Assessment of benefit of ultrasound monitoring of adnexal masses <10 cm on ovarian cancer early detection

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Ovarian cancer is rare but deadly:

- Ovarian cancer is rare: 1 in 75 women
- Survival is heavily dependent on stage: 80% of cases present at late stage.

Screening does not work, but physicians do it anyway:

- Ten randomized controlled trials have found that screening using ultrasound and CA125 tumor marker does not improve ovarian cancer mortality and leads to unnecessary surgery.

- Despite the evidence, 1 in 3 physicians engage in screening low risk women for ovarian cancer.¹

Increasingly, we screen by accident

- Benign adnexal masses are common: In an autopsy study, 56% of postmenopausal women who died from non-gynecologic causes were found to have benign cystic (54%) or solid (12%) ovarian lesions.\(^1\)

- Benign ovarian masses are increasingly detected due to:
  - Routine use of office ultrasound
  - Increase in other imaging (CT/MRI)
  - Increased resolution of imaging

“It has been hard for patients and doctors to recognize that tests and scans can be harmful. Why not take a look and see if anything is abnormal? People are discovering why not.

The United States is a country of three hundred million people who annually undergo around fifteen million nuclear medicine scans, a hundred million CT and MRI scans, and almost ten billion laboratory tests. Often, these are fishing expeditions, and since no one is perfectly normal you tend to find a lot of fish.”

In Gynecology, the “fish” is the benign adnexal mass
Can’t easily throw it back

- When a mass is discovered, a decision has to be made between removal or ultrasound observation.
Large size or highly worrisome appearance

Elevated CA-125?

Worrisome symptoms or exam?

SURGERY

None of the above

ULTRASOUND MONITORING
Ultrasound monitoring of adnexal masses: potential benefit

- As detection of benign adnexal masses has increased, ultrasound imaging to “follow-up” adnexal masses has increased.

- The only potential benefit for ultrasound monitoring is the possibility that the mass is an early cancer and that following it will lead to early diagnosis.
Research question:

What proportion of women diagnosed with ovarian/fallopian tube cancer benefit from ultrasound monitoring of an isolated adnexal mass in terms of early diagnosis?
Kaiser Permanente Northern California

- Fully integrated closed system of 19 medical centers, 3.7 million members.
- All patient care—inpatient and outpatient—visits, hospitalizations, imaging, lab tests, surgery, pathology reports are captured in electronic databases.
Methods:

- All patients diagnosed with ovarian/fallopian tube cancer in 2011 were identified from the Tumor Registry.
- Electronic medical records were reviewed for each patient to identify all pelvic ultrasound imaging that occurred prior to diagnosis and the findings.
2011: 231 women with ovarian/fallopian tube epithelial cancer

Pelvic ultrasound prior to cancer diagnosis?

YES=122

NO=109

Mass >10cm? Elevated CA-125? Ascites?

YES=111

NO=11
11 women with isolated mass <10 cm

Clinically worrisome signs/symptoms?

YES=6
Immediate surgery

No=5
Repeat ultrasound

1=mass unchanged but new ascites (stage 3)

3=mass larger, removed: (two stage 3, one stage 1)

1=mass unchanged but new mass on contralateral side detected (stage 1)
Five patients (2% of those diagnosed with ovarian cancer) presented with an isolated adnexal mass <10 cm not associated with worrisome symptoms or other evidence of cancer (elevated CA125/ascites).

In only two cases (1%) did monitoring lead to early stage diagnosis.
In 2011, 21,000 non-obstetric pelvic ultrasounds were ordered in 2011 for the indication of evaluating or following an adnexal masses. Two women benefitted in terms of ovarian cancer survival.

To mitigate harm from detection of adnexal masses, need clear guidelines that limit scope and duration of monitoring:

- Avoid escalation to MRI/CT
- Planned stopping times for monitoring of stable masses.