RADY 401: Case Presentation
Pediatric Female with RLQ Pain

Taylor Mallicoat, OMS-IV

Ed. John Lilly, MD
11 year old Hispanic female presents to PED with RLQ pain
Intermittent “squeezing” pain which began one day prior – made worse with movement
Non-bloody, non-bilious emesis began day of presentation
No fever, hematuria, or dysuria – BM every 3-4 days
MHx unremarkable

PE was unremarkable
- A&Ox3 – no acute distress
- Abdomen: nontender, non-distended, BSx4, no rebound tenderness, no guarding
- Obturator and Psoas sign – negative

β-HCG (-)
UA – WNL
OBGYN consult
What studies are appropriate?
- Initial Study – Transabdominal Pelvic US
- Subsequent Study – Abdominal/Pelvic CT with IV and oral contrast
US Findings

- **Right ovary (pictured)** - enlarged: measuring 5.0 x 2.6 x 5.2 cm (volume = 35mL)
- **Left ovary** (measurement not pictured) – normal: measuring 3.1 x 1.8 x 3 cm (volume = 9mL)
- Cystic masses evident bilaterally – consistent with follicles
- No abnormal pelvic fluid or focal masses evident

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Normal ovarian volume: 5-15 mL.
Diminished arterial and venous flow demonstrated within the inferior right ovary, as demonstrated above.
CT Findings

- Enlarged right ovary (see blue arrow) - measuring 5.9 x 2.2 cm – consistent with US.
- Distended bladder, but otherwise unremarkable (see red arrow).
- Remainder of CT was unremarkable. Appendix, kidneys, bowel – all WNL.
Yellow arrow is indicative of left ovary for comparison.

Left ovary is measured at 2 x 1.2 cm, consistent with US.
Diagnostic laparoscopy with ovarian de-torsion performed
- Enlarged and engorged upon visual inspection
- Right ovary found to be torsed upon itself twice
- Follow-up appointment in 2 weeks
- Repeat US in 6-8 weeks
- GOOD PROGNOSIS
YES!
Ultrasound is the initial imaging modality of choice – especially in pediatric patients.
CT is good at ruling in or out ovarian torsion if the US is borderline or inconclusive.
Discussion: Classic Findings on Imaging

US – SHOWING SIZE DISCREPANCY

DOPPLER US – SHOWING DECREASED BLOOD FLOW
Discussion: Classic Findings on Imaging
Discussion: Sensitivity & Specificity of Imaging

- Doppler Ultrasound
  - 93% sensitive
  - 98% specific
- According to recent study published in European Journal of Radiology, the diagnostic performance of CT is not shown to be significantly different from that of US in identifying ovarian torsion in this study. The results suggest that when US demonstrates findings of ovarian torsion, the performance of another imaging exam (i.e. CT) that delays therapy is unlikely to improve preoperative diagnostic yield (Swenson, 2014).
Discussion: Costs & Radiation Dosages

- **US**
  - Fair Price: $225 (according to the Healthcare Bluebook for this area)
  - Radiation dosage: none
- **Abdominal/Pelvic CT with IV and Oral Contrast**
  - Fair Price: $1,515 (according to the Healthcare Bluebook for this area)
  - Radiation Dosage: approx. 10 mSv = comparable to natural background radiation for 3 years!
Good workup is crucial for diagnosis of ovarian torsion.

- **DDx:**
  - Appendicitis: psoas sign, obturator sign, rovsing’s sign
  - UTI: UA
  - Kidney Stones: Lloyd’s test + UA
  - Ectopic Pregnancy: ß-HCG

- If all signs point to ovarian torsion – order pelvic US first, then CT if needed.

- Act fast, this is a gynecologic emergency!
References