

# Characteristics of Ovarian Torsion in Women and Children

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## Introduction

Adnexal torsion is the total or partial rotation of an ovary, fallopian tube, or both around its vascular axis causing impairment of blood flow to the adnexa. It is a surgical emergency and remains a challenging diagnosis, often leading to delayed operative intervention, resulting in loss of an ovary. Previous studies published on this topic are limited to small retrospective case series. The goal of this study is to identify adnexal torsion characteristics across all age groups that may help to make an accurate diagnosis in a timely manner.

## Results

The most common symptom was abdominal and pelvic pain reported in 95% (n=1368) of cases. Complaints of nausea and vomiting were similar among both age groups. Fever was more likely to be present in the younger group (3.7% vs 0.5%). The most common ultrasound finding was an adnexal cyst reported in 92.5% (n=1332) of cases. The presence of free fluid in the pelvis on ultrasound was more likely to occur in the younger age group (31% vs 8.1%, p-value <0.001). Patients 21 and younger were more likely to undergo a cystectomy (40% vs 19.2%) whereas salpingo-oophorectomy was more common in those over 21 (64.4%, vs 41.3%). Surgical pathologies did not differ significantly between age groups. The incidence of malignant pathology was highest amongst those ages 21 and greater (3.1% vs 1%) but overall remained rare.

## Conclusion

Our results show that the clinical and surgical characteristics of adnexal torsion vary with age. This information may prove useful during the clinical evaluation of patients with suspected adnexal torsion with the goal of reducing delays in treatment.

## Methods

We performed a systematic retrospective chart review of all patients with a diagnosis of adnexal torsion based on ICD9 / ICD10 codes at Kaiser Permanente Southern California Medical Centers between 2008-2017. We identified a total of 1,908 patients, of which, 1440 had adnexal torsion confirmed surgically. Patient characteristics were reviewed and descriptive statistics were calculated for the cohort.

Table 1.	Clinical presentation, laboratory and ultrasound findings		
	Age ≤ 21	Age >21	p-value*
Nausea/vomiting	166 (41%)	413 (40%)	0.563
Fever	15 (4%)	5 (0.5%)	<0.001
WBC ≥12K cells/mL	165 (41%)	239 (23%)	<0.001
Absent Doppler on US	62 (15%)	96 (9%)	0.470
Free fluid on US	124 (31%)	84 (8%)	<0.001

\*Chi-Square analysis

Table 2.	Comparison of surgical procedures*	
	Age ≤ 21	Age >21
Detorsion & Drainage	16 (4%)	34 (3%)
Cystectomy	161 (40%)	199 (19%)
Oophorectomy	21 (5%)	52 (5%)
Salpingectomy	38 (10%)	85 (8%)
Salpingo-oophorectomy	166 (41%)	668 (64%)

\*p-value < 0.001

Table 3.	Comparison of surgical pathologies*	
	Age ≤ 21	Age >21
Benign	167 (42%)	413 (40%)
Benign Tumor	159 (40%)	451 (43%)
Malignant Tumor	4 (1%)	32 (3%)
None	15 (4%)	34 (3%)
Other	47 (12%)	95 (9%)

\*p-value 0.062