Ectopic Pregnancy

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Ectopic Pregnancy

- Ectopic pregnancies (EP) refer to implantation of an embryo outside of the uterus.
- Overall EP is 1-2% of conceptions
- Increased with Artificial Reproductive Technologies e.g. IVF: 2-5% of conceptions

Bahnart 2009 NEJM

EP maternal mortality in Australia

Overall MM 6.8/100,000
Ectopic MM 0.5/100,000
7.3% of all Maternal Deaths

Risk factors of EP

Major risk factors
- Prior Ectopic Pregnancy (recurrent EP rate up to 25%)
- Prior tubal ligation and reversal surgery (up to 13%)
- In-utero exposure to Diethylstilbestrol (DES)

Minor risk factors
- Age (>35)
- Smoking
- Use of ART

Moderate risk factors
- Endometriosis
- Pelvic Inflammatory disease
- Previous ruptured appendix and other major abdominal surgery

Use of IUD and EP
- Does not predispose EP
- Overall decrease IUP and EP

Ectopic Pregnancy Diagnosis

1. LMP
2. Clinical features
3. Serum HcG
4. Transvaginal Ultrasound
**EP Diagnosis: Useful Ultrasound “Rules”**

- **Adnexal mass, no IUP = EP**
  - Adnexal mass with echogenic ring ("Bagel sign") separate from ovary
  - Pelvic free fluid, often echogenic indicative of blood

- **IU GS + YS = IUP**
  - Yolk sac within and intrauterine gestational sac confirms IUP
  - "Panendosal"

- **IU fluid no YS = ?EP**
  - Intrauterine fluid may be mistaken for an IUP
  - "Pseudosac"

- **IU GS + YS = IUP**
  - Yolk sac within and intrauterine gestational sac confirms IUP
  - "Panendosal"

- **Consider heterotopic pregnancy if 2 multiple corpora lutea**

**Pregnancy of Unknown Location (PUL)**

**Clinically Unstable**
- Laparoscopy, D&C
- EP confirmed and removed. Follow up HCG
- Not confirmed and concerning: negative POC
- True PUL Medical Rx. Follow up HCG

**Clinically Stable**
- Serum HCG 48 hours apart
  - Rises normally (>66%)
  - Repeat TVUS in 7 days - confirm IUP
- Rapid reduction (>13%)
  - Likely failed pregnancy (Follow up HcG until negative)
- Abnormal rise (<66%) or slow reduction (<13%)
  - Repeat TVUS in 7 days

**Surgical**
- Right Salpingectomy the following day

**Medical (Methotrexate)**
- Intramuscular Methotrexate
  - Single or multi dose regimen
  - Efficacy >90% if HcG reduced by 15% in 7 days
  - Monitor Toxicity risk
  - Local Methotrexate
  - Ultrasound guided
  - Laminaria
  - Local Potassium Chloride

**Expectant**
- Medical Rx.
  - HcG trending falling
  - No FH
  - Small EP mass <40mm

**Adnexal Ectopics Case 1**

**Presentation**
- 32 yr G1 P0
- ED presentation - RIF pain
- PVB for 2 weeks
- LMP 6w 3d
- bHCG 3772

**Management**
- Right Salpingectomy the following day
Adnexal Ectopics

Case 2

Presentation
- 28 yr old G2P1
- ED presentation LMP = 6w 3d
- PV bleeding
- Beta HcG 4650.

Management – Multidose MTX
- Day 1: bHCG 4650
- Day 2: Methotrexate
- Day 3: bHCG 1200
- Day 5: bHCG 200
- Day 16: LT salpingectomy

Adnexal Ectopics

Case 3

Presentation
- 36 yr G4P2
- LMP 5w /5d
- BHCG 220
- 24hr RIF pain

Expectant Management
- Day 2: bHCG 156
- Day 4: bHCG 128
- Day 5: bHCG 162
- Increased bleeding
- Day 10: Ultrasound review showed no rupture
- Day 15: bHCG 192
- then dropped until Day 29 ...

Interstitial ectopic

- Eccentrically located sac surrounded my a myometrial mantle with <5mm
- Mantle with peripheral hypervascularity.
- Bulging uterine contour.
- Interstitial line present

Interstitial Ectopic

Case 4

Presentation
- 39 yr G7P5
- ED presentation with lower abdominal pain and PVb
- Unknown LMP
- BHCG 9325
- Referral 7 threatened miscarriage.
Case 4 - Interstitial Ectopics

Management
Open Wedge resection

Case 5 - Interstitial Pregnancy

Presentation
- 32 yr G2P1
- Ed Presentation
- Left sided pelvic abdo pain
- LMP = 7w+4
- bHCG 5780

Probable Left interstitial pregnancy. It is a 5 x 6 cm vascular mass with a 9 a week foetal pole and 2.8 cm sac but no heart movement seen

Management
- Treated multidose systemic MTX
- Day 5 bHCG 5987
- Day 12 bHCG 4569
- Day 30 bHCG 1160
- 3/12 bHCG 14
- Multiple exams – over 9 mths ultimate resolution

Diagnosis
- Empty uterine cavity
- Surrounded by a thin rim of myometrium <5mm
- Presence of “interstitial line”

Treatment options of Interstitial Pregnancy

Surgical
- Patient compromised
- Large live Ectopic pregnancy
- Wedge resection by laparoscopy of laparotomy

Medical (Methotrexate)
- Stable
- Small mass / No FH
- Intramuscular Methotrexate
- Single or multi dose regimen
- Local Methotrexate
- Ultrasonic guided
- Laparoscopy
- Local Potassium Chloride
- If FH is present

Expectant
- Stable
- Small mass / No FH
- Small EP mass <8mm

Case 6 - Cervical Ectopic

Presentation
- 34 yr old G1 P0
- IVF pregnancy
- 6 weeks 1 day
- bHCG 19000
- Asymptomatic

Cervical ectopic. Uterus is hour glass shaped. Gestational sac within the endocervical canal. Absent sliding sign
Cervical Ectopic Case 6

Management
- Multidose MX
- Day 7 Ultrasound demonstrated nonviability
- bHCG 7000
- bHCG dropped to 0

Case 7

Presentation
- 34 yr G2 P1 (Prev CS)
- LMP 8w+4
- bHCG 5315
- Referral to Monash from regional Victoria
- ? C scar ectopic

Gestational sac with a mean sac diameter of 11 mm located within the c section scar with no anterior myometrium evident

Management
- Day 2 Multidose methotrexate initiated
- Day 7 bHCG 7500
- Day 10 intra sac MTX injection
- Day 12 bHCG 6304
- Day 26 bHCG 271
- 4 wks later-Resolution of ectopic mass

Case 8

Presentation
- 34 yr G4P2 (Prev CS)
- ED Presentation
- PV bleeding
- Unsure LMP
- bHCG 5670

Management
- Day 2 Multidose MTX
- Day 3 bHCG 4200
- Day 14 bHCG 330
- Day 14 – Reassuring scan
- BetaHCG progressively dropped to 0

Caesarean Scar Ectopics

Background
- Incidence 1:2000
- 6% of ectopic pregnancies in women with previous CS (likely increasing with rising rates of primary cesarean delivery)
- Abnormal invasion of the placenta
- Untreated may lead to major complications
  - Severe hemorrhage
  - Uterine rupture
- Earlier detection by US and serum HcG allows for considered management

Diagnosis
- Gestational Sac in “niche” of Caesar Scar
  - Empty uterus
  - Thin myometrium adjacent to bladder
- Novel approach to early diagnosis (Timor-Trisch 2016)
Treatment Options

“Several treatment modalities have been proposed for treatment of CSP but the optimal approach in terms of patient safety and clinical effectiveness has yet to be determined” – Timor Trisch 2018 UOG

Reported management strategies

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<tr>
<th>Procedural</th>
<th>Medical (Methotrexate)</th>
<th>Expectant</th>
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<td>Surgical:</td>
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<td>Medical:</td>
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<td>Hysteroscopic resection</td>
<td>+/- KCL</td>
<td>Completed family</td>
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<td>Wedge resection</td>
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<td>Other Procedure</td>
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Serial Serum HCG monitoring down to non-pregnant levels

Management

Factors

- Patient and disease factors
- Patient preference
- Desire for future fertility
- Duration of inpatient stay and follow-up

Common Pitfalls

- Complete abortion
- Complete abortion
- CAB
- Intrauterine
- Intrauterine
- Intrauterine
- Intrauterine
- Intrauterine
- Intrauterine
Ectopic Pregnancies

Concluding Remarks
- Increasing prevalence of ectopic pregnancies due to:
  - Increasing prevalence of risk factors
  - Caesarean section rates
- Be aware of the Risk factors
  - Look for the EP if uterus is empty
- Earlier diagnosis with:
  - Advancing resolution of TVUS
  - Serum HcG monitoring

Management Strategies
- Combination of:
  - Medical
  - Surgical
  - Expectant
- Increasing role of conservative treatment options (future fertility)
- Serum HcG follow up

Natural History Paper