

**Single Port Laparoscopic Surgery For Isolated Tubal Torsion in a Prepubertal Girl: Case Report**  
**İzole Tuba Torsiyonu Olan Bir Prepubertal Kızda Tek Port Laparoskopik Cerrahi: Olgu Sunumu****Engin Yılmaz<sup>1</sup>, Saynur Sarıcı Yılmaz<sup>2</sup>, Ayşe Karaman<sup>1</sup>, İbrahim Karaman<sup>1</sup>, Çağatay Evrim Afşarlar<sup>1</sup>**<sup>1</sup>Sami Ulus Training and Research Hospital, Department of Pediatric Surgery, Ankara, Turkey<sup>2</sup>Zubeyde Hanim Women's Health and Education Hospital, Department of Obstetrics and Gynecology, Ankara, Turkey**ÖZET**

Akut pelvik ağrı şikayetiyle başvuran bir hasta premenarşyal yaşta dahi olsa izole tuba torsiyonu mutlaka akla getirilmelidir. Çok nadiren görülen bu vakalarda klinik olarak tanı koymak oldukça zordur. Bu yazıda bir gün boyunca pelvik ağrısı olan 11 yaşındaki premenarşyal kız olgu sunulmuştur. Hastaya tek port laparoskopik cerrahi uygulandığında izole nekrotik tubal torsiyon olduğu görüldü ve salpenjektomi uygulandı. Tek port laparoskopik cerrahi göreceli olarak daha büyük kitleleri çıkarmak için multiport laparoskopik yaklaşıma göre daha kullanışlı ve daha az invaziv bir tekniktir.

**Anahtar Kelimeler:** Tubal torsiyon, tek port laparoskopik cerrahi**ABSTRACT**

Isolated torsion of fallopian tubes should be considered even at premenarcheal ages in cases of acute pelvic pain. It is an uncommon emergency event and a difficult condition to evaluate clinically. This report focuses on an 11-year-old premenarcheal girl who presented with acute pelvic pain of one day. An isolated necrotic tubal torsion was discovered and salpingectomy was performed with single port laparoscopic surgery. Single port laparoscopic surgery for a relatively large mass seems to be a useful minimally invasive alternative to the standard multiport laparoscopic approach.

**Key Words:** Tubal torsion, single port laparoscopic surgery**Introduction**

Isolated torsion of the fallopian tube is an uncommon cause of acute lower abdominal pain. The incidence is estimated to be 1 in 500 000 women. It is often found in reproductive-age women and is found less in prepubertal and perimenopausal women (1). Diagnosis can be delayed because there are no specific signs, symptoms or imaging characteristics related to this entity. Therefore a high index of suspicion is required to make an early diagnosis so that ovaries and tubes can be preserved ultimately preserving the fertility in prepubertal girls.

Recent technologic advances in endoscopic instrumentation and optics have allowed the development of a less invasive alternative to conventional laparoscopy: single-port laparoscopy, also known as laparoendoscopic single-site surgery (LESS). LESS is an attempt to further enhance the cosmetic benefits of minimally invasive surgery while minimizing the potential risks and morbidity associated with

multiple working ports. In this report we presented an eleven years old girl with left-sided isolated tubal torsion who underwent single port laparoscopic surgery. To the best of our knowledge this is the first case in the literature.

**Case**

An eleven year old prepubertal girl was presented with a 1-day history of lower abdominal pain, discomfort and nausea. Vomiting or high fever was absent and physical examination indicated a deep palpation and aroused some sensitivity in the lower abdomen; no other symptoms were observed. Whole abdominal sonography indicated edema on caecum and terminal ileum wall, some free pelvic liquid, two cystic lesions in the right ovary the bigger one being 14mm in size.

Yazışma Adresi / Correspondence Address:

**Saynur Sarıcı YILMAZ**

Phone : 00905056985211

Fax : 00903123124931

Mail: saynur77@yahoo.com

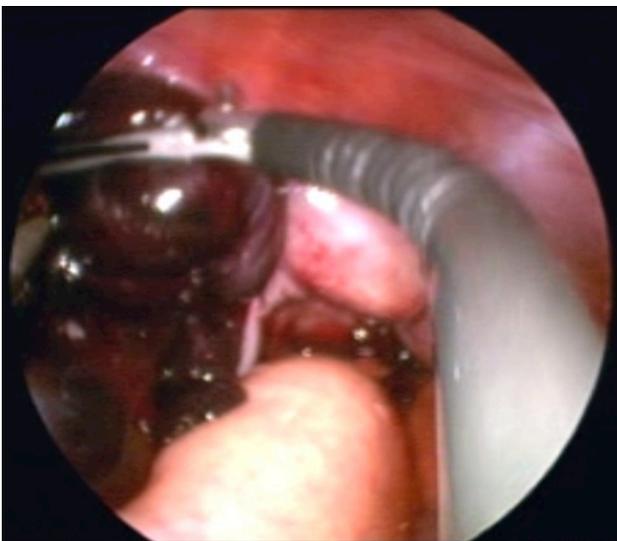
Geliş tarihi / Received : 16.05.2014

Kabul tarihi / Accepted : 30.05.2014

Furthermore, in the Douglas pouch, a heterogeneous mass of 53x39mm size with some cystic zones inside was observed near the left ovary. The boundaries of the mass were distinguishable from ovary. Doppler sonography indicated no disruption in the blood supply of ovaries. A full blood count was normal except for RBC:  $18.7 \times 10^9 / \mu\text{L}$  (normal range: 7.4-15.9) and CRP: 33mg/L (normal range: 0-6). Considering the size of the mass we decided to try single-port laparoscopy to view the abdominal cavity. Exploration showed that the left fallopian tube was twisted clockwise by 360 degrees approximately and it was of a necrotic appearance (Figure 1-2). The ovaries were normal. The uterus and right adnex were normal on examination. No paratubal or paraovarian cysts were seen. The left fallopian tube was detorsioned, but no recovery of the color was observed. Due to the persistence of the necrotic appearance, the left fallopian tube was excised. The excised mass was easily taken out through the umbilical incision along with the port. All the other abdominal organs were of natural appearance and operation was ended. The patient was fed orally after 12 hours and discharged at the first postoperative day. No special complaint was noted during 6-month follow-up (Figure 3).



**Figure 1:** The left fallopian tube twisted clockwise by 360 degrees



**Figure 2:** Necrotic appearance of the fallopian tube



**Figure 3:** The umbilical incision scar of the operation after six months

## Discussion

Torsion of the fallopian tube is usually accompanied by torsion of the ovary. Isolated torsion of the fallopian tube is a rare cause of an acute lower abdominal pain. First described by Bland-Sutton in 1890 (2). It is extremely rare before menarche. Although the mechanism that leads to isolated fallopian tube torsion is still uncertain, the right fallopian tube is more often affected than the left, which may be due to the presence of the sigmoid colon on the left side or to slow venous flow on the right side, leading to congestion. There is not much data about the incidence or localization of the isolated tubal torsion at premenarcheal ages.

The clinical manifestations of tubal torsion include lower abdominal pain, nausea, vomiting, frequent urination, urgency with voiding difficulty, sensitive adnexal mass, and uterine bleeding. 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 (3). 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 (3).

Sonography is usually the first imaging tool used in evaluating pelvic pain. An adnexal or pelvic mass was present on gynaecological ultrasound. The fallopian tubes are not usually visualized on routine transvaginal ultrasound; however, they may become visible when fluid fills in or the texture thickens as a result of torsion, ectopic pregnancy and pelvic inflammatory disease. A sonographic whirlpool sign after rocking movement of the probe over the mass is described which might be specific for fallopian tube torsion (4). Color Doppler can be useful as well showing either absent flow or high impedance flow. However, the presence of normal arterial and venous flow does not necessarily rule out torsion because of the double vascularization of the ovary and fallopian tube.

The diagnosis of this condition is often delayed because of its rarity and patients often have prolonged investigations to rule out the more common causes of acute abdomen. Although the tube was infarcted in this case, a timely diagnosis and early surgical intervention in some

cases may preserve the fallopian tube.

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 (3). Surgical management, whether laparotomy or laparoscopy, is the standard treatment for torsion of the tubes. The surgical options include surgical detorsion and salpingectomy, depending on the stage of intervention. 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. Laparoscopy is currently the preferred diagnostic and treatment tool, which provides a faster recovery and fewer adhesions, as compared with laparotomy (3).

The most apparent benefit of single port surgery is improved cosmetics and minimized abdominal wall trauma with the surgical incision hidden in umbilicus rather than having 2-3 additional small abdominal incisions (Figure 4). The benefits of single-port procedures may include reduced pain, fewer complications related to trocar insertion and easier specimen removal through a larger incision. With a single incision site through the umbilicus, abdominal muscle penetration is avoided and consequently pain might be reduced, compared to conventional laparoscopy. Simply reducing the size of ancillary ports can decrease immediate postoperative pain (5). The complication rate was low and limited to minor postoperative complications. Even though the incision in the umbilicus with single site surgery is larger than in traditional laparoscopy, the most recent literature indicates that the risk of herniation is comparable to conventional laparoscopic surgery (5). A relatively larger umbilical facial incision could be expected to increase the risk of herniation, but the larger skin incision may compensate as it facilitates accurate and solid closure of the fascia.

This case report highlights the fact that isolated torsion of the fallopian tube should be considered in the differential diagnosis of patients with acute abdomen even without a history of predisposing factors. Laparoscopy plays an important role in the accurate diagnosis and avoids unnecessary delay in treatment.

## References

1. Shukla R. Isolated torsion of the hydrosalpinx: a rare presentation. *Br J Radiol* 2004; 77:784 –786.
2. Antoniou N, Varras M, Akrivis C, Kitsiou E, Stefanaki S, Salama-lekis E . Isolated torsion of the fallopian tube: a case report and review of the literature. *Clinical and Experimental Obstetrics & Gynecology* 2004; 31:235-238.
3. 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.
4. Vijayaraghavan SB, Senthil S Isolated torsion of the fallopian tube: the sonographic whirlpool sign. *J Ultrasound Med* 2009; 28:657–662
5. Gunderson CC, Knight J, Ybanez-Morano J, Ritter C, Escobar PF, Ibeanu O, et al. The risk of umbilical hernia and other complications with laparoendoscopic single-site surgery. *J Minim Invasive Gynecol* 2012; 19:40-5.