

Ectopic Pregnancy: Diagnosis & Management

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ارائه دهنده: صدرا بهروزیه – اینترن بخش زنان

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1. Introduction & Importance

- i. **Implantation** of a fertilized ovum outside of the uterine cavity
- ii. **1.5%** of reported pregnancies in the United States
- iii. **Tubal** in **98%** of cases
- iv. **One of the most common causes** of maternal death in the 1st trimester
- v. **Heterotopic** occurs rarely

2. Risk Factors

- i. Age > **35** years
- ii. **Cigarette** smoking
- iii. Fallopian tube **pathology** or **previous surgery**
- iv. **Infertility** / **Pelvic inflammatory** disease
- v. Pregnancy with **IUD** in place[†]
- vi. **Previous** ectopic pregnancy[‡]

[†] <1% → **53%**

[‡] **10%** → >**25%**

3. Clinical Suspicion

Positive pregnancy test

- Positive urine test (qualitative)

Lower abd. pain

- Colicky → Localized → Generalized

Vaginal bleeding

- Spotting → Menstruation-equivalent

Other potential symptoms: syncope, vomiting, diarrhea, lower urinary tract symptoms, shoulder pain

Physical examination

- Adnexal **tenderness** on Ph/E
- **Palpation** ≠ ↑Rupture risk
- Signs of **hemodynamic instability** if ruptured

4. Differential diagnoses

- i. Appendicitis
- ii. Early pregnancy loss
- iii. Ectopic pregnancy**
- iv. Ovarian torsion
- v. Pelvic inflammatory disease
- vi. Subchorionic hemorrhage in viable intrauterine pregnancy
- vii. Trauma
- viii. Urinary calculi

5. Diagnostic tools

beta human chorionic gonadotropin (β -hCG)

- Serial (every 48 hours)

Ultrasonography (US)

- Trans-abdominal
- Trans-vaginal

β -hCG

- i. Detected **8 days** after ovulation

Initial level (mIU/mL)	Increase over 48 hours
<1,500	49%
1,500 – 3,000	40%
>3,000	33%

- ii. At 10 weeks: plateaus around 100,000 mIU/mL
- iii. $\geq 21\%$ ↓ over 48 hours → failed intrauterine pregnancy
- iv. A smaller decrease → **ectopic pregnancy**

β -hCG – cont'd.

v. The discriminatory level

- Definition
- Previously defined as 1,000 to 2,000 mIU/mL
- Currently 3,500 mIU/mL recommended to avoid misdiagnosis and interruption of a viable pregnancy
- Most pregnancies visualized at 1,500 mIU/mL

Trans-vaginal US

- i. Visualization of intra-uterine pregnancy → R/O of EP
- ii. US alone → rarely used
- iii. Pregnancy of unknown location**
 - Definition

6. Management

Surgical

- Urgent / Non-urgent
- Laparoscopy / *Salpingostomy* vs. *Salpingectomy*

Medical (Methotrexate)

- Single-dose protocol
- Two-dose protocol

Expectant (Close monitoring)

- Peak β -hCG below discriminatory / slow decrease
- 88% success rate if initial β -hCG < 200 mIU/mL

Surgical management

Indications for urgent surgical referral

- i. **Hemodynamic instability**
- ii. Peritoneal signs
- iii. Ectopic pregnancy with **fetal cardiac activity** in US
- iv. **Substantial fluid** in the cul-de-sac and/or beyond in US
- v. Initial β -hCG levels of **>10,000 mIU/mL**

Surgical management – cont'd.

Indications for non-urgent surgical referral

- i. **Barriers** to close follow-up or refusal to accept blood transfusion
- ii. Initial β -hCG levels of **5,000 to 10,000 mIU/mL** or ectopic pregnancy **>4 cm**
- iii. **Insufficient** decline in β -hCG levels following methotrexate
- iv. Methotrexate contraindicated

Medical management

- i. **IM Methotrexate** (Folate antagonist)
- ii. \uparrow Initial β -hCG levels \rightarrow \downarrow success rate

iii. **Contraindications:**

- Immunodeficiency
- Anemia
- Leukopenia
- Thrombocytopenia
- Active peptic ulcer disease
- Active pulmonary disease
- Breastfeeding
- Hepatic or renal disease

Protocols:

-
- ```

graph LR
 A{15%↓} -- "<" --> B[Repeat MTX vs. Surgical treatment]
 A -- ">" --> C[Weekly β-hCG until undetectable (~ 8 weeks)]

```

# Medical management – cont'd.

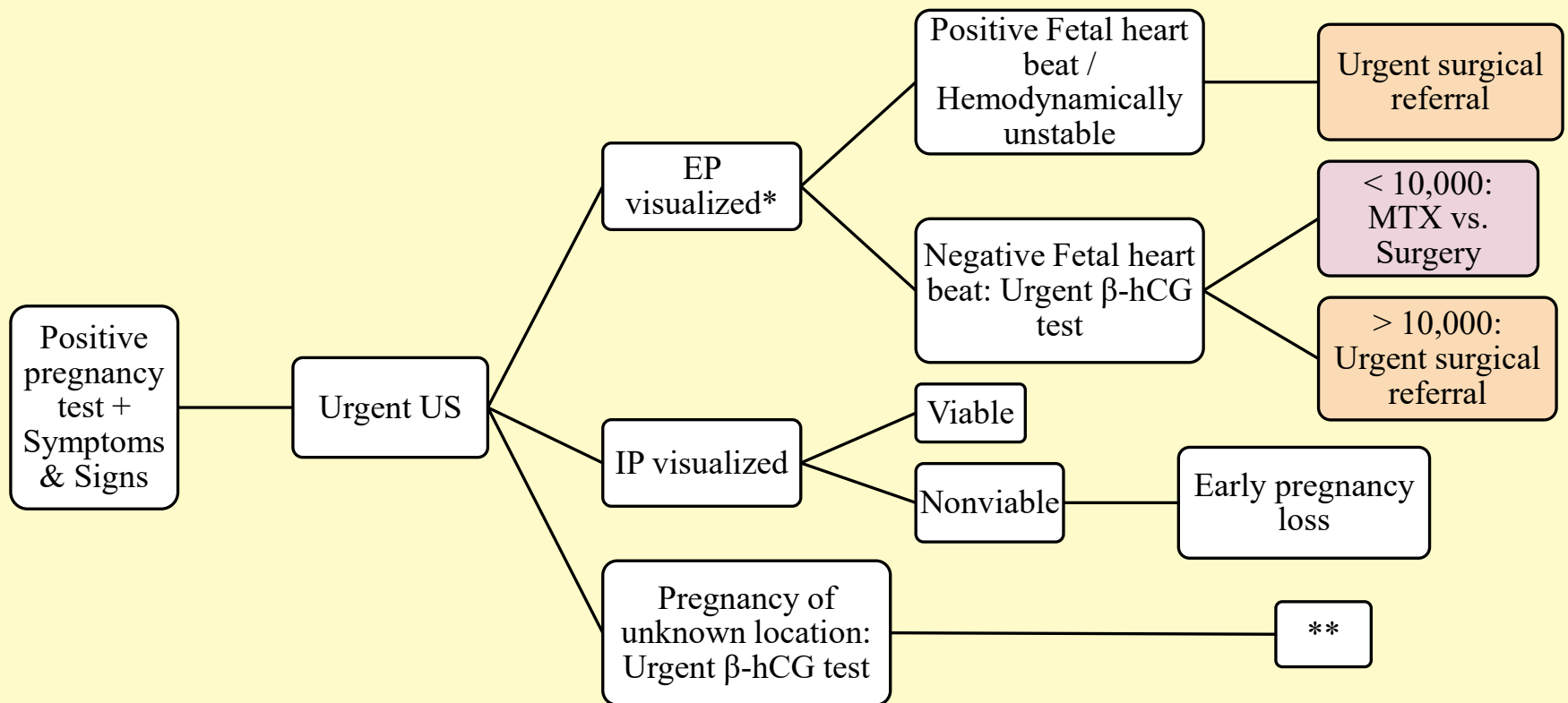
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## Cautions:

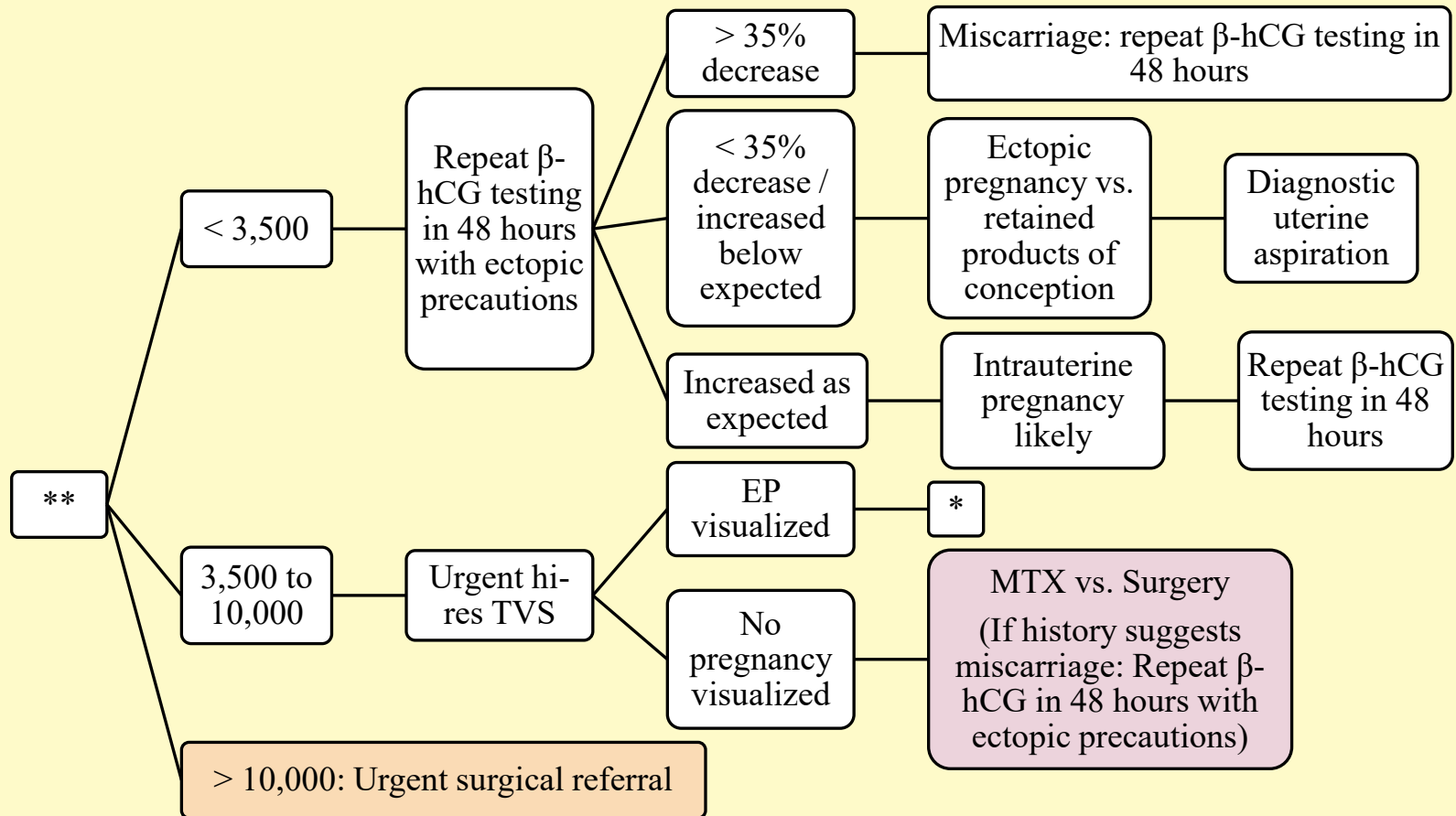
- i. Risk of rupture persists
- ii. Abdominal pain / Nausea / Vomiting / Vaginal spotting
- iii. Folate, NSAID, Alcohol, Narcotic avoidance
- iv. Sunlight exposure
- v. Pregnancy avoidance



# 7. Algorithm for diagnosis & management



# 7. Algorithm for diagnosis & management – cont'd.



**Thanks for your  
attention**

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