Paediatric cystic ovarian torsion masquerading appendicitis

Smriti Kapoor, Shoaib Saeed, Dinesh Balasubramaniam

SUMMARY
A 7-year-old girl presented with a 2-day history of right iliac fossa pain, fever and elevated inflammatory markers. Clinical examination supported a diagnosis of appendicitis. The patient was taken to theatre for an open appendicectomy the following morning. Intraoperatively, a right-sided ovarian haemorrhagic cyst with 360 degrees torsion was discovered. The ovary was torted along with the cyst. Both were detorted and the abdomen was closed. The patient was discharged 48 hours later, with gynaecology outpatient follow-up 6–8 weeks later. Paediatric ovarian torsions caused by a haemorrhagic cyst greater than 2 cm are rare. Here, we discuss an atypical presentation of ovarian torsion and how the clinical presentation can mimic appendicitis.

BACKGROUND
In the paediatric population, torsion of the ovary is rare with an incidence of around 5 in 100,000. While ovarian cysts measuring 1 cm or less have a prevalence in the prepubertal population of 2%–5%, cysts greater than 2 cm are considered to be rare. Some cysts are hormonally active and facilitate the development of sexual characteristics. Cysts greater than 2 cm require follow-up until regression is seen due to their risk of torsion. Ovarian torsions usually present with a sudden onset of abdominal pain and may be a differential diagnosis of an acute surgical abdomen. Torsion usually results from twisting of the ligamentous support that results in venous congestion.

The condition has previously been managed with an oophorectomy; however, a systematic review has shown detorsion alone to be sufficient, with promising results for future fertility.

CASE PRESENTATION
A 7-year-old girl presented to the accident and emergency department in the evening with a 2-day history of worsening right-sided abdominal pain. The pain was non-migratory in nature and was associated with anorexia, a single episode of diarrhoea and vomiting. This was the first time she had experienced this pain. The patient was fit and well with no other medical conditions. She was premenarcheal. Her mother gave an uneventful perinatal history.

On assessment by the surgical team, the patient was found to have a large haemorrhagic torted ovarian cyst measuring 7 x 3 cm, which ruptured on mobilisation. The attached ovary appeared ischaemic (figure 1). The cyst had torted through a full 360°. The ovary’s appearance did not change following detorsion. After detorsing the cyst, senior gynaecology input was sought. The advice was that, in spite of the appearance of the ovary, there was potential for it to recover and retain function, and so both the ovary and the cyst were carefully placed back into the pelvis. The wound was closed as per normal.

Over the following 24 hours, the WBC normalised and the patient improved clinically. She was discharged home and has recovered well.

OUTCOME AND FOLLOW-UP
The patient has recovered well following her surgery. The patient had a follow-up ultrasound scan at 3 months, which demonstrated the left ovary measuring 38 x 17 x 26 mm and a right ovary measuring 18 x 10 x 18 mm with viable ovarian tissue.

DISCUSSION
The case described above is uncommon as both the ovary and associated haemorrhagic cyst of 7 x 3 cm had torted. Differentiating appendicitis from ovarian torsion is difficult as they present in very similar ways. It is often thought that ovarian torsion is secondary to a cyst or ovarian tumour. However, other theories have been proposed to explain how the clinical presentation may mimic appendicitis.
Ovarian torsion should always be considered as a differential diagnosis in all female patients with acute right iliac fossa pain and raised inflammatory markers.

Ultrasound scans can be particularly useful in the female population. However, it can be overlooked in children with such typical features of appendicitis.

A laparoscopic approach can help identify pelvic pathology mimicking appendicitis. However, outside of centres for paediatric surgery, often an open approach is preferred, particularly in younger and smaller children.

Attempts should be made to salvage torted ovaries regardless of the appearance.

A follow-up ultrasound must be arranged to ensure regression of the cyst.

**Learning points**

- Ovarian torsion should always be considered as a differential diagnosis in all female patients with acute right iliac fossa pain and raised inflammatory markers.
- Ultrasound scans can be particularly useful in the female population. However, it can be overlooked in children with such typical features of appendicitis.
- A laparoscopic approach can help identify pelvic pathology mimicking appendicitis. However, outside of centres for paediatric surgery, often an open approach is preferred, particularly in younger and smaller children.
- Attempts should be made to salvage torted ovaries regardless of the appearance.
- A follow-up ultrasound must be arranged to ensure regression of the cyst.

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**ORCID iD** Smriti Kapoor http://orcid.org/0000-0003-0122-9213

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