Critical Review Form
Diagnostic Test

Emergency laparoscopy for suspected ovarian torsion: are we too hasty to operate? *Fertility and Sterility* 2010; 93: 2012-2015

Objective: **To evaluate "the accuracy of the preoperative diagnosis of OT in women undergoing urgent laparoscopy for suspected OT". (p.2013)**

Methods: **Retrospective computerized chart review for all women presenting to Tel-Aviv Medical Center (Israel) between Nov 2006 and Feb 2008 who underwent laparoscopy for suspected ovarian torsion (OT). Chart review methods were not referenced or utilized (Gilbert 1996, Worster 2004). Ultrasound findings were abstracted from admission charts and ultrasound unit records. Additionally, operative findings were abstracted.**

Guide		Comments
I.	**Are the results valid?**	
A.	**Did clinicians face diagnostic uncertainty?**	Probably, but the investigators provide insufficient detail to fully judge this question. From where did these patients present (ED? GYN clinic?) Who performed and interpreted the US?
B.	**Was there a blind comparison with an independent gold standard applied similarly to the treatment group and to the control group?** **(Confirmation Bias)**	Yes. "Only women who underwent laparoscopy for suspected OT were included in our study". (p. 2013) "We had no knowledge of the diagnosis of those patients who presented with abdominal pain suspicious of OT but who were discharged without intervention. Thus, we can report on the false-positive cases, but we have no information on the false-negative cases" (p. 2015)

<table>
<tr><td>C.</td><td>Did the results of the test being evaluated influence the decision to perform the gold standard?

(Ascertainment Bias)</td><td>Probably. Although no objective analysis of clinical gestalt or the real-time cognitive importance placed upon various diagnostic tests is possible in a retrospective chart review, clinicians undoubtedly used the clinical findings we all use in deciding upon the need and relative urgency of operative intervention. The authors noted “ that the decision to operate after more than 10.5 hours was usually not based on a high level of clinical or ultrasonographic suspicion, but rather was a result of the clinician’s inability to exclude OT’. (p. 2015)</td></tr>
<tr><td>II.</td><td>What are the results?</td><td></td></tr>
<tr><td>A.</td><td>What likelihood ratios were associated with the range of possible test results?</td><td>

78 women underwent laparoscopy for suspected OT and the diagnosis was confirmed in 36 (46.1%). In 11 cases (15.7%) no pathology was identified.
The authors do not report results stratified by the presence or absence of OT so sensitivity, specificity, LR’s cannot be computed (except for Doppler sonography below).
Color Doppler sonography was obtained in 40 women.

<table>
<tr><td></td><td colspan="2">Ovarian Torsion</td><td></td><td>95% CI</td></tr>
<tr><td>Doppler</td><td>+</td><td>-</td><td>Sen</td><td>44% (28 – 53)</td></tr>
<tr><td>+</td><td>7</td><td>2</td><td>Spec</td><td>92% (81-98)</td></tr>
<tr><td></td><td></td><td></td><td>LR+</td><td>5.3 (1.5-21)</td></tr>
<tr><td>-</td><td>9</td><td>22</td><td>LR-</td><td>0.61 (0.48-0.89)</td></tr>
</table>

The average time from admission to operation was 11.4 hours (range 0.5-60 hours) while the average time from decision to operate to the operation was 3.59 hours (range 0.5 to <0 hours).

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<tr><td>III.</td><td>How can I apply the results to patient care?</td><td></td></tr>
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A.	**Will the reproducibility of the test result and its interpretation be satisfactory in my clinical setting?**	Uncertain since the authors cannot assess interrater reliability for the findings from history or physical exam or ultrasound because only one clinician actually obtained/performed these diagnostic tests. Furthermore, although the authors report abstracting data from 10 charts by a second reviewer they do not report the interrater reliability assessment of this second abstraction.
B.	**Are the results applicable to the patients in my practice?**	Uncertain since the investigators (who are Gynecologists) do not describe the setting (ED, GYN clinic, etc) where these patients presented or stratify the diagnostic findings by provider type (EP vs. GYN vs. other?)
C.	**Will the results change my management strategy?**	No, since the data presented do not provide estimates of sensitivity or specificity for diagnostic tests. Since most EP's cannot currently obtain or interpret Doppler US of ovaries, the diagnostic information provided for this test can only be applied as second-hand-data to use in conjunction with Radiology and/or GYN consultants.
D.	**Will patients be better off as a result of the test?**	Unknown, since no patient-centric outcomes (time to relief of pain, ovarian salvage) were assessed or hypothesized.

Limitations

1) **Failure to reference or use accepted chart review methods (Gilbert 1996, Worster 2004)**
    a) **How were cases identified from the medical records? (ICD 9 codes?)**
    b) **Did the data abstractor(s) use structured collection forms?**
    c) **Were data abstractors blinded to the study objective and/or criterion standard?**
    d) **How was missing or contradictory data coded?**

e) **How was reliability assessed?**

2) **Failure to stratify the signs/symptoms results by the presence or absence of OT so that sensitivity could be reported.**

3) **No explicit description of what surgical criteria were used to establish the diagnosis of OT, or what constituted an abnormal Doppler ultrasound.**

4) **Failure to describe who obtained or interpreted the ovarian Doppler ultrasound.**

Bottom Line

Color Doppler sonography (in the hands of GYN or Radiology?) may increase the post-test probability of ovarian torsion if abnormal (however "abnormal" was not defined by the investigators) with positive likelihood ratio of 5.3, but the absence of an abnormal Doppler does not decrease (negative likelihood ratio 0.61) the likelihood of ovarian torsion.