

Management of Ectopic Pregnancy

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References

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Abstract

Ectopic pregnancy can be defined as any pregnancy implanted outside the uterine cavity. It occurs in 11/1000 pregnancies in the UK and is an important cause of maternal mortality in the first trimester (1). Many patients who develop ectopic pregnancy do not have any specific risk factors (1). Patients with ectopic pregnancy often become haemodynamically unstable and initial management is essential to improve outcomes.

Key Words

Ectopic Pregnancy; Gynaecology, Pre-operative; Clinical; Haemorrhage; Haemorrhagic Shock; Shock; Surgery; Transfusion.

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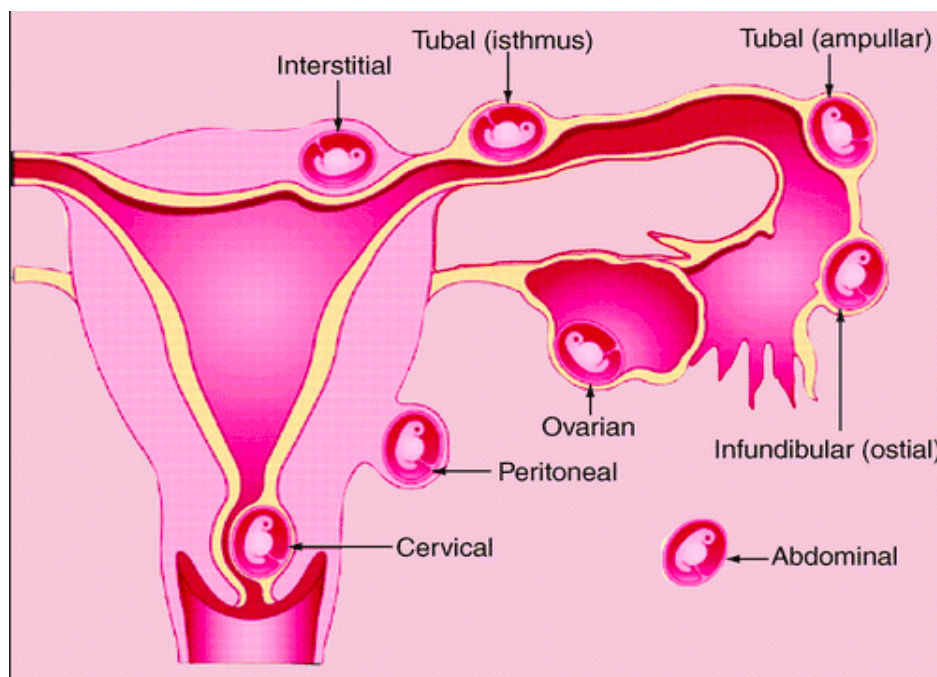


Figure 1: Locations of ectopic pregnancy

Classification of Ectopic Pregnancy

Tubal ectopic: interstitial, cornual, ampullary and fimbrial ectopics
Cervical ectopic
Heterotopic ectopic
Ovarian ectopic
Abdominal ectopic
Pregnancy of unknown location
Caesarean scar ectopic

Risk Factors

There are several known risk factors for ectopic pregnancy however as mentioned above most patients do not possess any risk factors (1). Therefore if none of the below are present, clinical suspicion and treatment should not be altered based on this.

Risk Factors for Development of Ectopic Pregnancy	
Previous ectopic pregnancy	
Pelvic inflammatory disease and genital infections	
Infertility and IVF treatment	
Tubal surgery e.g. sterilisation	
Smoking	
Previous or current intrauterine device	

Clinical Presentation

Common presentations of ectopic pregnancy include pelvic or abdominal pain and vaginal bleeding. Other symptoms may include diarrhoea, vomiting, dizziness, syncope, shoulder tip pain, dysuria or breast tenderness⁴. Patients may also be completely asymptomatic.

Positive findings on examination include abdominal tenderness, abdominal distension, guarding, postural hypotension and adnexal tenderness⁴.

If the presentation is of a live or ruptured ectopic pregnancy, patients will rapidly deteriorate due to bleeding into the intra-abdominal cavity and may present with haemorrhagic shock⁴. In this case they are likely to be tachycardic, tachypnoeic, hypotensive with an altered mental state.

Ectopic pregnancies are often missed due to the non-specific nature of the presentation.

Table 1: ATLS guideline for stages of haemorrhagic shock

Class of Hemorrhagic Shock				
	I	II	III	IV
Blood loss (mL)	Up to 750	750-1500	1500-2000	> 2000
Blood loss (% blood volume)	Up to 15	15-30	30-40	> 40
Pulse rate (per minute)	<100	100-120	120-140	> 140
Blood pressure	Normal	Normal	Decreased	Decreased
Pulse pressure (mm Hg)	Normal or increased	Decreased	Decreased	Decreased
Respiratory rate (per minute)	14-20	20-30	30-40	>35
Urine output (mL/hour)	>30	20-30	5-15	Negligible
Central nervous system/mental status	Slightly anxious	Mildly anxious	Anxious, confused	Confused, lethargic

Diagnosis

Transvaginal ultrasound is the diagnostic tool of choice for tubal ectopic pregnancy⁶. Tubal ectopic pregnancies should be positively identified, if possible, by visualising an adnexal mass that moves separate to the ovary.

A serum progesterone level is not useful in predicting ectopic pregnancy⁶.

A serum beta-human chorionic gonadotrophin (b-hCG) level is useful for planning the management of an ultrasound visualised ectopic pregnancy. In some cases, a repeat serum b-hCG in 48 hours may be useful in deciding further management⁶.

Management Options

A laparoscopic surgical approach is preferable to an open approach if patient haemodynamically stable⁶. Laparotomy may be the preferred route if patient in shock.

In the presence of a healthy contralateral tube, salpingectomy should be performed in preference to salpingotomy⁶.

In women with a history of fertility-reducing factors (previous ectopic pregnancy, contralateral tubal damage, previous abdominal surgery, previous pelvic inflammatory disease), salpingotomy should be considered.

If a salpingotomy is performed, women should be informed about the risk of persistent trophoblast with the need for serum b-hCG level follow-up.

They should also be counselled that there is a small risk that they may need further treatment in the form of systemic methotrexate or salpingectomy⁶.

Systemic methotrexate may be offered to suitable women with a tubal ectopic pregnancy. It should never be given at the first visit, unless the diagnosis of ectopic pregnancy is absolutely clear and a viable intrauterine pregnancy has been excluded.

Expectant management is an option for clinically stable women with an ultrasound diagnosis of ectopic pregnancy and a decreasing b-hCG level initially less than 1500 iu/l.

Offer anti-D prophylaxis as per national protocol to all RhD-negative women who have surgical removal of an ectopic pregnancy, or where bleeding is repeated, heavy or associated with abdominal pain⁶.

Immediate Management of the Unstable Patient

In the haemodynamically unstable patient with suspected ectopic pregnancy⁷:

1. Move to resuscitation area
2. Call for help
3. ABCDE
4. High flow oxygen
5. 2x large wide bore cannulas
6. Cross match 6 units of blood
7. IV fluids while waiting for blood to become available
8. Start transfusion of RBCs
9. Inform gynaecology team, anaesthetist and theatres
10. Prioritise transfer to theatre

Investigations

Investigations in the unstable patient should not delay initial management. The following investigations should be completed if available prior to theatre:

- Urine HCG
- Serum HCG
- Focused assessment with sonography for trauma (FAST) scan of the abdomen to look for free fluid
- Blood grouping and rhesus status – Anti-D must be given within 72 hours if rhesus negative
- Full blood count, clotting screen, group and screen

Transfusion Management in Major Haemorrhage

Major haemorrhage can be defined as bleeding that causes a systolic blood pressure of less than 90mmHg and a heart rate of greater than 110 beats per minute⁸.

Transfusion with red blood cells is usually required after 30% of the total blood volume is lost and if the patient is in Class III/IV shock⁵. Administration of packed red blood cells will maintain the oxygen carrying capacity and blood flow to vital organs⁵. Often haemoglobin testing is misleading in an acute bleed as the level is often normal or unchanged⁵. If immediate transfusion is, O negative blood should be used rather than waiting for cross-matched or group-specific blood (Rh negative red blood cells should be given to women of child-bearing age). However as soon as cross-matched blood is available this should be used instead of O negative⁵.

The use of fresh frozen plasma and platelets will adjunct haemostasis and the ratio in which to transfuse this will be outlined in the hospital's local major haemorrhage protocol.

Multiple-Choice Questions

1. Which of the following are risk factors for ectopic pregnancy: (more than one option may be selected)

- A** Family history of ectopic pregnancy
- B** The patient has a mirena coil in situ
- C** History of multiple miscarriages
- D** Smoking

2. Which of the following statements are true regarding Class II haemorrhagic shock: (more than one option may be selected)

- A** hypotension will be present
- B** tachycardia will be present
- C** the respiratory rate will be normal
- D** blood transfusion is always required

3. Concerning the presentation of a patient with an ectopic pregnancy the following features may exist: (more than one option may be selected)

- A** generalized abdominal pain
- B** vomiting
- C** dizziness
- D** all of the above

4. A 22 year old female presents to A&E with non-specific abdominal pain and one episode of vomiting. She has had one episode of feeling faint but no collapse. Her LMP was 6 weeks ago and a urinary pregnancy test is positive. During assessment in A&E you notice that her next set of observations show a blood pressure of 80/40.

Regarding the above case study, what is your next plan of action?

- A** ABCDE and move to resuscitation area
- B** A quick ABCDE assessment then transfer to CT scan
- C** Attempt to get IV access
- D** Take a full blood count and group and screen sample

Her next set of observations show a BP of 70/35, HR of 110 and RR of 30. She now as IV access and her group and screen sample has just been sent.

5. You decide you want to start a transfusion of red blood cells. How would you proceed?

- A** transfuse 6 units of cross matched blood
- B** transfuse 6 units of group specific blood
- C** transfuse 6 units of O negative blood
- D** commence transfusion with O negative blood then use cross-matched blood when it becomes available

Answers

- 1. B and D
- 2. B
- 3. D
- 4. A

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