Isolated Torsion of the Distal Part of the Fallopian Tube in a Premenarcheal 12 Year Old Girl: A Case Report

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TERADA, Y., MURAKAMI, T., NAKAMURA, S., SATO, Y., NIKURA, H., ITO, K., YAEGASHI, N. and OKAMURA, K. Isolated Torsion of the Distal Part of the Fallopian Tube in a Premenarcheal 12 Year Old Girl: A Case Report. Tohoku J. Exp. Med., 2004, 202 (3), 239-243 —— Isolated torsion of the fallopian tube in premenarcheal girls is very rare. However, correct diagnosis and treatment are needed in order to optimize salvage of fallopian tube. Here, we report a case of fallopian tube torsion in a premenarcheal girl. A 12-year-old premenarcheal girl was admitted with a rapid history of colicky lower abdominal pain. MR image demonstrated normal ovaries and a large spherical cystic tumor with hemorrhage-like contents. The differential diagnosis included torsion of a para-ovarian cyst or hydrosalpinx, hemorrhage within a non-communicating uterine horn or a pelvic hemorrhage of unknown origin. Laparoscopic inspection/operation was performed. The distal portion of the left fallopian tube was swollen with two twists evident in the middle portion. The distal portion of the left fallopian tube was laparoscopically removed with the aid of a YAG laser. The mechanisms underlying disorders of the left fallopian tube are not well understood. However, some intrinsic/extrinsic causative factors are discussed. Although torsion of the fallopian tube occurs rarely and exhibits variable clinical features, the diagnosis should be considered in all young girls presenting with sudden colicky abdominal pain. Laparoscopic inspection/surgery appears to be the most suitable management. ——— fallopian tube torsion; premenarcheal girl; laparoscopy

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Torsion of the fallopian tube is not rare in adult women and may be associated with intrinsic/extrinsic tubal factors, such as hydrosalpinx or previous sterilization. However, it is very rare in premenarcheal individuals. The condition is rarely diagnosed preoperatively and by the time surgery is undertaken, the affected adnexa is usually damaged. We encountered a rare case of tubal torsion in a 12-year-old virgin girl, and discuss our presurgical diagnosis and laparoscopic treatment.

**Case Report**

A 12-year-old premenarcheal virgin girl presented with a 2 days history of colicky lower abdominal pain. CT scan demonstrated a large cystic mass in the pelvic cavity and the gynecologic service was consulted. She received antibiotics for 3 days and the abdominal pain was improved. She was subsequently discharged home following resolution of the pain, and referred to our hospital for further investigation of the pelvic mass.

On admission, physical examination revealed a healthy premenarcheal girl with normal external genitalia and pubertal development for age (breast and pubic hair were Tanner stage 2). Her height was 158 cm and body weight was 40 kg. Her family history included an elder sister with a bicornuate uterus and cervix with partial biseperate vagina, and an aunt with a bicornuate uterus. An abdominal ultrasound scan demonstrated a spherical fluid-filled thick-walled mass adjacent to a normal shaped uterus, and unremarkable ovaries (Fig 1). There was no free intraperitoneal fluid detected. Laboratory studies included white blood count 5500/mm$^3$, C reactive protein 1.3 mg/100 ml, FSH 1.5 mIU/ml, LH 14 mIU/ml, estradiol 29 pg/ml, progesterone 0.2 ng/ml and prolactin 10.6 ng/ml. Her serum CA125 was 75 mIU/ml. MR image of the pelvic cavity demonstrated large spherical homogenous cystic mass with shedding, suggestive of recent bleeding. The ovaries and uterus were normal (Fig 2). These findings were compatible with several diagnoses such as torsion of a para-ovarian cyst or hydrosalpinx, hemorrhage in a left non-communicating uterine horn or a pelvic hemorrhage of unknown etiology.

Laparoscopy and surgery was scheduled one month following the onset of the abdominal pain. A speculum examination and transvaginal ultrasonography was performed under general anesthesia prior to the laparoscopy. A single uterine cervix was observed together with a large cystic mass located in the Douglas pouch. A routine laparoscopy was performed and we did not use uterine manipulator for this operation. The pelvic

![Fig. 1. Sonographic image of a horizontal section of the normal ovaries (ov) and a large spherical cystic mass.](image)
Fig. 2. Axial (a) and sagittal (b) T2-W MR image of the pelvic cavity. A large cystic mass can be seen adjacent to the normal shaped uterus.

ut, uterus; ov, ovary.

Fig. 3. Laparoscopic inspection/operation. a: Pelvic cavity exhibited adhesions and a large cystic mass. b: The content of the cystic mass was aspirated by a double balloon catheter. c: Distal portion of the left fallopian tube was swollen with two twists evident at the middle portion. d: The uterus, ovaries and right fallopian tube were normal.

ut, uterus; ov, ovary.
cavity was adherent and a large pelvic mass was observed. Adhesiotomy was performed by YAG laser and the serous-brown content of the pelvic cyst was aspirated using a double balloon catheter (Hakkou Medical, Nagano). The distal portion of the left fallopian tube was swollen with two twists evident in the middle portion. The uterus, ovaries and right fallopian tube were normal. The distal part of the left fallopian tube was resected with the aid of a YAG laser and was removed from a 1 cm abdominal port. No infectious screening was performed during operation. The pelvic cavity was washed with warm saline and sprayed with fibrin glue in order to prevent postoperative adhesions. The operating time was 70 minutes. The postoperative course was uneventful and she was discharged on the 3rd postoperative day. Pathological analysis demonstrated hemorrhagic necrosis and associated acute/chronic inflammation of the fallopian tube.

**DISCUSSION**

Although adnexal torsion secondary to ovarian masses is not unusual, isolated fallopian tube torsion is an uncommon cause of acute abdominal pain. Despite several previous case reports, there is often delay in making a preoperative diagnosis, as isolated tubal torsion is rare event even in adult woman (Furui et al. 1993; Ferrera et al. 1995; Huang et al. 1999; Adekanmi et al. 2000). In this case, a tubal torsion felt to be unlikely diagnosis preoperatively, because she was a virgin with preoperative examinations indicating normal ovaries. Furthermore, only half of the distal part of the left fallopian tube was swollen and twisted while the proximal part was normal. This is not a specific feature of previously reported isolated torsion of the fallopian tube, almost always reflects torsion of a hydrosalpinx. The characteristic appearance of a hydrosalpinx is a convoluted cystic mass, tapering as it nears the uterine horn (Sacher and Meuli 1997; Huang et al. 1999). We considered several other diagnoses such as pelvic hemorrhage, hemorrhage within a non-communicating uterine horn and torsion of a para-ovarian cyst. Conservative therapy was adopted at the onset of the abdominal pain, and distal part of left tube was found to be necrotic at the time of laparoscopy. A significant delay occurred between the onset of her symptoms and definitive surgical treatment being performed. Such difficulty and delay in diagnosis may result in necrosis of the fallopian tube, and we had to remove distal part of a fallopian tube.

The mechanisms underlying disorders of the left fallopian tube are not well understood, although some intrinsic/extrinsic causative factors have been documented. It can be postulated that some congenital malformations was present in the left fallopian tube, as her elder sister and aunt exhibited mullerian malformations. A pre-existing left tubal anomaly might result in swelling of the distal portion of the fallopian tube. A diagnosis of previous pelvic inflammation resulting in hydrosalpinx is unlikely, since half of the proximal part of left fallopian tube was not swollen. In our review, the most plausible underlying etiology is that a congenital malformation of the left fallopian tube resulted in a partial left hydrosalpinx that subsequently underwent torsion.

Laparoscopic surgery has been introduced into pediatric surgery (Cohen et al. 1996; Sacher and Meuli 1997). It is suitable for the treatment for adnexal disorders as the duration of hospitalization is short, cosmetic results are excellent, and patients rapidly return to normal activity (Huang et al. 1999).

Although rare, torsion of the fallopian tube should be considered in all young girls presenting with sudden colicky abdominal pain, together with early intervention aimed at saving the tube. This report suggests that a virgin girl with no prior episodes may undergo isolated torsion of fallopian tube.

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References