

Ovarian Torsion: What to Look for in History/Physical Exam

Case: 20 y/o F with history of endometriosis presents to ED with 3.5 hours of intermittent, sharp RLQ pain, lasting 10 minutes at a time and associated with nausea and vomiting. Patient is tachycardic to 102, low-grade fever of 38.1C, and negative urine pregnancy test. Physical exam is significant only for RLQ tenderness and right adnexal tenderness during bimanual exam.

Although this is a classic case for ovarian torsion, the **differential diagnosis for this clinical presentation is extensive**: appendicitis, tubo-ovarian abscess, ruptured ovarian cyst, nephrolithiasis, urinary tract infection, diverticulitis, ectopic pregnancy, and pelvic inflammatory disease. Ovarian torsion is a gynecologic emergency caused by a **mass or cyst on the ovary and/or the fallopian tube that stretches the vascular pedicle and causes rotation on its axis leading to decreased blood flow**. A 2010 study demonstrated that ovarian torsion in the pediatric population was associated with an **ovarian cyst (35%), benign neoplasm of the ovary or adnexa (23%),** and malignant neoplasm of the ovary or adnexa (0.4%). Failure to treat ovarian torsion can result in ischemia and possibly necrosis of the involved ovary. Although this is a common gynecologic emergency (3% prevalence), **almost 50% of ovarian torsion diagnoses are missed on initial presentation**. The classic presentation is sudden onset of sharp, stabbing, unilateral abdominal pain with nausea and vomiting, but the signs and symptoms can be much more vague than that.

The diagnosis of ovarian torsion is challenging because of the variable presentation. Symptoms are often intermittent and various duration exists due to intermittent ovarian ischemia since the ovary can sporadically torse and untorse, complicating the diagnosis. A 2008 study retrospectively evaluated 39 patients with pathologically proven ovarian torsion. Of these 39 patients, the chief complaint was **abdominal pain 100%** of the time. Other associated clinical characteristics were **nausea and vomiting (85%),** leukocytosis defined as WBC >11K (56%), and temperature greater than or equal to 100.5F (18%). Interestingly, the duration of pain has no correlation with an ovarian torsion diagnosis. 33% of patients had pain for less than 24 hours, 31% had pain for 1-3 days, and 36% had pain for over 3 days. A 2013 study in pediatric ovarian torsion patients showed slightly contrasting results. This study demonstrated that the clinical features most associated with ovarian torsion were **pain greater than 48 hours (p < 0.001), vomiting (p < 0.001), and tachycardia over 100 beats per minute (p < 0.01)**. Very little literature established any proven physical exam findings more suggestive of ovarian torsion over other lower abdominal pain possibilities. To further complicate the ovarian torsion diagnosis, Close et al. proved that specifically Emergency Medicine senior residents and Attending Emergency physicians have **poor interexaminer reliability concerning bimanual pelvic exam findings**.

I will use this information extensively in the Emergency Department. My literature search taught me that ovarian torsion is a very difficult diagnosis, but the most common symptoms tend to be **lower abdominal pain and vomiting**. I would have a very low threshold to ultrasound (1st) or CT the patient with these findings, particularly if diseases such as nephrolithiasis, diverticulitis, and appendicitis were in my differential

diagnosis. The probability of salvaging the affected ovary in ovarian torsion is greatly reduced after 4 hours, and EM physicians need to act quickly when attempting to diagnose a disease with such a muddy clinical picture.

References / Further Reading:

- Carroll, S. Female specific abdominal pain. EM Basic. 2011. <http://embasic.org/wp-content/uploads/2011/12/04-female-abdominal-pain-show-notes.pdf>
- Close, R, Sachs, C, and Dyne, P. Reliability of bimanual pelvic examinations performed in emergency departments. West J Med. Oct 2001; 175(4): 240-244.
- Guthrie, et al. Incidence and trends of pediatric ovarian torsion hospitalizations in the United States, 2000-2006. Pediatrics. Feb 2010; 125(3): 532-538.
- Rosen, P, Barkin R. Emergency Medicine Concepts and Clinical Practice. 4th ed. St Louis: Mosby-Yearbook; 1998.
- Rudser, A, et al. Ovarian torsion in pediatric patients: a review of eleven years' experience. Annals of Emergency Medicine. 2013; 62(4): 72.
- Shadinger, L, Andreotti, R, Kurian, R. Preoperative sonographic and clinical characteristics as predictors of ovarian torsion. Journal of Ultrasound in Medicine. Jan 2008; 27(1): 7-13.
- <http://www.ncbi.nlm.nih.gov/pubmed/24480106>
- <http://www.ncbi.nlm.nih.gov/pubmed/23810116>
- <http://www.ncbi.nlm.nih.gov/pubmed/23558274>
- <http://www.ncbi.nlm.nih.gov/pubmed/21334157>
- <http://www.ncbi.nlm.nih.gov/pubmed/23326720>
- <http://www.ncbi.nlm.nih.gov/pubmed/19038519>
- <http://www.ncbi.nlm.nih.gov/pubmed/20123766>
- <http://www.ncbi.nlm.nih.gov/pubmed/20157458>
- <http://www.ncbi.nlm.nih.gov/pubmed/19561752>
- <http://www.ncbi.nlm.nih.gov/pubmed/18410839>
- <http://www.ncbi.nlm.nih.gov/pubmed/11468611>