OVARIAN TORSION

Background
1. Definition: Ovarian Torsion: torsion of ovarian pedicle leading to vascular flow obstruction.
2. General Information
   - Commonly associated with cysts or tumors - usually benign
   - Clinical presentation can be non-specific; can lead to diagnosis and definitive treatment delay

Pathophysiology
1. Pathology of Disease: in affected ovary, venous and lymphatic outflow becomes compromised due to torsion of suspensory ligament pedicle.
   - Can lead to edema, increased pressure in ovary, ischemia and infarction.
   - Incomplete torsion leads to lymphatic obstruction and ovarian edema
2. Incidence, Prevalence
   - 3% of gynecologic surgical emergencies
   - 80% occur in reproductive aged women
   - >90% related to cysts and neoplasms
   - 10-20% associated with early pregnancy (6-14 weeks)
   - Right ovary more commonly affected
3. Risk Factors:
   - Patient age - may limit possible causes
   - Anatomic:
     - Malformed or elongated fallopian tubes
     - Pregnancy, secondary to combination of enlarged corpus luteum cyst and ovarian supporting tissue laxity
   - Medical:
     - Early pregnancy due to progesterone stimulation
     - Ovarian tumors
     - Ovarian cysts
     - Ectopic pregnancy
     - Hydrosalpinx
   - Iatrogenic:
     - Pelvic surgery (ex: tubal ligation) increases adhesion risk
     - Increased cysts from ovulation induction for infertility treatment (ovarian hyper-stimulation syndrome)

Diagnostics
1. History:
   - Sudden onset of severe, sharp, stabbing abdominal pain
   - Often unilateral; worsens over hours.
Ovarian Torsion

1. Pain radiates to back, pelvis, or thighs.
2. Associated symptoms: nausea, vomiting, fever
3. History of ovarian or fallopian tube disease, prior ovarian torsion, prior pelvic surgery

2. Physical Examination
   - Non-specific, unilateral pelvic pain
   - Tender adnexal mass
   - Fever can occur with ovarian necrosis

3. Laboratory evaluation:
   - Urine pregnancy test
   - Urinalysis
   - CBC with differential, if infectious process suggested
   - Tumor markers, if tumor suggested
     - Not used as screening tool (SOR:B)

4. Diagnostic imaging:
   - Ultrasound:
     - Doppler sonography (method of choice) can depict blood flow, and predict viability of adnexal structures
       - Flow does not exclude ovarian torsion, but can indicate ovarian viability
       - Twisted vascular pedicle
       - Cystic mass
       - Free pelvic fluid
       - Enlarged ovary
     - Gray scale transvaginal ultrasound preferred imaging modality for adnexal masses (SOR:B)
   - CT and MRI helpful if ultrasound findings non-diagnostic

Differential Diagnosis

1. Key differential diagnoses:
   - Urinary:
     - Urinary tract infection, ureteral calculi, nephrolithiasis
   - Genitourinary:
     - Ovarian tumor, ovarian cysts, ectopic pregnancy, pelvic inflammatory disease
   - Gastrointestinal:
     - Appendicitis, diverticulitis, pancreatitis

2. Extensive differential diagnoses
   - Genitourinary:
     - Endometriosis, tubal ovarian abscess
   - Gastrointestinal:
     - Small bowel obstruction, large bowel obstruction, mesenteric ischemia, perforated colonic carcinoma
Therapeutics
1. Acute Treatment: emergent gynecology consult
   o Laparoscopic adnexal de-torsion
     ▪ Procedure of choice
     ▪ Study in pediatric patients: mean time from initial exam to ovarian salvage
       11 hours; mean time in salvage failure - 21 hours
   o Laparoscopic salpingo-oophorectomy if:
     ▪ Non-reversible ischemic damage
     ▪ Tubal or ovarian neoplasm
     ▪ Cystectomy if cyst present
   o If 1st or 2nd trimester pregnancy, laparoscopy preferred
   o 3rd trimester pregnancy, laparotomy because of technical difficulty
   o Cystectomy with adnexal fixation prevents recurrence
2. Further Management (24 hrs)
   o Monitor for post-surgical signs of infection, peritonitis.
3. Long-Term Care
   o Pain related to possible re-torsion, infertility, adhesion with related chronic pain

Follow-Up
1. Return to surgeon’s office in 1 week
2. Recommendations for earlier follow-up: if pain recurs, or symptoms related to
   complication, such as infection, sepsis, peritonitis
3. Return to office if symptoms related to other complications, such as chronic pain,
   adhesions, infertility, risk for torsion of other ovary
4. Refer to Specialist:
   o Gynecology
5. Admit to Hospital
   o Admit for anesthesia and surgical intervention

Prognosis
1. Excellent prognosis
2. >88% ovarian function retained with timely surgical intervention
3. Recurrence ranges from 2-5%
4. Recurrence more common in children with no underlying pathology at time of surgery

Prevention
1. Currently no methods for prevention of ovarian torsion
2. Oophoropexy in pre-menarche adolescent females with recurrent torsion
3. Oral contraceptives to prevent formation of recurrent cysts often used clinically
4. Studies have indicated individuals on fertility treatment should avoid exercise/strenuous
   activity

Patient Education
1. AAFP reference: Evaluation of Acute Pelvic Pain in Women
2. Ovarian torsion and hyperstimulation
References


Authors: Malinda Baker, MD, & Nathan Carlson, MD,
Kaiser Permanente Fontana FMRP, CA

Editor: Carol Scott, MD,
University of Nevada Reno FPRP