



## Torsion of Para-Ovarian Cyst: Case Report and Review of Literature

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### Abstract

Torsion of uterine adnexa with a para-ovarian cyst in adolescent females is extremely uncommon. With a wide range of differentials for pelvic pain in pre-menarchal girls and nonspecific clinical presentation it often becomes a diagnostic challenge to identify this condition before surgery. We present a case of 19 year old female, who presented in emergency with acute abdomen. Ultrasound pelvis was suggestive of an ovarian cyst. At laparotomy a twisted right para-ovarian cyst was found and cystectomy performed.

**Keywords:** Para-ovarian cysts; Diagnosis; Fallopian tube

### Introduction

Para-ovarian cysts (POC) account for approximately 10% of adnexal masses which usually present in women aged 30-40 years [1]. Mostly small and asymptomatic, although when occasionally large these may result in pelvic pain [2]. POCs mostly arise in the broad ligament as thin walled and unilocular cysts. On imaging, it is difficult to reliably differentiate a POC from an ovarian cyst; therefore they are often removed surgically, especially if a solid component is present.

A diagnosis of para-ovarian cyst is recommended when the ovary is outlined as separate from the cyst; however, clear image of its separateness is often prevented by adnexal distortion. Huge para-ovarian cysts have been described in locations superior to the urinary bladder, possibly having migrated there during their enlargement [3]. Para-ovarian cysts do not respond to hormonally variations, and therefore their imaging appearances remain unchanged over time. In cases where torsion of para-ovarian cyst is diagnosed early, detorsion of its pedicle with preservation of fallopian tube and removal of the cyst may be a viable alternative.

We present here a case of a para-ovarian cyst which presented as an adnexal mass suggestive of a twisted ovarian cyst causing acute abdomen.

### Case Report

A 19-years-old female presented with history of sudden severe lower quadrant pain. The pain was non-radiating, constant, 10/10 severity, and associated with nausea and vomiting. The patient had no previous history of similar episodes in the past and denied fever, chills, headache, dysuria, constipation, diarrhea, menorrhagia or dysmenorrhoea. The patient had never been sexually active, abused, or experienced abdominal trauma. Her remaining medical and surgical history was unremarkable. Clinically the patient was haemodynamically stable and her haematology and biochemistry results were within normal limits.

Transabdominal sonography visualized normal sized anteverted uterus with normal endometrium. A well-defined thin-walled anechoic cystic structure was identified in the midline posterior to uterus without any internal vascularity measuring 8.6 cm × 8.2 cm × 7.6 cm with volume of 283.3 ml representing para-ovarian cyst with suspicion of torsion. The patient was tender on probing. Both ovaries were separately visualized. Left ovary measured 2.2 cm × 2.6 cm and Right ovary measured 2.8 cm × 1.7 cm. There was no evidence of free intraperitoneal fluid collection.

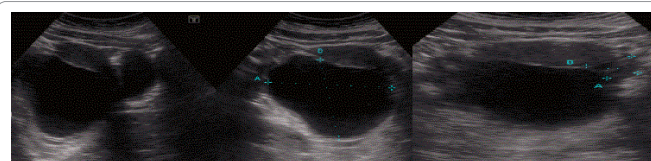
Analgesia provided no relief so patient underwent CT scan the

following day which showed a cystic lesion of 10 cm × 6.6 cm in the pelvis in retro uterine area, likely to be ovarian in nature.

Exploratory laparotomy was performed, demonstrating an enlarged, hemorrhagic, gangrenous left para-ovarian cyst, twisted at its pedicle. Both ovaries and the fallopian tubes were normal. Left cystectomy was performed. The cyst was sent for histopathology. The report was consistent with the para-ovarian cyst. The patient had an uneventful post-operative recovery and discharged to home on the 5<sup>th</sup> post-operative day. Patient was doing well at the follow up visit (Figures 1 and 2).

### Learning points

- Torsion of both ovary and fallopian tube most commonly found at surgery.
- Ovarian torsion occurs around suspensory ligament of ovary. (Twist ranges 180-720°)
- Sequential venous, lymphatic, and arterial obstruction.
- Earliest pathologic changes include edema and microscopic hemorrhage within ovary. Late findings include hemorrhagic infarction.
- Absent venous flow in enlarged echogenic ovary with prominent peripheral follicles is earliest reliable sign.
- Presence of normal blood flow does not exclude torsion.
- Always look for underlying mass.



**Figure 1:** A well defined thin-walled anechoic structure is identified in the midline posterior to uterus without any internal vascularity representing paraovarian cyst.

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**Figure 2:** A cystic lesion in the pelvis in retrouterine area, likely to be ovarian in nature.

## Discussion and Conclusion

Acute appendicitis, ectopic pregnancy, pelvic inflammatory disease, twisted ovarian cyst and degenerative leiomyoma are few differential diagnosis of fallopian tube torsion [4]. Para-ovarian cyst torsion is rare, leading to delay in its diagnosis [5]. Torsion of the para-ovarian cyst is three times more frequent in pregnant females probably due to the rapid growth spurt and enlargement [6]. Larger para-ovarian cysts are seen in younger patients and are usually of mesothelial origin. These cysts are usually single, but bilateral lesions have also been reported in literature [7]. Various concepts and theories have been proposed to explain the etiology of fallopian tube torsion. A survey of 201 cases of fallopian tube torsion conducted by Regad suggested a normal appearance in only 24%, other causes of fallopian tube torsion included abnormalities such as long and dilated mesosalpinx, tubal abnormalities, hydrosalpinx and hydatids of morgagni [8]. Physiologic abnormalities include peristalsis or hyper mobility of the tube and tubal spasm from drugs. Haemodynamic abnormalities include venous congestion in the mesosalpinx, trauma [9]. Previous surgical intervention like tubal ligation, particularly the use of Pomeroy technique, can predispose to fallopian tube torsion [10].

Ultrasound imaging demonstrates a dilated, elongated, convoluted cystic mass structure, tapering as it nears the uterine cornu. The ipsilateral ovary is separate from the cystic mass. Doppler ultrasound is valuable in detecting viability of adnexal structures by illustrating absence of flow in a tubular structure or high impedance blood flow within the twisted vascular pedicle [11,12]. MRI is a useful problem-solving tool and reliable modality in the evaluation of adnexal torsion

in pregnant women. When available, it is preferred to CT because it lacks the hazards associated with ionizing radiation.

Enlarged ovary with or without an underlying mass is a finding most commonly associated with torsion, but it is nonspecific. A twisted pedicle, although not often detected on imaging, is pathognomonic when seen. Sub-acute ovarian hemorrhage and abnormal enhancement are seen, and both features show characteristic patterns on cross section imaging modalities such as CT and MRI. Physicians need to keep a high index of suspicion for this extremely rare entity. Stability at follow-up examinations particularly during different phases of the menstrual cycle is highly suggestive of the diagnosis.

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