6 Early pregnancy deaths

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Early pregnancy deaths: Specific recommendations

In women of reproductive age who present to practitioners with diarrhoea and vomiting and/or fainting, the possibility of ectopic pregnancy should be considered.

Medical treatment of ectopic pregnancy should be based on strict adherence to protocols, with women having immediate access to in-patient facilities if complications occur.

Women admitted to hospital with ovarian hyperstimulation syndrome should receive thromboprophylaxis.

Summary of key findings for 2003-2005

The deaths of fourteen women who died of causes directly attributed to complications arising in early pregnancy, before 24 completed weeks of gestation, who were reported to the Enquiry during this triennium are counted and discussed in this Chapter. These are shown in Table 6.1. These include ten deaths from ruptured ectopic pregnancies, one following a miscarriage, two deaths after termination of pregnancy, one illegal, and a death from ovarian hyperstimulation syndrome (OHSS).

An additional 18 women died from thromboembolism occurring before 24 weeks' completed gestation whose deaths are counted and discussed in Chapter 2 - Thrombosis and thromboembolism. Apart from the death following miscarriage attributable to anaphylaxis to analgesia which is counted in this Chapter, there were another five *Direct* deaths from sepsis associated with miscarriage which are counted and discussed in Chapter 7 - Genital tract sepsis. The case of a woman who died from anaesthesia following surgery for an ectopic pregnancy is counted and discussed in Chapter 8.

Ten women died from ruptured ectopic pregnancies during the period of this Report. Another woman, whose death is counted in the anaesthetic Chapter (Chapter 8), died of the consequences of the anaesthetic she received for treatment of an ectopic pregnancy. Among the ten deaths counted in this Chapter was one corneal (interstitial) pregnancy. Another woman had a heterotopic pregnancy (combined intra- and extra-uterine pregnancies). She presented with diarrhoea and vomiting, as did three other women with (non-heterotopic) ectopic pregnancies in whom misdiagnosis occurred. Recent Reports have repeatedly emphasised the importance of diarrhoea and vomiting as a possible, atypical clinical presentation of ectopic pregnancy:

> *A woman who had diarrhoea and vomiting also had vaginal bleeding, fainting and severe abdominal pain. She was known to be pregnant and was diagnosed as having gastroenteritis by a very junior gynaecologist in an Emergency Department (ED), and discharged. She returned to the ED the following day with increased pain, having collapsed at home. She was found to be hypotensive and tachycardic by the nursing staff, given a very large amount of intravenous*

> *fluid for what was thought to be dehydration from 'gastroenteritis' and again discharged. Her haemoglobin was not checked. She was tachycardic throughout. She returned a few hours later in extremis. Autopsy revealed a large haemoperitoneum from a ruptured tubal pregnancy.*

It is important to re-emphasise that early pregnancy plus fainting points to ectopic pregnancy until proven otherwise. The importance of observation of vital signs also needs to be remembered. There is a recurring theme in this Report of ~~junior~~ medical staff disregarding important, basic clinical signs – tachycardia, hypotension, rapid respiration – this is one such case.

There were also potentially avoidable deaths in women who were under the care of specialist gynaecological services:

Box 6.1
Learning points: early pregnancy deaths

Clinicians in primary care and Emergency Departments, in particular, need to be aware of atypical clinical presentations of ectopic pregnancy and especially of the way in which it may mimic gastrointestinal disease. This needs to be taught to undergraduate medical and nursing students and highlighted in textbooks.

Fainting in early pregnancy suggests the possibility of ectopic pregnancy.

More conservative approaches to the treatment of ectopic pregnancy should not blind clinicians to the dangers of this condition. Laparoscopy or laparotomy should be undertaken without delay if there are clinical signs suggestive of tubal rupture. Medical treatment of ectopic pregnancy should be based on strict adherence to protocols, with women having immediate access to in-patient facilities if complications occur.

Illegal, unsafe abortion is common globally; it can occur in the UK.

There were also potentially avoidable deaths in women who were under the care of specialist gynaecological services:

> *One woman had a modestly raised ßhCG level, no evidence of an intrauterine pregnancy and a pelvic mass on ultrasound compatible with ectopic pregnancy. While in hospital and awaiting a repeat ßhCG assay she collapsed with a ruptured tubal pregnancy from which she could not be resuscitated.*
>
> *Another woman was having medical treatment with methotrexate for a known ectopic pregnancy. Her ßhCG levels rose rather than fell after one week of treatment, but it was not clear who saw these results. She became unwell, with diarrhoea and vomiting, and subsequently collapsed, but phone calls to the early pregnancy unit in the local hospital did not elicit the appropriate responses. Her GP found her shocked at home and she had a fatal cardio-respiratory arrest in the ambulance en route to hospital.*

Many ectopic pregnancies in modern practice follow a benign clinical course which allows a more conservative approach to management. However, ectopic pregnancy remains a dangerous condition and these two cases are tragic reminders that deaths still occur. Medical treatment, in particular, must be based on strict adherence to protocols and immediate access to hospital services[1].

> *Another woman underwent salpingectomy at laparotomy. Although she had a large haemoperitoneum, her vital signs were stable during the procedure. She had been extubated and was breathing, when she had a cardiac arrest. The cause of death is not certain but the possibility of a cardiac arrythmia resulting from (relatively) cold intravenous fluids needs consideration.*

Learning points

- Clinical recognition of ectopic pregnancy
- Use of urine test to confirm pregnancy
- Radiology reports are influenced by clinical details

- Junior doctors are not always to blame

death following miscarriage attributable to anaphylaxis to analgesia which is counted in this Chapter, there were another five *Direct* deaths from sepsis associated with miscarriage which are counted and discussed in Chapter 7 - Genital tract sepsis. The case of a woman who died from anaesthesia following surgery for an ectopic pregnancy is counted and discussed in Chapter 8.

Table 6.1
Numbers of *Direct* deaths in early pregnancy counted in this Chapter by cause; United Kingdom: 1988-2005.

Triennium	Ectopic pregnancy	Miscarriage	Termination of pregnancy	Other	All deaths counted in Chapter 6	Counted as deaths from sepsis in chapter 7
1985-87	11	4	1	0	16	0
1988-90	15	6	3	0	24	0
1991-93	9	3	5	0	17	0
1994-96	12	2	1	0	15	0
1997-99	13	2	2	0	17	5
2000-02	11	1	3	0	15	2
2003-05	10*	1	2	1	14	5

Note: Up to 1994-96, early pregnancy deaths were defined as occurring before 20 weeks of pregnancy. Since 1997-99, 24 completed weeks of gestation has been used as the upper limit. Thus, direct comparisons with data from previous triennia may be misleading.
* A further woman who died from anaesthesia for an ectopic pregnancy is counted among the anaesthetic deaths.

** ? deaths from negative laparoscopies

Miss M

- 31 yr old female
- Presented to GAU on 3/7/11

Presenting Complaint:

PV bleeding and lower abdominal pain for 5/7

History of PC

- Saw GP 16/6 with 1 day of bleeding
- LMP 2/5/11 (ie 6/40 wks?)
- ßHCG 392
- Scanned → no evidence IUP
  - ? Complete miscarriage
  - ? Early IUP
  - ? Ectopic
- Further ßHCG: 20/6 1155
  22/6 1445
  Not rescanned

History continued..

- GAU presentation on 3/7 after 5 days of:
  - Further PV bleeding, mod/heavy (changes pad every 2-3 hours, x1 clot)
  - Crampy lower abdominal pain
  - Not aware of passing POC
  - No discharge
  - Urine and BM normal

Gynae Hx

- Menarche age 12
- Regular periods since last pregnancy (2 ½ yrs ago)
- Cycle = 4/28 regular
- No menorrhagia or dysmenorrhea
- No IMB or PCB
- No hx of STIs or PID
- Using condoms for contraception
- Smear up to date
  (1 abnormal → colposcopy → d/c 3 yearly)

Obstetric History

- G7 P3
  - 3 normal vaginal births – heaviest baby 3.5kg, children now age 2 ½, 8, 12
  - 2 miscarriages (early)
  - 1 termination
- Current pregnancy unplanned, unwanted

PMH

- Carpal tunnel surgery
- Cholecystectomy

Medications

- Nil

Allergies

- NKDA

Family Hx

- Diabetes Type 2

Social Hx

- Lives with partner and 3 children
- Non smoker
- Minimal alcohol
- No recreational drug use

Review of systems

- No concerns

On Examination

- Alert, comfortable
- High BMI
- HR 75, BP 130/60, Afebrile, 97% O2 sats
- Abdomen
  - Soft, some lower midline tenderness
  - No guarding/rebound tenderness
  - BS +ve
- Bimanual palpation
  - Normal external genitalia
  - Closed os, no mass, non tender, no excitation
- Speculum
  - Minimal blood, os appears closed, no POC
  - x3 swabs taken

DDx

- Complete miscarriage?
- Ectopic pregnancy?

Plan

1. Analgesia (paracetamol/codeine)
2. Bloods
   - CBC, U+Es, CRP, βHCG, ABO + Rh typing
3. USS scan

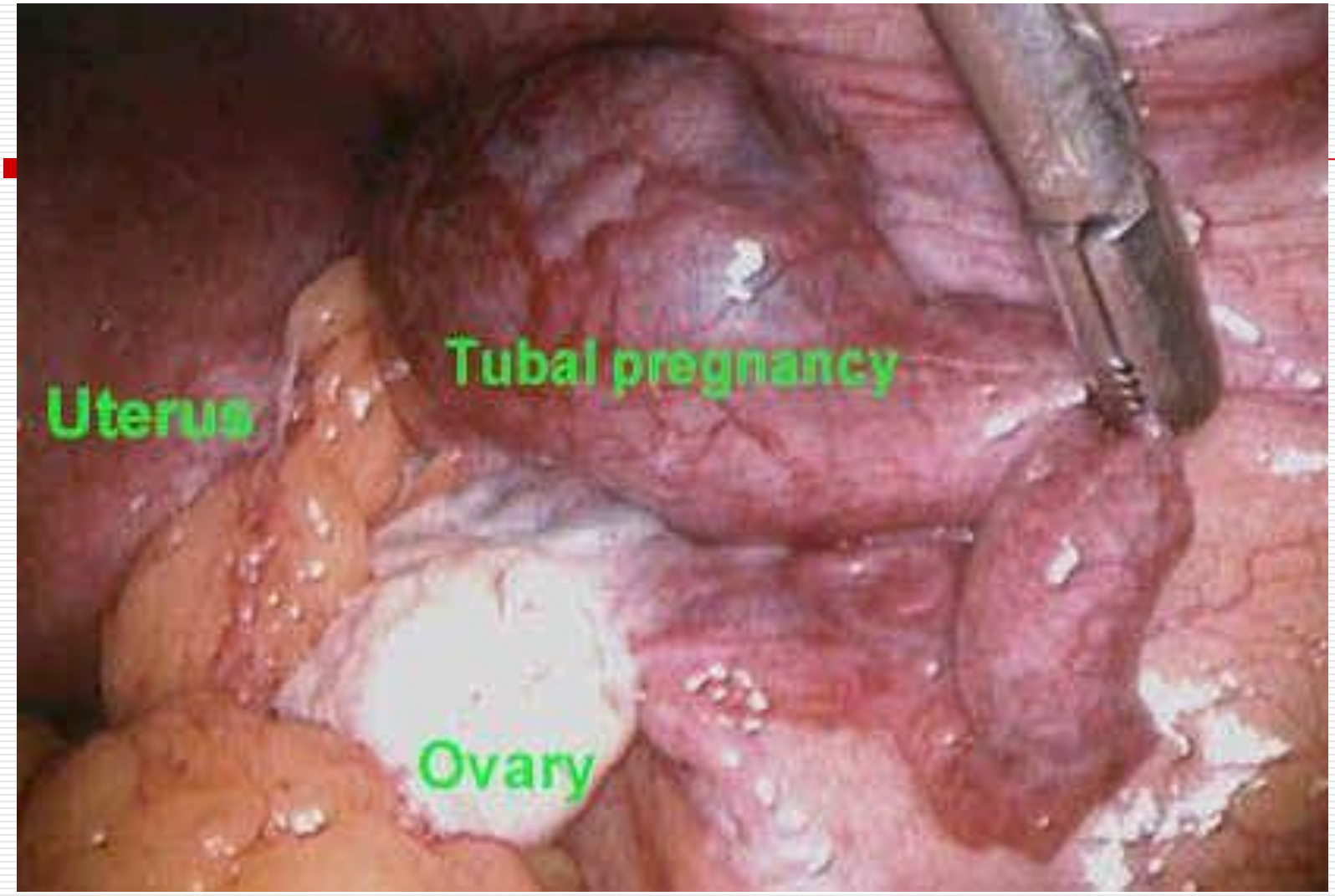
Results

- Wbc 12.6 ↑ Neut 9.2 ↑
  otherwise within normal range
- Blood A+, -ve RBC antibodies
- **βHCG 7173**
- PV USS
  - **Empty uterus**
  - **L adnexal hyperechoic mass 60x40x24mm, separate from ovary consistent with ectopic**
  - No free fluid, non tender

Management

- Surgical
  - Laparoscopy + L salpingectomy/removal of ectopic pregnancy + tubal liagation R tube

* Risks
  - Bleeding, infection, DVT/PE
  - Injure bladder, bowels, vessels, ureter
  - Tubal ligation failure


Uterus
Tubal pregnancy
Ovary

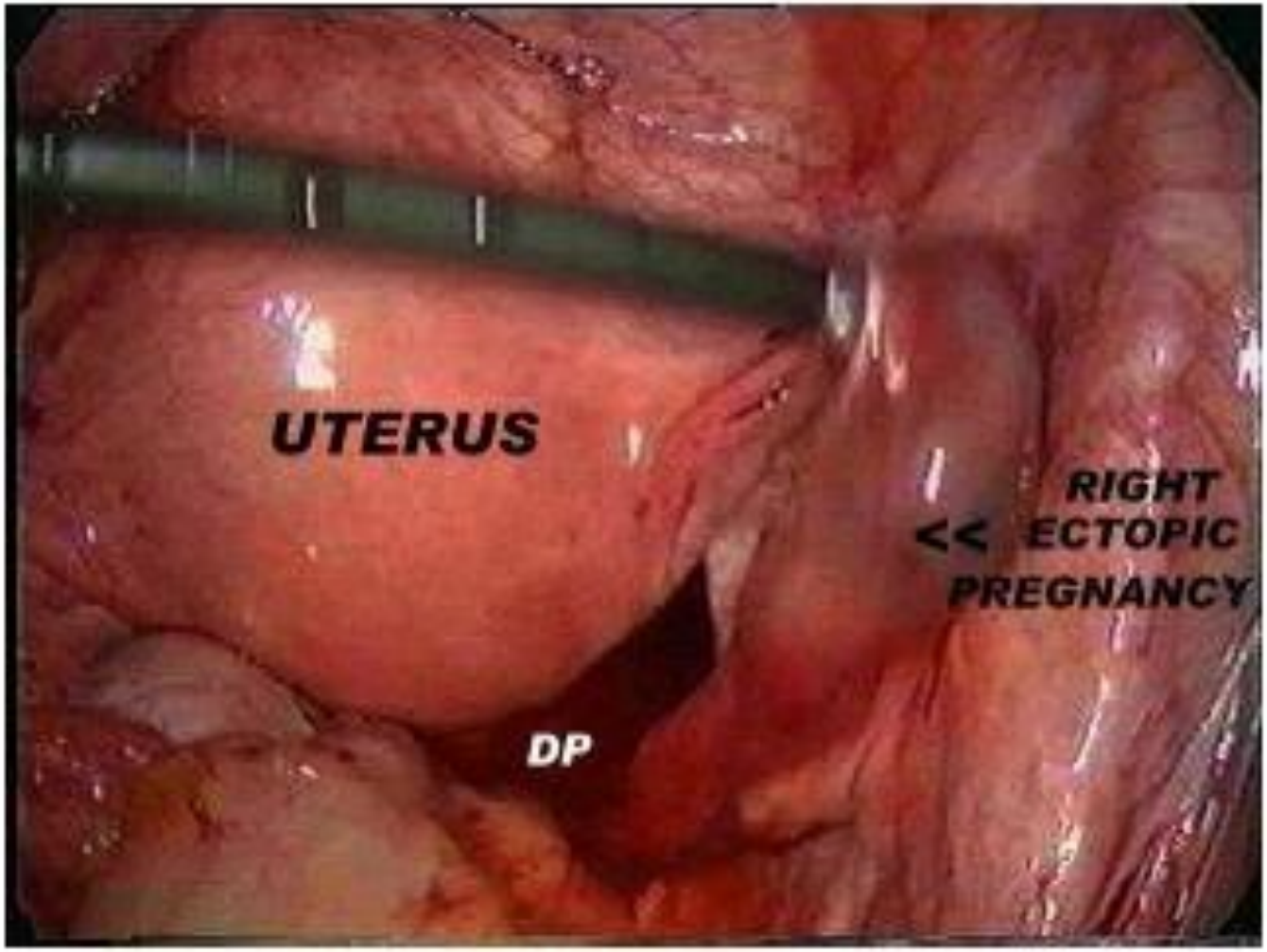


Figure 12:
Right Ectopic Pregnancy

Summary

- Suspect when +ve pregnancy test, any pain or bleeding
- Diagnosis:

  beta HCG >1500

  AND USS findings
- Management

  Surgical vs Medical

Early pregnancy case

- P1
- 23ish
- Bleeding PV 2/52
- Worsening abdo pain. Esp RIF

- Saw GP
- +ve pregnancy test
- Had used ECP before xmas
- Referred for USS

“No intrauterine pregnancy. Moderate amount of free fluid in pelvis. Rt adnexal mass 34 by 19 by 22 mm.

With a positive pregnancy test an ectopic pregnancy needs to be excluded. Correlation with serum B-HCG is also recommended.”

- Referred to AGA by GP via O+G registrar.

Summary

- Pregnant
- Abdo Pain
- Abdo Tenderness
- Empty uterus
- Adnexal mass
- Free fluid in pelvis

- Arrived @ 1730
- HCG done
- Seen by HS approx 1830
  Hx as above. Abdo tender
- For r/v when HCG available

- Results available at 2000
- HS busy with another AGA patient at 2030
- reg busy elsewhere
- At 2110 worried nurses request permission to contact consultant directly – told not to

- 2120 more experienced Dr comes to AGA but decides to review a different patient instead.
- 2135 patient reviewed
- 2155 a more experienced DR is sought

- 2200 seen by someone willing to make a decision
- OT v.busy
- Surgery commences 0045 and finishes 0130.

Analysis

- Patient waited >4hrs in AGA before a diagnosis and treatment plan made
- Diagnosis was obvious on arrival
- Root cause of delay was lack of experienced input at beginning and decision to await further results.

- Serum quantitative HCG is not a compulsory test
- Doctors are still allowed to make clinical decisions
- A negative laparoscopy is not a criminal offence

- Radiologists are not clinicians and do not know how to manage patients, therefore what they recommend is irrelevant

- Should registrars review scans ?

- 1730 seen by Drs
- 1745 consent for surgery obtained
- 1930 laparoscopic salpingectomy completed (before trauma victim arrives in hospital and blocks theatres for the next 5 hours)

History:

- 44 year old
- Para 3
- Presented 21/11/07
- LMP 13/09/07
- Vomiting, diarrhoea, feinting 4-6/11/07
- PV bleed 11/11/07 ?passage of tissue
- Breast tenderness
- Continued lower abdo and RIF pain
- Prev tubal sterilisation

Examination:

- Cystic mass right adnexa
- Uterine enlargement
- Marked bimanual tenderness

- Investigations arranged

- Diagnosis uncertain. FU next day with results.

Futher developments:

- Collapse at home following day
- Pulse>100
- BP 60/-
- Abdo distended, tender, guarding
- Fast scan +ve

Diagnosis:

- Ruptured Ectopic pregnancy

Laparotomy findings:

- 2500ml haemoperitoneum

Other info:

- Scan report- uterus 113x59x60mm, endometrium 6mm, right ovary significantly enlarged 54x31x49mm heterogenous with increased vascularity. The nature of this change is uncertain but the appearances are significantly abnormal

- Serum HCG 12400

- The scan appearances are typical of an ectopic pregnancy
- Provided clinical information was “amenorrhoea for 8 weeks with right adnexal mass”
- Pregnancy not considered likely at first assessment

Case Presentation

- 8/10/08
- Lower abdo pain
- PV bleeding

- Positive pregnancy test

Ultrasound scan

- Bulky retroverted uterus
- No evidence of intrauterine pregnancy
- Complex cystic/echogenic material present in fundus, 35x24x43mm
- ?RPOC, ?molar pregnancy
- Normal adnexae
- No free fluid

Seen in AGA

- ? Molar pregnancy
- Booked for ERPOC
- HCG 20,884

ERPOC

- Straightforward procedure
- Products to histology
- Follow up in GTD clinic

GTD clinic

- Histology- decidua only

tests

- HCG: 17/10- 84
- 20/10- 6819
- Scan: same as before
- HCG: 23/10- 4215
- 28/10- 2509
- CXR: 3/11- normal
- HCG: 3/11- 1518

Scan- 3/11

- A transvaginal scan was performed.. Appearances are similar to previous scans. Within the endometrium there is a residual collapsed cystic space query old gestation sac 32 mm x 22 mm with adjacent prominent decidual reaction and colour Doppler flow. Deep to this, there are several small cystic spaces of uncertain location, query endometrium, query myometrial. There is a small soft tissue mass posteriorly low in the body of the uterus consistent with an incidental subserosal fibroid 18 mm x 21 mm. Both ovaries are normal in appearance. No pelvic masses or fluid seen.

Scan 3/11

- Appearances are consistent with persisting retained products of conception/molar change in the endometrium, prominent vascular endometrium and possibly some cystic change in the myometrium. The interface between endometrium and myometrium is not clearly seen and could be further assessed preoperatively with an MRI scan

- Decision made for repeat erpoc/hysteroscopy

Repeat surgery - 6/11

- Empty uterus
- Defect in endometrium/myometrium at fundus consistent with previous perforation
- Histology- minimal tissue. Mostly blood. Weakly proliferative endometrium.

Repeat HCG

- “tumour HCG” - 937
- “pregnancy HCG” - 858

More HCG

- 13/11- 559
- 24/11- 267
- 1/12- 194 (*pregnancy, not tumour)
- 8/12- 160
- 15/12- 165

Another scan

- Persistent heterogeneous fundal mass, with internal cystic areas. This may in fact lie within the myometrium, ?cystic degeneration of a fibroid. MRI is suggested to further characterise this area, and to assess for ongoing RPOC or evidence of gestational trophoblastic disease.

More HCG

- 22/12 -150
- 29/12 -125
- 5/1 -116

- 13/1 - for pelvic MRI

- There is a 45 x 38 x 33 mm heterogeneous mixed cystic and solid mass in the left side of the uterus. This is predominantly intramural, but is contiguous with the endometrial cavity medially. There is a trace of fluid in the endometrial cavity itself. The mass is predominantly cystic, but there is avid enhancement of the solid/nodular components, and increased surrounding arterial phase vascularity. The myometrium over the mass is thinned (5 mm). The junctional zone is irregularly thickened, and discontinuous at the site of the mass. There is a typical appearing 17 mm low signal intensity intramural fibroid more inferiorly on the left. The ovaries have normal appearances, with several prominent follicles on the left ovary. There is no free fluid within the pelvis.

MRI

- The cystic uterine mass could represent an atypical fibroid with cystic degeneration, and does appear to be centred within the myometrium. However given the persistent elevated beta-hCG, I cannot exclude gestational trophoblastic disease invading into the myometrium (potentially from a cornual site implantation). We will review the case at the gynae-oncology meeting.

- For repeat HCG
- Hysterectomy if remains elevated

- 27/1 HCG: 75
- 9/2 HCG: 48
- 16/2 HCG: 48

- 2/3 Hysterectomy

Histology

- Diagnosis:
- Uterus: Ectopic left cornual pregnancy

- (plus fibroids, plus adenomyosis)