomplicated tubal hydrosalpinx, because the flow is impaired in both directions. Doppler examinations may be beneficial



Fig. 2. Torsioned right tube.

in suspicious cases, the absence or reversal of diastolic vascular flow can be observed with high impedance. Magnetic resonance imaging (MRI) is of some value in showing normal ovaries and absence of an adnexal mass but should not be used as the first imaging study. On both ultrasonography and MRI, a characteristic whirlpool sign is classically noted where tubal torsion is present [6]. This is critical as the earlier torsion is diagnosed and treated, the much higher the probability that the fallopian tube can be salvaged. The diagnosis is mostly made during surgical intervention. In our case, the diagnosis was made early by imaging methods before the operation. Laparoscopy is more preferred because it provides faster recovery and less adhesion. Managing pediatric hydrosalpinx with salpingectomy is a popular choice in surgical management. This management includes permanent loss of the fallopian tube with minimizing the risk of ovarian loss due to future torsion [7]. Unfortunately, salvage of the fallopian tube is rare because of the difficulty in making a correct preoperative diagnosis. Removal of the



Fig. 3. Salpingectomized tubal material.

fallopian tube is generally recommended when the fallopian tube cannot be salvaged. As an ovarian preserving option in children and adolescents Boukaidi *et al.* [8] made a two-step proposal. The first step is the conservative surgical treatment. This treatment is laparoscopic detorsion of the tube. The second step is the second look laparoscopy, which is done a few weeks after the first step.

4. Conclusions

Radiologic interventions, such as CT, MRI, and USG are helpful diagnostic tools in recognizing this medical emergency. Although isolated tubal torsion is extremely rare in a sexually inactive patient in the early adolescent period, it should be kept in mind in a patient presenting with an acute abdomen. Early surgical intervention after diagnosis is important for fertility in terms of preserving the tube.

Author contributions

ET designed, performed the research study, collected data, taken the pictures and wrote the manuscript. ET contributed to editorial changes in the manuscript. ET read and approved the final manuscript.

Ethics approval and consent to participate

Consent form was obtained from the patient and his family. Ethics committee approval is not required.

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Conflict of interest

The author declares no conflicts of interest.

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