Ectopic Pregnancy

429 OB/GYN Team

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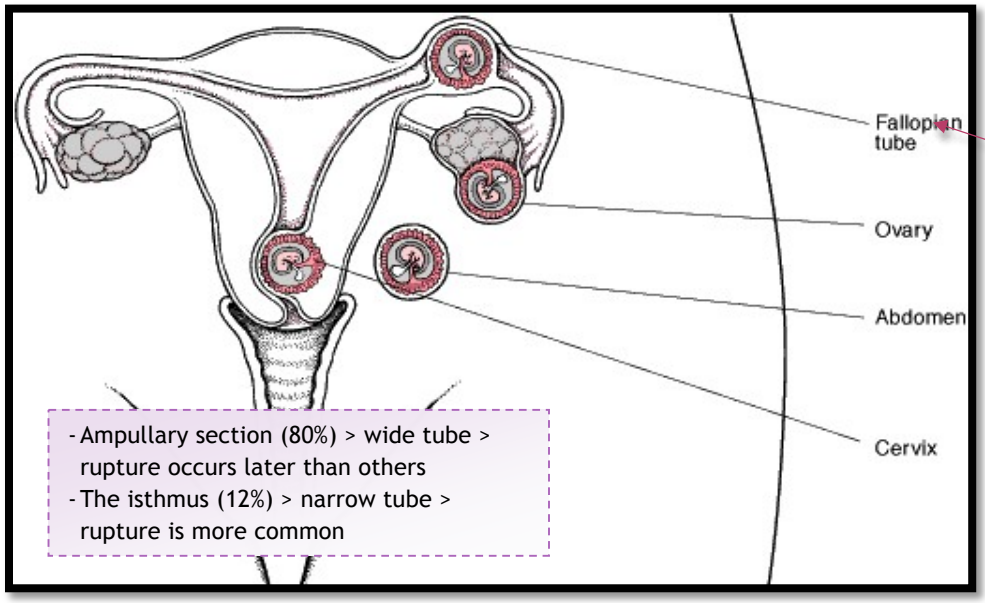
Questions: http://ask.fm/TeamNotes429

ECTOPIC PREGNANCY

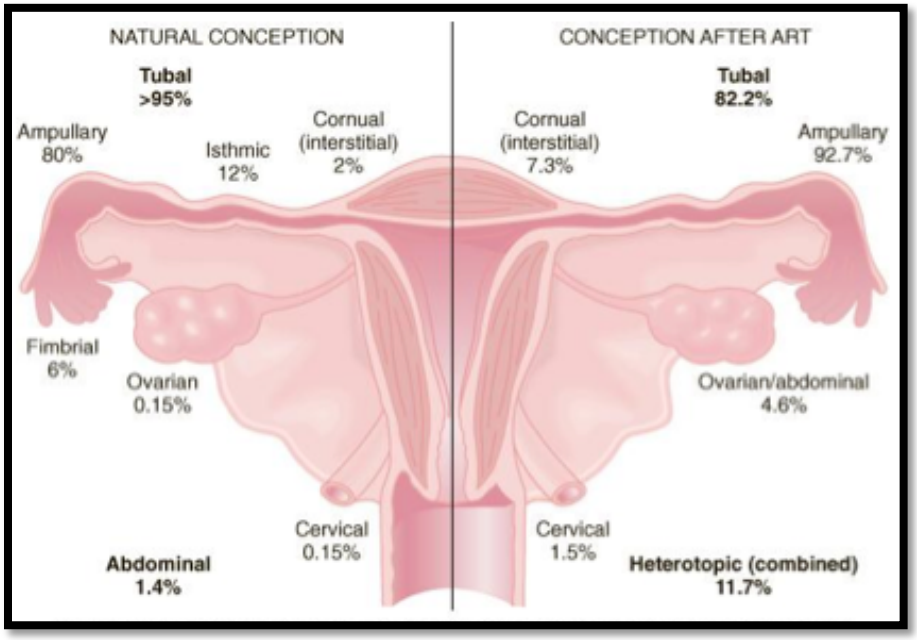
INTRODUCTION

An ectopic pregnancy is a gestation that implants outside of the endometrial cavity.



95%
- Ampullary 80%
- Isthmic 12%
- Interstitial 2%
- Infundibular and fimbrial 6%

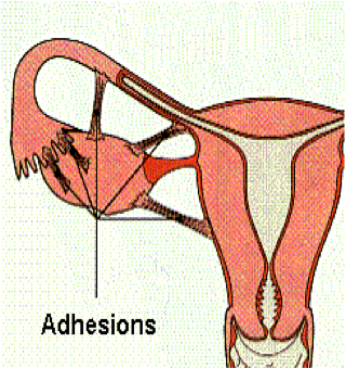
- Leading cause of maternal deaths in the first trimester
- Constituting 1-2% of all conceptions
- Subsequent infertility
- Incidence increasing
- Mortality decreasing with better detection

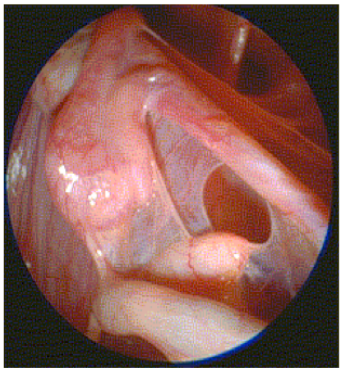


RISK FACTORS

After one previous ectopic pregnancy, the chance of another is 7-15%.

An increased relative incidence of ectopic pregnancy has been reported with use of progestin-only oral contraceptives, postovulatory high-dose estrogens to prevent pregnancy, and following ovulation induction





- Prior history of PID (pelvic inflammatory disease)
- Tubal Surgery
- Previous Ectopic Pregnancy
- IUD (intrauterine device)???
- Other tubal abnormalities

ETIOLOGY

These are factors that lead to tubal damage or dysfunction and thus prevent, retard or delay passage of the fertilized ovum into the uterine cavity.

May be due to:

MECHANICAL FACTORS

- Previous ectopic pregnancy
- Previous salpingitis
- Agglutination of the mucosal aborescent folds with luminal narrowing or formation of blind pockets
- Reduced ciliation
- Prior PID especially by Chlamydia trachomatis – most common risk factor
- Peritubal adhesions
- Cause tubal kinking and narrowing of the lumen
- In utero exposure to DES
- Developmental tubal abnormalities (diverticula, accessory ostia and hypoplasia)
- Previous CS delivery

FUNCTIONAL FACTORS

- OCP
- IUD
- Cigarette smoking

ASSISTED REPRODUCTION

- GIFT
- IVF
- Atypical implantations are more common (corneal, extratubal, abdominal, cervical and heterotypic)

FAILED CONTRACEPTION

- Tubal sterilization – ectopic pregnancy rate increased 9-fold
- Following laparoscopic fulguration – highest rate of ectopic pregnancy
- Following hysterectomy – sperm migrated from a fistulous communication in the vaginal vault

	Factor	Risk
HIGH RISK	Tubal Corrective Surgery	21.0
	Tual Sterilization	9.3
	Previous Ectopic Pregnancy	8.3
	In Utero DES Exposure	5.6
	Intrauterine Device	4.2-45
	Documented Tubal Pathology	3.8-21
MODERATE RISK	Infertility	2.5-21
	Previous Genital Infection	2.5-3.7
	Multiple Partners	2.1
SLIGHT RISK	Previous Pelvic/Abdominal Surgery	0.93-3.8
	Smoking	2.3-2.5
	Douching	1.1-3.1
	Intercourse before 18 years of age	1.6

CLINICAL PRESENTATION

The classic triad:

1. Amenorrhea
2. Vaginal bleeding
3. Lower abdominal pain

For any individual woman, there are three possible clinical presentations:

- Acutely ruptured ectopic pregnancy

Surgical emergency

  - Intraperitoneal hemorrhage → severe abdominal pain and dizziness
    - +/- Ipsilateral shoulder pain (from phrenic nerve irritation)
  - Signs of hemodynamic instability: tachycardia, diaphoresis, hypotension
  - Abdomen: distended and tender with guarding and rebound tenderness
  - Cervical motion tenderness and a slightly enlarged uterus
  - +/- Adnexal mass
  - Dx: +ve pregnancy test (with/without an ultrasound)

- Probable ectopic pregnancy in a symptomatic woman
  - **Lower pelvic pain and vaginal spotting or bleeding**, with or without amenorrhea
  - Clinical signs: tenderness of the abdomen + adnexal or cervical motion tenderness.
  - Dx: U/S (absence of intrauterine pregnancy (IUP) in a woman with a level of hCG sufficient to identify an IUP)
  - In symptomatic women, even though they have reasonably stable vital signs, surgical evaluation and therapy are generally indicated
- Possible ectopic pregnancy
  - **The most common clinical presentation**
  - Lower abdominal pain (most cases)
  - Amenorrhea or a history of an abnormal last menstrual period is (75-90%)
  - Abnormal vaginal bleeding (50% pts), ranging from spotting to the equivalent of a normal menstrual period
  - Physical examination: most patients are afebrile,the uterus is soft and is of normal size or slightly enlarged, and <50% have a an adnexal mass
    - Often, the mass is palpated on the opposite side to the ectopic pregnancy and represents a corpus luteußßm in the contralateral ovary.
  - U/S: thickened endometrial stripe [histologically, there is almost always a localized hyperplasia of the uterine lining (Arias-Stella reaction)]

This spotting /bleeding results from an abnormally low production of hCG by the ectopic trophoblastic tissue

DIAGNOSIS

U/S can also detect hemoperitoneum >> finding of "free fluid in the cul-de-sac"

1. **ß-hCG test:** a value <5 mIU/ml excludes ectopic pregnancy
2. **Transvaginal U/S:** failure to find a gestational sac when discriminatory threshold (hCG level of 1500-2000 mIU/ml) → evidence of ectopic pregnancy
3. Laparoscopy: diagnostic & therapeutic
4. Culdocentesis (needle into post. Vaginal fornix): rarely done
5. Serum progesterone: values <15 ng/ml → usually abnormal pregnancy

DIFFERENTIAL

Gynecologic:

- Threatened/incomplete abortion
- Ruptured corpus luteum cyst
- Acute pelvic inflammatory disease
- Adnexal torsion
- Degenerating leiomyoma

Non-Gynecologic:

- Acute appendicitis
- Pyelonephritis
- Pancreatitis

OUTCOMES

Tubal pregnancies rapidly invade the tubal mucosa, eroding into the tubal vessels, which become enlarged and engorged. The segment of the affected tube distends as the pregnancy grows and as blood from the eroded vessels dissects along the tubal wall.

1. **Tubal rupture,** with resulting intraperitoneal hemorrhage
2. **Pregnancy resorption,** as a result of the restricted blood supply
3. **Tubal abortion into the peritoneal cavity**
4. **Abdominal pregnancy,** a rare event in which the pregnancy is expelled from the tube, seeds onto a site in the abdominal cavity (e.g., the omentum, the small or large bowel, or the parietal peritoneum), and continues to grow. The pregnancy is usually not viable

MANAGEMENT

The gold standard is still laparoscopic therapy, because it allows for rapid diagnosis as well as treatment

SURGICAL

Is the patient stable?

- No: Laparotomy
- Yes: Laparoscopy (post-opertive morbidity is markedly less)

TYPE OF PROCEDURE

- Linear salpingostogmy if
  - Ampullary and <5 cm
- Segmental resection if
  - Isthmic (tubal lumen is usually very distorted)
- Salpingectomy if
  - Normal anatomy is destroyed, or
  - No desire for future fertility

In salpingotomy, the incision is closed, whereas it remains open in salpingostomy. Studies have shown that salpingostomy results in better long-term tubal function.

There is a 10-20% risk of residual trophoblastic tissue whenever the conceptus is separated from the tube (salpingostomy/salpingotomy) → follow up w/hCG. If repeat hCG does not ↓, start methotrexate (MTX)

EXPECTANT MANAGEMENT

For reliable, relatively asymptomatic patients in whom the hCG titers are <200 mIU/mL and declining

MEDICAL

Methotrexate (IM single dose) if: Unruptured ectopic pregnancy, and

- Β-hCG <6000 mIU/ml
- <3 cm

If the patient becomes more symptomatic/hCG titers ↑ during therapy → surgical intervention

Criteria for Receiving Methotrexate (MTX)	Contraindications to Medical Therapy
ABSOLUTE INDICATIONS:	**ABSOLUTE CONTRAINDICATIONS:**
1. Hemodynamically stable without active bleeding or signs of hemoperitoneum 2. Nonlaparoscopic diagnosis 3. Patient desires future fertility 4. General anesthesia poses a significant risk 5. Patient is able to return for follow-up care 6. No contraindications to MTX	1. Breastfeeding 2. Overt or laboratory evidence of immunodeficiency 3. Alcoholism, alcoholic liver disease, or other chronic liver disease 4. Preexisting blood dyscrasias, such as bone marrow hypoplasia, leukopenia, thrombocytopenia or significant anemia 5. Known sensitivity to MTX 6. Active pulmonary disease 7. Peptic ulcer disease 8. Hepatic, renal, or hematologic dysfunction
RELATIVE INDICATIONS:	**RELATIVE CONTRAINDICATIONS:**
1. Unruptured mass ≤3.5 cm at its greatest dimension 2. No fetal cardiac motion detected 3. Patients whose hCG level does not exceed a predetermined value (6000-15,000 mIU/mL)	1. Gestational sac =3.5 cm 2. Embryonic cardiac motion

SIDE EFFECTS

- Diarrhea, Nausea & Vomiting
- Stomatitis
- **Abdominal pain (2/3 of patients)**
- Photosensitivity skin reaction
- Impaired liver function, reversible
- Pneumonia
- Severe neutropenia
- Reversible alopecia
- Haematosalpinx and haematoceles
- ↑ **HCG during first 3 days**
- ↑ **Vaginal bleeding**

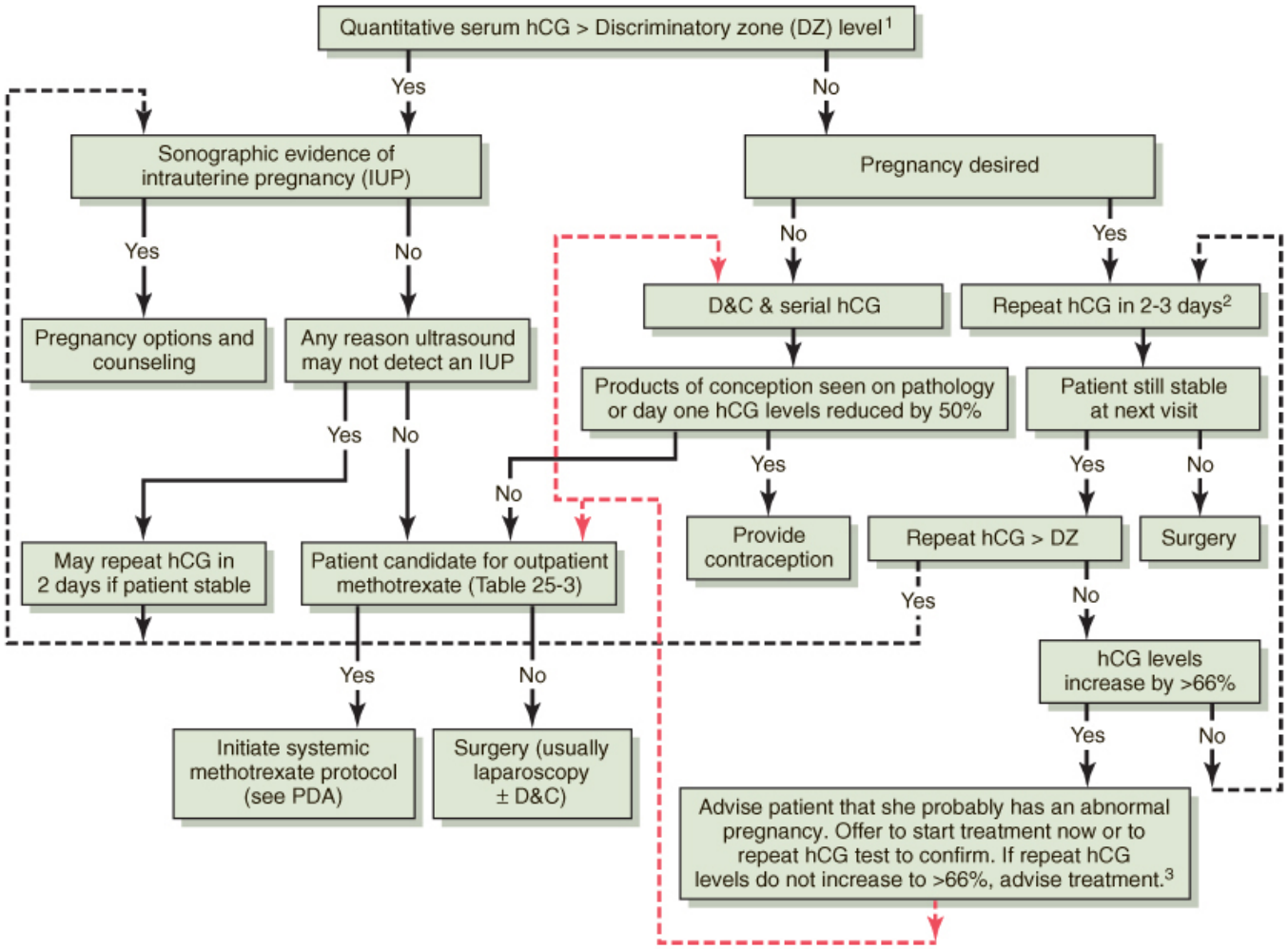
TREATMENT FAILURE

1. Significantly worsening abdominal pain
2. Hemodynamic instability
3. Level of HCG do not decline by at least 15% between Day 4 & 7 post treatment
4. Rising or plateauing HCG level after first week of treatment

FOLLOW UP

1. Serial hCG titers
    a. Repeat HCG on Day 5 post injection if <15 % decrease → consider repeat dose
    b. If ß-HCG >15 % decrease → recheck weekly until <25 ul/l
    c. No test in the first 3 day → normally the HCG will rise in the first 3 days
2. Blood type & Rh determination
    a. If patient is Rh -ve and atypical antibody test is -ve → Give Rh (D) immune globulin

60% of women subsequently conceive. There is 10-25% chance that the next pregnancy will be ectopic.


Quantitative serum hCG > Discriminatory zone (DZ) level[1]
Yes
No
Sonographic evidence of intrauterine pregnancy (IUP)
Pregnancy desired
Yes
No
No
Yes
Pregnancy options and counseling
Any reason ultrasound may not detect an IUP
D&C & serial hCG
Repeat hCG in 2-3 days[2]
Products of conception seen on pathology or day one hCG levels reduced by 50%
Patient still stable at next visit
Yes
No
Yes
No
Yes
Yes
No
No
May repeat hCG in 2 days if patient stable
Patient candidate for outpatient methotrexate (Table 25-3)
Provide contraception
Repeat hCG > DZ
Surgery
Yes
No
hCG levels increase by >66%
Yes
No
Yes
No
Initiate systemic methotrexate protocol (see PDA)
Surgery (usually laparoscopy ± D&C)
Advise patient that she probably has an abnormal pregnancy. Offer to start treatment now or to repeat hCG test to confirm. If repeat hCG levels do not increase to >66%, advise treatment.[3]

Thank you