

Background

Differential diagnoses for abdominal pain in a child or adolescent are broad. In children and adolescents, adnexal torsion accounts for 2.7% of cases of abdominal pain, and can have long-term consequences on fertility, so timely intervention is necessary. 15% of all cases of adnexal torsion occur in children and adolescents. Unlike adults, adnexal torsion occurs without an associated mass or cyst in 46% of cases.

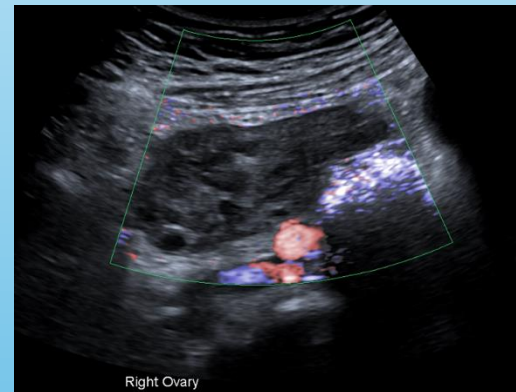
The American College of Obstetricians and Gynaecologists (ACOG) committee statement reports the risk of torsion increases when pelvic masses exceed 5cm. The most common ovarian pathologies found in adolescents with adnexal torsion are benign functional ovarian cysts and benign teratomas. Torsion of malignant ovarian masses in this population is rare.

Case History

An 11 year old female was brought into Emergency Department by her mother, with acute onset of right sided iliac fossa pain. She had one episode of vomiting. She had a history of similar pain recurring, over the last few months, lasting for a few hours at a time. The pain had mostly resolved by the time she arrived at hospital. Surgical history included tonsillectomy only, and there was no other medical history. She was attending year 5 and did not have any difficulties with schooling. She has a younger sister who was well. She had not undergone menarche. There was evidence of some axillary hair but there were no other signs of pubertal development. She was afebrile, and her abdomen was completely soft and non-tender upon review.

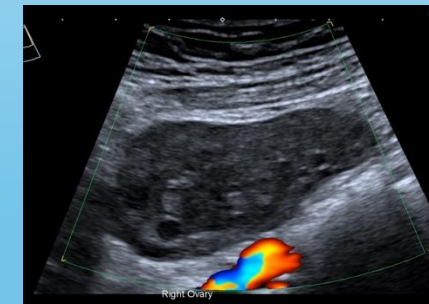
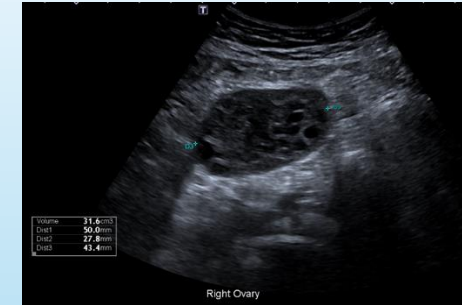
Investigations

She had a normal white cell count and haemoglobin, her venous lactate was 2.0. Lactate Dehydrogenase level was 311. Liver and kidney function tests were normal and serum HcG was negative. Ultrasound in emergency department reported an enlarged right ovary measuring 50x28x34mm, with a heterogenous echotexture and multiple internal follicles. No internal vascularity is evident using multiple transducers. The left ovary was morphologically normal (1 cc) with internal vascularity evident. Fluid is seen within the pouch of Douglas.



Serial examination confirmed a soft and non-tender abdomen. A broad panel of tumour markers were all negative, as seen in the table.

Tumour marker	Result (Reference Range)
CA 125	13
CEA	1
CA 19.9	4
AFP	1.0
sHBG	102.9 nmol/L (RR 14.9 -107.8)
DHEA	10.2nmol/L (RR: < 13.1)
Testosterone	0.7 nmol/L (RR <1.1)
Estrogen	26 pmol/L (RR: <320)
Free androgen index	1% (<5%)
Inhibin B	18 (RR: 10-140)



Management

A laparoscopy was performed showing a large but normal appearing ovary with no evidence of torsion. There was no ascites or peritoneal deposits and the uterus was small and tubes appeared normal. Wedge biopsy was performed, frozen section showed some atypical features but not sufficient to perform oophorectomy.

Histopathology: Sex cord stroma tumour was considered (particularly juvenile granulosa cell tumour) but those elements were more likely to represent a benign non-neoplastic follicular structure with luteinisation.

Discussion

- A pre-pubescent female with a unilateral enlarged ovary and abdominal pain raises concern for ovarian torsion and tumour
- Challenges with history and imaging make diagnosis and management a difficult diagnostic dilemma
- This is a case of benign histopathology, where intermittent torsion could be a possible explanation.

References:

1. Ashwal E, Hiersch L, Krissi H, Peled Y, Eitan R, Wiznitzer A, et al. Characteristics and management of ovarian torsion in premenarchal compared with postmenarchal patients. *Obstet Gynecol.* 2015; 126(3):514-20.
2. Childress KJ, Dietrich JE. Pediatric ovarian torsion. *Surg Clin North Am.* 2017;97(1):209-21.
3. American College of Obstetricians and Gynecologists. Adnexal torsion in adolescents. ACOG Committee Opinion No. 783. 2019.