



Ovarian vascularity in cases of suspected ovarian torsion.

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Introduction

- Ovarian torsion is a surgical emergency where an ovary rotates along the ligaments supporting it, leading to partial or complete obstruction of blood supply to the ovary (1).
- Timely diagnosis is essential to avoid serious complications including infarction, oophorectomy, and loss of ovarian function (2, 3).
- Clinical features of ovarian torsion vary however include vomiting, sudden onset and severe abdominal or pelvic pain (1, 4).
- The presence of ovarian cysts (particularly if they are greater than 5cm in diameter) is an important risk factor for ovarian torsion (1).
- While ultrasound is the first line imaging modality, a normal ultrasound appearance does not exclude ovarian torsion and definitive diagnosis relies on surgical exploration. The literature cautions against the exclusion of ovarian torsion solely on ultrasound findings (4, 5, 6).

Objectives

- To examine clinical features and ultrasound findings for cases of suspected ovarian torsion.
- The overarching aim is to reduce cases of missed ovarian torsion, and improve rates of ovarian preservation.

Methodology

- Retrospective observational study.
- 6 month study period (01 Oct 2022 to 31 March 2023)
- Female patients undergoing emergency gynaecology laparoscopy identified.
- Data collection from iEMR regarding patient demographics, clinical features, investigations, intraoperative and surgical details.
- Data was analysed using simple descriptive statistics.

Results

- 129** diagnostic laparoscopies were performed during the study period, and of these **43** were due to a clinical suspicion of possible ovarian torsion.
- 13** patients had a confirmed ovarian torsion at time of theatre, and **5** patients required oophorectomy.
- Table 1 outlines the presence of common symptoms of ovarian torsion (vomiting, sudden onset pain and severe pain), and Table 2 outlines common ultrasound features for these patients.

Results continued

Table 1: Symptoms for cases of suspected ovarian torsion.

Outcome	Symptoms		
	Vomiting	Sudden Onset Pain	Severe Pain
Torsion (n=13)	10/13 76.9%	8/13 61.5%	10/13 76.9%
No torsion (n=30)	13/30 43.3%	17/30 56.6%	22/30 73.3%
	Chi square 4.113 (p=0.043)	Chi square 0.088 (p=0.766)	Chi square 0.061 (p=0.804)

Table 2: Ultrasound features for cases of suspected ovarian torsion.

Outcome	Ultrasound Features			
	Ultrasound Performed	Normal Ovarian Vasculature	Abnormal Ovarian Vasculature	Unable to assess Ovarian Vasculature
Torsion (n=13)	13/13 100%	5/13 38.5%	7/13 53.8%	1/13 7.7%
No torsion (n=30)	29/30 96.7%	14/30 46.7%	13/30 43.3%	2/30 6.67%

Of the patients with ovarian torsion:

- Mean age of **33.6 years** (range 20-46 years)
- 12/13** had ovarian cysts. Mean ovarian cyst size (largest dimension) was **7.0cm** (range 4.3 to 12.3cm). One case did not have an ovarian cyst, but had a 'bulky ovary' measuring 4cm.
- One patient was pregnant (approximately 5 weeks gestation, from a spontaneous conception).

Discussion & Conclusions

- The presence or absence of ovarian vascularity on ultrasound is not reliable at predicting ovarian torsion.
- Ultrasound confirming normal ovarian vascular supply **does not** exclude ovarian torsion.
- Ovarian torsion remains a clinical diagnosis, with vomiting, sudden onset and severe pain being common symptoms, and ovarian cysts being a risk factor.
- These results highlight the importance of developing standardised hospital processes, and education of emergency and gynaecology department staff for managing cases of suspected ovarian torsion.

References:

- Bridwell RE, Koyfman A, Long B. High risk and low prevalence diseases: Ovarian torsion. The American Journal of Emergency Medicine. 2022 Mar 31.
- Sasaki KJ, Miller CE. Adnexal torsion: review of the literature. Journal of minimally invasive gynecology. 2014 Mar 1;21(2):196-202
- Wattar B, Rimmer M, Rogozinska E, Macmillian M, Khan KS, Al Wattar BH. Accuracy of imaging modalities for adnexal torsion: a systematic review and meta-analysis. BJOG: An International Journal of Obstetrics & Gynaecology. 2021 Jan;128(1):37-44.
- Robertson JJ, Long B, Koyfman A. Myths in the evaluation and management of ovarian torsion. The Journal of emergency medicine. 2017 Apr 1;52(4):449-56.
- Yatsenko O, Vlachou PA, Glanc P. Predictive value of single or combined ultrasound signs in the diagnosis of ovarian torsion. Journal of Ultrasound in Medicine. 2021 Jun;40(6):1163-72.
- Grunau GL, Harris A, Buckley J, Todd NJ. Diagnosis of ovarian torsion: is it time to forget about Doppler?. Journal of Obstetrics and Gynaecology Canada. 2018 Jul 1;40(7):871-5.