Ectopic Pregnancy

A review

Ectopic pregnancy (EP)

‘Ektopos - away from a place’

Ectopic pregnancy is the implantation of a fertilised egg outside the uterine endometrial cavity.

Overall incidence is 1-2% in the general population and 2-5% among patients who have used ART.

Clinically significant finding

‘Normal’ pregnancy

Clinical presentation

1. $\beta$-hCG levels of $>1500$
2. Severe, unilateral abdominal/pelvic pain
3. Nausea
4. Low blood pressure
5. Vaginal bleeding
6. Syncope
7. Shoulder tip pain
8. Palpable adnexal masses

One third of women with an ectopic pregnancy have no clinical signs and 9% have no symptoms.

Types of ectopic pregnancies

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Intermural</td>
<td>2-3%</td>
</tr>
<tr>
<td>Intramural</td>
<td>12%</td>
</tr>
<tr>
<td>Ampullary</td>
<td>72%</td>
</tr>
<tr>
<td>Cervical</td>
<td>3%</td>
</tr>
<tr>
<td>Ovary</td>
<td>11%</td>
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Causes/ risk factors of ectopic pregnancy

- Pelvic inflammatory disease (PID)
  7 fold increase after an episode of acute salpingitis
- Increased age
  Over 35; increased exposure to other risk factors
- Smoking
  One third of all EP are associated with smoking; >20 cigarettes
- ART
  IVF is associated with an 2-5% increase in ectopic pregnancies
- Prior ectopic pregnancy
  5-20% chance of recurrence following a prior EP
Ultrasound features by location

**TUBAL**

Adnexal mass, separate from the ovary is the most common sign on US

Around 80% of ectopic pregnancies will be on the same side as the corpus luteum

'Tubal ring / bagel sign'
Hyper echoic ring around the gestational sac

'Ring of fire sign'
Peripheral vascularity surrounding the gestational sac

'Sliding sign'
Mass that moves separately with probe pressure

Ovum is fertilised and is retained within the ovary

Intra-ovarian mass that will move with the ovary with applied pressure

Can look very similar to a CL

Diagnosis is very difficult to make sonographically, and most cases are diagnosed intraoperatively

Implantation in the intramural portion of the fallopian tube that is within the muscular wall of the uterus

- Eccentrically located GS seen high in the fundus
- At least 1 cm from the lateral edge of the uterine cavity
- Surrounded by asymmetrical thin (<5 mm) myometrial tissue

'Interstitial line sign'
Echogenic line extending from the endometrium to the ectopic gestational sac

Look for fetal pole with or without cardiac motion
Ultrasound features by location

CERVICAL

Implantation occurs within the endocervical canal.

Cervical distention with GS results in an hourglass shaped uterus.

Needs to be excluded from an incomplete miscarriage proximal to the cervix.

“Sliding sign”
True cervical EP will be non-mobile

Pitfalls of ectopic pregnancy

<table>
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<td>Can appear as a mass-like structure with distinct walls and mural vascularity</td>
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<td>Peristalsis in the bowel loops</td>
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<th>INCIDENTAL ADNEXAL MASS</th>
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<td>Para-ovarian cyst located adjacent to the ovary</td>
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<tr>
<td>Dermoids</td>
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<td>Ovarian neoplasms</td>
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<th>CORPUS LUTEUM</th>
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<td>Round, thick-walled, cystic with peripheral vascularity</td>
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<td>CL arises from the ovary and majority of EP are tubal (extra-ovarian)</td>
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When it goes bad
RUPTURED ECTOPIC

Life threatening emergency
Occurrences in 15-20% of ectopic pregnancies

- Syncope
- Tachycardia
- Abdominal distension
- Marked tenderness
- Shoulder tip pain

Complex free fluid in excess is a common US finding

Heterotopic pregnancy

Two concurrent pregnancies: a normal IUP and another pregnancy in an ectopic location

Usually a combination of an IUP with a tubal ectopic pregnancy

Higher incidence among patients undergoing IVF, at close to 1%

1:30,000 chance for patients who conceive naturally

Ultrasound features
RUPTURED ECTOPIC

Treatment of ectopic pregnancy

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Exclusion of an IUP
Careful search of the adnexa
Tubal ectopics are the most common
Other rare sites of implantation
Probe tender, peripheral vascularity
Importance of a timely diagnosis
Call for help if unsure

Summary

Heterotopic pregnancy

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