

Asynchronous Bilateral Ovarian Torsion: A Case Report and Review of Literature

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ABSTRACT

Ovarian/adnexal torsion is a rare gynaecological emergency presenting with nonspecific signs and symptoms mimicking other causes of acute abdomen. Asynchronous bilateral ovarian torsion is even rarer but has serious implications as it may potentially lead to castration. Traditionally, ovarian torsion has been treated by surgical resection; however, there is growing evidence that the ovary regains its function when detorsed and left *in situ*. We report a case of a bilateral asynchronous ovarian torsion in a young female that occurred after an interval of 8 years, which was managed by untwisting the pedicle and preserving the ovary.

Key Words: Ovarian torsion, Castration, Bilateral, Gynaecological emergency.

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INTRODUCTION

Adnexal/ovarian torsion is a rare gynaecological emergency presenting with nonspecific lower abdominal and pelvic pain. It may simulate acute appendicitis when the site of torsion is the right adnexa. Ovarian cysts and tumours are predisposing conditions leading to torsion of ovary.¹ Asynchronous bilateral ovarian torsion, defined as torsion of both ovaries occurring at different points in time, was first reported by Baron in 1934.² It is uncommon but has important clinical implications as it may lead to castration which impairs fertility in future. Imaging plays a key role in suspected cases of ovarian torsion. Ultrasound is the first-line imaging modality with reported pooled sensitivity and specificity of 0.79 and 0.76, respectively, improving slightly further when Doppler is added. MRI, reserved for equivocal cases, has a much higher specificity of 0.91.³ Traditionally, surgical resection has been the treatment of choice based on the assumption of embolic phenomena secondary to untwisting of the pedicle and the doubtful benefit of leaving ischemic bluish-black adnexa. However, it has been suggested recently that untwisted ischemic adnexa can be left *in situ* and on follow-up ultrasound, 85% of the untwisted ovaries show vascularity and follicular growth.⁴

This is a case of bilateral asynchronous ovarian torsion in a young female that occurred after an interval of 8 years.

CASE REPORT

A 22-year unmarried female presented to the emergency department with complaints of acute severe left lower abdominal pain and high-grade fever for 2 days. Past surgical history was significant for right-sided oophorectomy, 8 years back secondary to right ovarian torsion. She was vitally stable and the general physical examination was unremarkable. Her abdomen was soft with mild tenderness in the left lower abdomen. There was no visceromegaly. Her baseline laboratory workup showed normal serum electrolytes, total leukocyte count, and serum creatinine. Her haemoglobin was 10.6 g/dl. She underwent pelvic ultrasound which showed a hypoechoic mass posterior to the uterus with internal vascularity, and the left ovary was not separately seen (Figure 1). She then underwent magnetic resonance imaging (MRI) for further characterisation of the pelvic lesion, which demonstrated an enlarged but normally enhanced left ovary with a twisted pedicle surrounded by hemorrhagic fluid (Figure 2).

Based on imaging results, the diagnosis of left-sided ruptured haemorrhagic cyst along with left ovarian torsion was made. The patient underwent an emergent laparoscopy. Perioperatively, an encapsulated haemorrhagic cyst with a small rupture was found in the left ovary and the ovary was twisted twice around its pedicle. The ovary was detorsed and left *in situ* after draining the contents of the cyst. The hemoperitoneum was also drained. The right ovary and right fallopian tube were absent, consistent with past surgical history, and the uterus was unremarkable. She had an uneventful postoperative course and was discharged on the second postoperative day.

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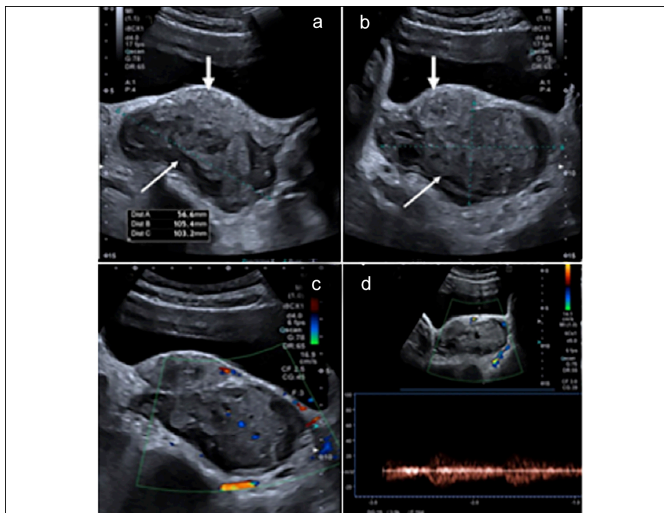


Figure 1: (a) Longitudinal and (b) Transverse ultrasound images show a heterogeneous echogenic mass (long white arrow) posterior to the uterus which is displaced anteriorly and to the right of midline (short thick arrow). (c) Colour Doppler and (d) Spectral Doppler ultrasound image show presence of vascularity within the lesion.

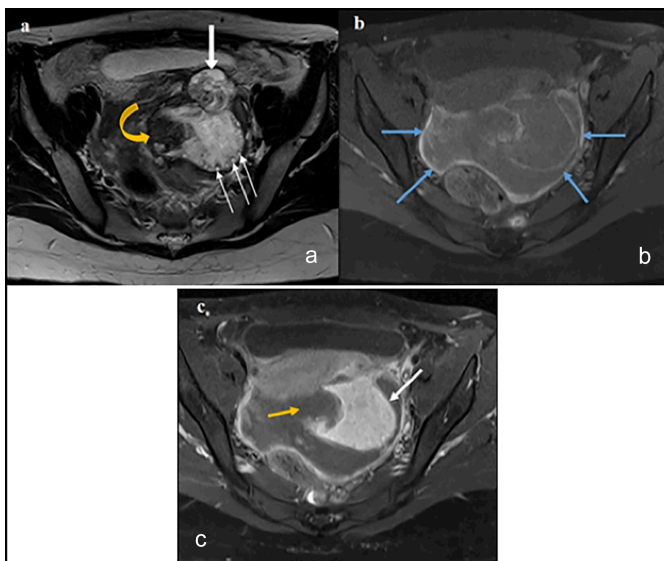


Figure 2: (a) Axial T2 weighted MRI image shows enlarged left ovary with tiny peripherally displaced hyperintense follicles (thin white arrows) and a T2 hypointense area representing a haemorrhagic cyst (curved yellow arrow). The twisted pedicle is seen anterior to the ovary (thick white arrow), (b) Axial T1 weighted fat saturated MRI image shows pelvic collection with hyperintense rim (blue arrows) indicating blood products/haemorrhage, (c) Axial post-contrast T1 weighted fat saturated MRI image shows enhancing left ovary (white arrow) and a defect in its right wall due to ruptured haemorrhagic cyst (yellow arrow).

DISCUSSION

Ovarian torsion is a surgical emergency that requires prompt recognition and treatment as it can potentially affect reproduction and lead to hormonal imbalance. It can affect all ages but is more frequent in premenopausal females.⁵ The most common risk factor is an ovarian cyst/mass, usually 5 cm or larger and has been reported in up to three-fourth of cases.^{1,6} In the present case, the haemorrhagic cyst was a likely predisposing factor. The right ovary is more commonly affected than the left ovary, attributed to longer right utero-ovarian ligament and the protec-

tive effect of the sigmoid colon on the left side.⁷ Due to nonspecific nature of the symptoms, the differential diagnosis is wide and includes both non-gynaecologic and gynaecologic causes. Ovarian torsion is mostly unilateral; however, synchronous as well as asynchronous bilateral ovarian torsion have been described.⁷ In a literature review by Dumont *et al.*,⁸ the time interval between asynchronous ovarian torsion ranged from as less as six weeks to up to 9 years, with the right ovary being affected first, as in the present case. There are about 30 cases of asynchronous bilateral ovarian torsions reported so far.⁹ It is important to consider asynchronous ovarian torsion in females with prior history of ovarian torsion who present with acute abdominal pain as delay in recognition and treatment can lead to compromised outcomes.

Ultrasound is the initial imaging of choice and demonstrates enlarged, abnormally located hypoechoic ovary with follicles displaced to the periphery due to oedema.⁶ Haemorrhage within and outside the ovary can result in more heterogeneous appearance as seen in this case. On colour Doppler, the absence of venous flow is more common while arterial flow may persist due to thick non-collapsible arterial walls and dual blood supply to the ovary.¹⁰ In the present case, the arterial flow was also preserved as evident on spectral Doppler evaluation, and the ovary showed enhancement on post-contrast MRI. Colour Doppler ultrasound may also demonstrate the 'whirlpool sign' which is specific for a twisted ovarian pedicle.^{1,6} Computed tomography (CT) is not an initial imaging choice in suspected cases of ovarian torsion. However, as torsion often presents with non-specific symptoms and signs mimicking non-gynaecological causes of acute abdomen, some patients may undergo a CT scan. CT shows an enlarged displaced ovary with or without a mass, non-enhancement, associated free fluid or hematoma and ipsilateral uterine deviation.⁶ MRI shows findings similar to that on CT; however, it depicts the blood products and peripherally displaced follicles better as evident in this case and may also demonstrate the twisted pedicle. The traditional treatment for ovarian torsion has been oophorectomy but now there is growing evidence that gross appearance of bluish-black ovary does not necessarily indicate infarction. In a study by Novoa *et al.*,⁴ only five out of 33 necrotic-appearing ovaries had actual necrosis on histopathology and necrosis was more frequent in patients who had delayed surgery. The current trend is detorting the twisted ovary as early as possible and leaving it *in situ*. This is especially pertinent in patients who present with asynchronous contralateral ovarian torsion and have had an oophorectomy earlier, as it preserves ovarian function and future fertility. Oophoropexy of the torsed ovary has also been proposed to prevent future ovarian torsion although the results are controversial.^{7,11} Few cases report the use of hyperbaric oxygen post-detorsion, as it causes vasodilation leading to better perfusion of injured tissues and has anti-inflammatory effects.¹¹

In conclusion, asynchronous bilateral ovarian torsion, although rare, requires prompt recognition and management with a minimally invasive surgical approach by detorting and preserving

the ovary irrespective of its appearance. Early diagnosis and appropriate management, before necrosis sets in, preserve future fertility.

PATIENT'S CONSENT:

Written informed consent was obtained from the patient.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

SA, AA: Conceived the idea of reporting the case.

SA, KF: Did the literature search, collected the case details, and made the initial draft. The drafted article was shared with other authors for their input.

IM, AA, SA, KF: Critically reviewed the article for intellectual content and approved the final draft.

All the authors have approved the final version of the manuscript to be published.

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