Reference Number: **Version Number: 2**	**Date of Next Review: 16th November 2026** **Previous Trust/LHB Reference Number:**

Management of Ectopic Pregnancy and Pregnancy of Unknown Location (PUL)

Introduction and Aim

Guidance on the management of pregnancies of unknown location and ectopic pregnancies

Objectives

- **To provide evidence based guidance for the management of PUL and ectopic pregnancy**

Scope

This policy applies to all healthcare professionals in all locations including those with honorary contracts

Equality Health Impact Assessment	*An Equality Health Impact Assessment (EHIA) has not been completed.*
Documents to read alongside this Procedure	
Approved by	*Gynaecology Professional Forum*

Accountable Executive or Clinical Board Director	*Ruth Walker, Executive Nurse Director*
Author(s)	*Monique Latibeaudiere* *Kate Martin*

Disclaimer

If the review date of this document has passed please ensure that the version you are using is the most up to date either by contacting the document author or the Governance Directorate.

Summary of reviews/amendments- Nil			
Version Number	**Date of Review Approved**	**Date Published**	**Summary of Amendments**
2			

Management of Ectopic Pregnancy and Pregnancy of Unknown Location

Table of Contents

Principles of management

Ectopic pregnancies are uncommon but serious complications of early pregnancy, and account for 2-3% of women who attend Early Pregnancy Assessment Units. They are associated with significant risk of maternal morbidity and mortality.

Transvaginal ultrasound by practitioners trained in early pregnancy ultrasound scanning is the mainstay of diagnosis. A high index of suspicion must be maintained in order to avoid delays in diagnosis which may have serious implications for the wellbeing of the woman. Senior advice should be sought if there is diagnostic uncertainty or if the patient is unwell. Haemodynamic instability, signs of shock or peritonism in the context of a positive pregnancy is an indication for surgery in the absence of imaging.

The absence of imaging should not delay laparoscopy and management when it is clinically indicated.

Ectopic pregnancies are a source of bereavement and emotional distress for the affected woman and her family. Patients experiencing them must be treated compassionately and sensitively.

Diagnosis

Tubal ectopic pregnancy

Tubal ectopic pregnancies are the most common type of ectopic pregnancy, occurring in 1:90 pregnancies.
They are diagnosed by the demonstration of an adnexal mass adjacent to the ovary which moves separately. An early gestation sac may be in seen in up 40% of cases; an early yolk sac with an early fetal pole with cardiac activity can be seen in 15-20% of cases.

The endometrial cavity may contain a pseudosac, a collection of fluid between the layers of endometrium. This can be difficult to distinguish from an early gestation sac and is **not** diagnostic of an ectopic pregnancy.

Perform a BHCG when an ectopic is visualised to guide management. Progesterone is not useful where a tubal ectopic has been visualised and should not be performed.

Interstitial pregnancy

These unusual pregnancies are implanted outside pf the endometrial within the interstitial part of the tube. They used to be known as cornual ectopic pregnancies.
They should be suspected when the gestation sac appears unusually high and located laterally in the cavity. Assisted reproductive techniques and previous tubal surgery should raise suspicion of an interstitial pregnancy.

Diagnosis is made by visualising

- Empty endometrial cavity
- Interstitial line sign
- Less than 5mm of myometrium in all views
- GS or POCs in the interstitial tube

Diagnosis is difficult and must be made by a clinician experienced in advanced Early Pregnancy ultrasound.
The use of 3D ultrasound techniques and/or MRI may be used to distinguish these pregnancies from laterally implanted intrauterine pregnancies.

Caesarean scar pregnancy (CSP)

These pregnancies are increasingly common and occur in 1:2000 pregnancies. These occur when a pregnancy implants into the myometrial defect at the site of a previous Caesarean scar. A high index of suspicion must be maintained as patients may be asymptomatic and can present via PAS or routine antenatal booking services.

Diagnosis is based on transvaginal ultrasound. MRI is not required to make the diagnosis and is unlikely to provide additional information. Characteristic features include:

1. Empty uterine cavity.[38]
2. Gestational sac or solid mass of trophoblast located anteriorly at the level of the internal os embedded at the site of the previous lower uterine segment caesarean section scar.[39]
3. Thin or absent layer of myometrium between the gestational sac and the bladder.[38,40]
4. Evidence of prominent trophoblastic/placental circulation on Doppler examination.[41]
5. Empty endocervical canal.

Heterotopic pregnancy

The coexistence of an intrauterine and ectopic pregnancy is known as a heterotopic pregnancy and should be suspected in women who have had ART (e.g. IVF, ICSI, IUI, Clomid). Careful examination of the adnexa is essential, as is a high index of suspicion.
Diagnosis must be based on sonographic findings on transvaginal ultrasound. Suspected heterotopic pregnancies must be discussed with the senior gynaecologist on call or with the Early Pregnancy consultant in order to plan appropriate management. Serum βHCG does not provide any diagnostic information.

Ovarian, cornual and abdominal pregnancies

These rare ectopic pregnancies are often very difficult to diagnose and require a high level of skill and clinical suspicion. Early discussion with senior clinicians, and imaging adjuncts such as MRI may help to clarify the diagnosis and guide management.

NB the term cornual ectopic refers to an ectopic pregnancy located within a rudimentary uterine horn. The main uterine body is unicornuate. These are very rare (1:76000). Care must be taken not to confuse this with an interstitial pregnancy as the management options are very different.

Management of tubal ectopic pregnancy

Tubal ectopic pregnancy can be managed expectantly, medically or surgically.

Perform a baseline full blood count, G&S and βHCG at the time of diagnosis.
Perform observations and document on a MEWS chart.
If there is significant pain, free fluid or haemodynamic instability, insert 2 intravenous cannulas, preferable large gauge.

	Expectant	Medical	Surgical
Clinical findings	Patient well	Patient well/minimal symptoms	Patient in significant pain or haemodynamically unstable
Ultrasound	Adnexal mass<35mm Minimal or no free fluid	Adnexal mass<35mm Minimal or no free fluid	Adnexal mass> 35mm Evidence of fetal heart activity (+/- evidence of GS and YS) Moderate or large amount free fluid
Initial BHCG	<1500	1500-3000	N/A
BHCG pattern	Falling, plateauing on repeat	Plateauing, slow rising or doubling	
Patient characteristics	Willing to contact ward if unwell and to return for follow-up	Willing to contact ward if unwell and to return for follow-up Aware may need surgical treatment or repeat doses	Unwilling/unable to attend for follow up Wishes to have definitive treatment
Efficacy	Up to 100% based on patient selection	90% (65-95% based on patient selection) Up 27% will need a repeat dose	100% - although a false negative laparoscopy may occur early in the disease process
Timing of next conception	When patient ready, usually after 6 weeks	Delay conception until 3/12 after treatment	When patient ready, usually after 6 weeks

Expectant

Expectant management may be offered to women who are clinically well, in minimal or no pain and who have a small (<35mm) mass with no visible fetal heart activity and little or no free fluid on scan.
Women must agree to the required follow-up appointments.

Perform FBC, G&S and βHCG.

BHCG levels should be less than 1500.

BHCG should be repeated on day 2, 4 and 7.

A fall on 15% from the previous value is acceptable. If this occurs, BHCGs should be repeated weekly until levels are less than 20 IU.

If levels fail to fall by 15%, remains the same or rise, discuss management with a senior clinician and review clinical findings. A clear senior management plan must be documented in the notes.
.

There is no therapeutic advantage in giving methotrexate to well women with βHCG<1500ml and in these cases, medical and expectant management have similar efficacy in respect to

- Time to resolution
- Future fertility
- Risk of tubal rupture and
- Effects on mental wellbeing

Medical

Methotrexate (MTX) is administered as a single intramuscular dose of 50mg/m2.

Medical treatment in indicated when the patient is stable, in minimal pain, with sonographic features of ectopic pregnancy with a small adnexal mass (<35mm), a small amount or no free pelvic fluid and when BHCGs are <3000.
If BHCG is 3000-5000 and the patient wishes to avoid surgery and is otherwise well MTX may be given, but the reduced efficacy and likelihood of repeat doses should be explained clearly.
Methotrexate should not be administered at the first visit.
The diagnosis of ectopic (rather than early intrauterine or heterotopic pregnancy) should be certain.
Doubling of the βHCG over 48 hours should prompt repeat scan to ensure an intrauterine pregnancy does not exist and to confirm the absence of ectopic fetal heart activity.

Methotrexate treatment should be fully documented on the methotrexate pathway. Obtain written consent on the methotrexate consent form and prefilled Consent form 1. Ensure that the woman is aware that

1. Many women experience an increase in abdominal pain 3-5 days after MTX is administered. This pain should not cause an acute abdomen or haemodynamic instability. Worrying clinical signs should prompt rescan to rule out haemoperitoneum.
2. A second dose of Methotrexate may be required, particularly if βHCG levels were high initially
3. Surgical management may be required if treatment is unsuccessful or if pain/bleeding increase
4. Regular follow-up appointments will be required until βHCG is

Day 0 BHCG, FBC, G&S, LFTs, U&Es
Day 4 BHCG
Day 7 BHCG, FBC, U&Es, LFTs

Calculate change in βHCG (Day 7-Day 4/Day 4 x 100)
If BHCG has fallen by <15% between days 4 and 7, rescan to rule out live ectopic and offer second dose of MTX 50mg/m2
If βHCG falls by more than 15%, repeat bloods Day 7
Repeat weekly until BHCG< 20

Ensure that patient is given effective contraception and warned about the risks of conception before the recommended 3 months have elapsed. Methotrexate is a folate antagonist and is teratogenic in early pregnancy.
Effective contraception should be discussed and provided prior to discharge.

Surgical

Diagnosis of tubal ectopic is based on transvaginal ultrasound scan and there is therefore limited role for diagnostic laparoscopy.

Laparoscopy may miss early ectopic pregnancies that may be detected on ultrasound. It is not routine practice to perform curettage at the time of a negative laparoscopy, as this risks the termination of an early intrauterine pregnancy. Consent for this should be obtained explicitly pre-op if planned.

Surgical management following diagnosis is usually performed laparoscopically, although laparotomy may be required because of clinical urgency or surgical experience.

Salpingectomy is usually performed if the contralateral tube is normal and there is no significant history of subfertility. In these women, preservation of the tube does not appear to improve fertility.
In the presence of risk factors for subfertility, salpingostomy may improve pregnancy rates (and does not appear to significantly increase the rate of repeat ectopic pregnancy).

Follow-up

Negative laparoscopy

An early ectopic or intrauterine pregnancy can be missed at laparoscopy. Patients should be debriefed by the surgical team at the earliest opportunity. βHCG levels should be repeated 48 hours after surgery. A significant rise from baseline (>80%) is indicates a viable ongoing pregnancy. Provided the patient remains well, plan a rescan in 7 days to identify the location of the pregnancy. Consider medical management if persisting pregnancy of unknown location or plateauing levels of BHCG. Falling levels of βHCG may be manged conservative if the patient is clinically well.

Salpingectomy

Routine post-laparoscopy care should be offered. Attention to be paid to bereavement support in light of the pregnancy loss. Information should be given about support organisation and charities (Appendix) and formal debrief offered if the patient wishes.
Ensure that the patient is aware of the intraoperative findings, which tube has been removed and the likely effects on future fertility.

Salpingostomy

Persistent trophoblast may complicate salpingostomy. βHCG should be repeated weekly after salpingostomy. Plateauing levels may indicate persistent trophoblast and mat be manged expectantly or with single-dose methotrexate 50mg/m2.

All women who have been diagnosed with an ectopic pregnancy should be offered

1. a debrief appointment (if required)
2. information about support organisations, and
3. contact numbers for the Early Pregnancy Unit to arrange an ultrasound scan at 6 weeks in further pregnancies

Management of Pregnancies of Unknown Location

A Pregnancy of Unknown location is diagnosed when there is no evidence of an intrauterine or extrauterine pregnancy evident on transvaginal ultrasound.

PULs will include

- complete miscarriages
- very early intrauterine gestations (either viable or non-viable)
- ectopic pregnancies

Most PULs will have a final diagnosis of an intrauterine pregnancy (17-41%) or a failing PUL (47-70%). However, the possibility of ectopic pregnancy although less likely (8-16%) requires careful further investigation and assessment.

A thorough history and clinical assessment is essential.
Take bloods for βHCG, FBC and G&S.
If initial βHCG is >1500, consider a second ultrasound scan by an experienced operator to rule out adnexal pathology.
Repeat βHCG in 48 hours.

Change in βHCG over 48 hours	Likely diagnosis	Further management	Advice to patient
Increase of >63%	Early intrauterine pregnancy (ectopic not excluded but unlikely)	TVS in 7-10 days	Contact EPAU if increase in pain or bleeding, or any clinical concerns
Decrease by >50%	Likely failing pregnancy – either intrauterine or ectopic	Repeat urine pregnancy test in 14 days. Clinical review if remains positive	Sensitive communication re: likelihood of failing pregnancy. Worsening advice
All other changes	PUL? ectopic	Clinical assessment and TVS in EPAU within 24hours	Explain uncertainty and need for careful assessment. Worsening advice.

A single βHCG or measurement of serum progesterone should not be used to determine the site of a PUL.

The M6 logarithmic assessment model is available at http://homes.esat.kuleuven.be/~sistawww/biomed/earlypregnancycare/m6/pul/ and can be used to aid risk assessment using two BHCGs taken 48 hours apart.
This is also available on the EPAU computer desktop.
Consider methotrexate for persistent PUL (slow rising or plateauing βHCGs > 1000 IU). At lower βHCG levels, there is no benefit in administering methotrexate over expectant management.

References

Bobdiwala, S., Al-Memar, M., Farren, J., & Bourne, T. 2017. "Factors to consider in pregnancy of unknown location." *Women's Health* 27-33.

Bourne, Tom et al. 2019. *M6 Risk Model for the characterisation of pregnancies of unknown location.* http://homes.esat.kuleuven.be/~sistawww/biomed/earlypregnancycare/m6/pul/.

Elson CJ, Salim R, Potdar N, Chetty M, Ross JA, Kirk EJ on behalf of the Royal College of Obstetricians and Gynaecologists. BJOG 2016, and .123:e15–. 2016; 123. "RCOG Green-Top Guideline 21. Diagnosis and management of ectopic pregnancy." *BJOG* e15-e55.

2019. *NICE Guidance NG126: Management of Ectopic Pregnancy and Miscarriage.* April. https://www.nice.org.uk/guidance/ng126/evidence/april-2019-evidence-reviews6772588813?tab=evidence.

Appendix 1: Support agencies and charities relevant to EPAU

Bereavement Support

Junction Cardiff	https://www.thejunctioncardiff.org/
The Miscarriage Association	https://www.miscarriageassociation.org.uk/
Tommy's	https://www.tommys.org/pregnancy-information/pregnancy-complications/baby-loss/miscarriage-information-and-support
Cruse Bereavement Support	https://www.cruse.org.uk/get-help/localservices/wales/cardiff-and-the-vale

Information about miscarriage

The Miscarriage Association	https://www.miscarriageassociation.org.uk/
Tommy's	https://www.tommys.org/pregnancy-information/pregnancy-complications/baby-loss/miscarriage-information-and-support

Information and Support after Ectopic Pregnancy

Ectopic Pregnancy Trust	https://ectopic.org.uk/

Information and Support with Nausea and Vomiting in Pregnancy and Hyperemesis

Pregnancy sickness support	https://www.pregnancysicknesssupport.org.uk/
HelpHER	http://www.hyperemesis.org/

Information and Support after molar pregnancy

The Miscarriage Association	https://www.miscarriageassociation.org.uk/
Tommy's	https://www.tommys.org/pregnancy-information/pregnancy-complications/baby-loss/miscarriage-information-and-support
Charing Cross Hospital	http://www.hmole-chorio.org.uk/patients_info.html

Appendix 2: Management of PUL algorithm