HYWEL DDA UNIVERSITY HEALTH BOARD

Management of Early Pregnancy Guideline

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Brief Summary of Document:	Comprehensive guidelines for the management of early pregnancy
Scope	The guideline should be used by registered nurses, midwives, pharmacists, radiographers, doctors, and students within the scope of individual clinical competence

To be read in conjunction with:	

Owning group	Obstetrics and Gynaecology Written Control Documentation Group

Reviews and updates		
Version no:	Summary of Amendments:	Date Approved:
1	New Guideline	1/10/2018

Glossary of terms

Term	Definition
EPAU	Early pregnancy assessment unit
AEPU	Association of Early Pregnancy Units
FBC	Full blood count
EP	Ectopic pregnancy
POC	Products of Conception
TVS	Transvaginal ultrasound scan
EGS	Early gestational sac
GSD	Gestational sac diameter
DDS	Double decidual sign
MSD	Mean sac diameter
IUP	Intrauterine pregnancy

Keywords	Early pregnancy, miscarriage, ectopic

CONTENTS

1. INTRODUCTION

Ectopic pregnancy and miscarriage have an adverse effect on the quality of life of patients. The incidence of miscarriage is approximately 20% of pregnancies and ectopic pregnancy is 11 per 1000 pregnancies resulting in over 50,000 admissions to hospital annually in the UK. Dedicated early pregnancy units provide rapid access to diagnostic services and streamlined management for early pregnancy complications, reducing the incidence of psychological morbidity and preventable maternal mortality due to ectopic pregnancy.

2. SCOPE

The guideline applies to registered nurses, midwives, pharmacists, radiographers, doctors, who care for patients with early pregnancy complications presenting in Emergency Departments, Radiology and Gynaecology Services within the acute hospitals.

3. AIM

The aim of this guideline is to ensure safe care, avoidance of unnecessary harm, including avoidable death and a positive patient experience.

4. OBJECTIVES

The aim of this guideline will be met by the following objectives:

- By seeing patients in the right place, at the right time
- By appropriate and timely investigations
- By appropriate and timely clinical management

5. GUIDELINES

5.1. Ectopic pregnancy and miscarriage NICE Pathway overview.

https://pathways.nice.org.uk/pathways/ectopic-pregnancy-and-miscarriage#path=view%3A/pathways/ectopic-pregnancy-and-miscarriage/ectopic-pregnancy-and-miscarriage-overview.xml&content=view-index

5.2. Guidelines for Service Organisation

Refer to Appendix 1 for the service organisation.

5.3. General Clinical Guidelines

Refer to Appendix 2 for general clinical guidelines.

6. GUIDELINES ON RECORDING OF ULTRASOUND IMAGES

Refer to appendix 3 for guidance on recording ultrasound images.

7. GUIDELINES FOR ULTRASOUND SCANNING

Refer to Appendix 4 for guidelines on ultrasound scanning.

8. GUIDELINES FOR RHESUS PROPHYLAXIS

Refer to Appendix 5 for guidance on rhesus prophylaxis.

9. GUIDELINES FOR INTRAUTERINE PREGNANCY (IUP) AND PROBLEMS

9.1. Management of Early Gestational Sac Guideline

Refer to Appendix 6 for the management of early gestational sac guideline.

9.2. Viable Intra-Uterine Pregnancy Guideline

Refer to Appendix 7 for the viable intra-uterine pregnancy guideline.

9.3. Multi-Pregnancy Guidelines

Refer to Appendix 8 for multi-pregnancy guidelines.

NICE Pathway: Medical Management of Incomplete or Missed Miscarriage
https://pathways.nice.org.uk/PATHWAYS/ECTOPIC-PREGNANCY-AND-MISCARRIAGE#PATH=VIEW%3A/PATHWAYS/ECTOPIC-PREGNANCY-AND-MISCARRIAGE/MEDICAL-MANAGEMENT-OF-INCOMPLETE-OR-MISSED-MISCARRIAGE.XML&CONTENT=VIEW-INDEX

9.4. Miscarriage Guidelines

Refer to Appendix 9 for miscarriage guidelines.

10. GESTATONAL TROPHOBLASTIC DISEASE

Refer to Appendix 10 for the management of gestational trophoblastic disease.

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11. NICE PATHWAY: MANAGEMENT OF ECTOPIC PREGNANCY:

https://pathways.nice.org.uk/pathways/ectopic-pregnancy-and-miscarriage#path=view%3A/pathways/ectopic-pregnancy-and-miscarriage/management-of-ectopic-pregnancy.xml&content=view-index

12. ECTOPTIC PREGNANCY AND RELATED PROBLEMS GUIDELINES

Refer to Appendix 11 for Ectoptic pregnancy and related problems guidelines

13. SUPPORTIVE GUIDELINES

Refer to Appendix 12 for support, follow-up and counselling after a miscarriage guideline

14. APPENDIX 1 – SERVICE ORGANISATION

The Unit

Site

- It should be located in a dedicated area.
- The surroundings should be pleasant and comfortable with toilets near at hand.

Access

- The unit should be open seven days a week
- Patients should be seen within 24 hours of referral
- Details of various early pregnancy units all over the UK, and their contact number may be found on AEPU Website (www.earlypregnancy.org.uk)

Facilities

The early pregnancy unit must be accessible in order to facilitate access for wheelchair users and people with sensory/cognitive impairment. This includes the provision of appropriate beds and mobility aids.

- Good quality ultrasound machine with trans-vaginal and trans-abdominal probes.
- Simple urine pregnancy testing.
- Access to serum hCG assay with results the same day.
- Other investigations such as FBC and rhesus grouping as required.
- Rhesus grouping and Anti-D considered if gestation is >12 wks.
- It is important to bear in mind that some patients may require other gynaecological procedures such as vaginal swabs and occasionally removal of coils.

Rooms

- A consultation/scan room.
- A quiet room.
- A blood room.
- An office room.
- Dirty utility.
- Storage.

Staffing

- Staffing varies between the units. Minimum requirement would be: a receptionist/secretary, a nursing auxiliary, a senior nurse, preferably trained in ultrasound, a Consultant Gynaecologist, trained in ultrasound.
- Attitude of the staff involved should be caring and sympathetic.
- Staff should be non-judgemental at all times. The Health Board is committed to ensuring that, as far as is reasonably practicable, the way we provide services to the public and the way we treat our staff reflects their individual needs and does not discriminate against individuals or groups on any grounds.
- Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based, written information tailored to the pregnant person's needs. Treatment and care, and the information patients are given about it, should be culturally appropriate. It should also be accessible to patients with additional needs such as physical, sensory or learning disabilities, and to patients who prefer to receive information through the medium of Welsh or who do not speak or read English.

- Healthcare professionals should receive specific training on communication and breaking bad news to patients with pregnancy complications.
- Clear and consistent verbal and written information should be provided.
- Initial support and informal counselling should be provided by all healthcare professionals involved.

Medication

- Basic analgesia.
- Antibiotics.
- Anti-D immunoglobulin.
- Ergometrine.

Referral Guidelines
Who may be referred?

- Patients in *first trimester* who have had a positive URINE pregnancy test, and
  a) abdominal pain
  b) vaginal bleeding
  c) previous ectopic pregnancy (EP)
  d) previous tubal surgery
  e) two or more previous consecutive miscarriages
  f) IUCD or IUS in-situ.
  g) Previous molar pregnancy
  h) Three previous caesarean sections

Patients should be 6-7 weeks pregnant for their first appointment in the absence of pain.
Patients requiring a scan for reassurance following two previous consecutive miscarriages should be 8 weeks pregnancy in the absence of symptoms unless the need to confirm viability in order to commence clexane has been recommended.

- Patients with a non-viable pregnancy diagnosed in ante-natal booking clinic.
- Those who are already booked in antenatal clinic may also be seen if they develop any complications before their anomaly scan.
- Post evacuation (medical/surgical) with persistent bleeding.

Most patients feel comfortable when given the reassurance that an ultrasound scan in early pregnancy has its own limitations and therefore will not have unrealistic expectations. Hence;

<u>Do not refer/accept patients with:</u>

- A history of exposure to X-ray.
- Concern about the drugs they have had.
- A history of previous stillbirth.
- Uncertain dates.

Sources of Referral

- Primary Care Doctors.
- Practice Nurses.
- Midwives.
- Accident and Emergency Departments.
- Consultants.
- Wards.

- Antenatal Clinics.
- Patients.
- Integrated Sexual health.
- Infertility or IVF clinic.

Referral Procedure

Referral booking is via EPAU between 8am and 4pm and via the Gynae SHO/Senior Gynae nurse at night.

- The appointment book should be available on gynaecology wards after 4.00pm to enter referrals
- Details of patient's name, address, date of birth, name of GP, gestation and reason for referral should be noted and an appointment time given
- Referring healthcare professionals to be advised to tell the patients that:
  a) A full bladder is required.
  b) a trans-vaginal scan is likely as it is more accurate in early pregnancy.
  c) as it is an emergency clinic the appointment time cannot be guaranteed and delays are likely, and

  Caution: cases who are not suitable for EPAU referral:
  - **Patients with profuse vaginal bleeding.**
  - **Patients with acute severe abdominal pain.**
  - **Patients who are haemodynamically unstable.**
  - **Patients with a strong clinical suspicion of ectopic pregnancy.**
  - **Patients with a negative pregnancy test.**

Patients who are unwell, bleeding heavily or in whom an ectopic pregnancy is suspected should be advised to be admitted through the usual emergency channels and not asked to wait for an appointment in early pregnancy assessment unit. There will also be a proportion of patients who are frightened by the loss or who are geographically isolated and prefer admission.

15. APPENDIX 2 – GENERAL CLINICAL GUIDELINES

Patient Management

- A brief history is taken on the standardised clinic proforma (see Appendix 13) in accordance with RCOG/RCG guidelines including:
  a) Previous obstetric history.
  b) Menstrual history: LMP, cycle length eg conditions such as polycystic ovary syndrome which may affect cycle length.
  c) Contraceptive history.
  d) History of conception: date of positive pregnancy test in this pregnancy/IUI/ET etc.
  e) Pain – description.
  f) Bleeding – duration, amount (< / > than a period, passage of any clots.
  g) Passage of Products of conception (POC)
- Clinical examination should be considered if appropriate.
- The procedure and the reasons why Transvaginal ultrasound scan (TVS) is necessary should be explained
- TVS should be performed unless it is unacceptable to the patients, offer transabdominal scan and explain limitations of this method of scanning to the patient.
- Allow patient the option to see what is seen on the screen.
- Where the gender of the healthcare professional is particularly important to the patient then a female member of staff should be available for any required examination.
- A clear explanation should be given by the Gynaecologist/Sonographer performing the scan as to the possible or likely diagnosis/diagnoses.
- Appropriate pictures are taken for the patient's health records. Pictures are not usually given to patients in EPAU unless requested by the patient.
- **All items on the pro forma should be checked.**
- A plan of management should be formulated based on the guidelines.
- A urine pregnancy test should be performed if a pregnancy is not clearly visible.
- Consideration for serum hCG assay should be given if a pregnancy test is positive in the absence of an intrauterine or ectopic pregnancy on ultrasound scan.
- Support should be given where the pregnancy is non-viable or the pregnant person is upset - a quiet room should be available.
- Follow up should be arranged before the pregnant person leaves the clinic.
- Appropriate written advice and telephone numbers for contact should be given.

Information to GPs

GPs are informed through clinic letters after each consultation. Discharge letters are sent to the GPs at the end of completion of management and follow up. GPs are also informed if a patient defaults her appointment. Clinical letters are available on Myrddin.

Chaperone

TVS is found to be extremely well tolerated as a technique by most patients[1]. In the presence of a female chaperone most patients feel comfortable even if the person doing the scan is male[2]. It is the mannerism and expertise of a healthcare professional that is important more than the gender. A junior member of the staff should always be supervised until he/she has attained required level of expertise in scanning.

A chaperone can act as advocate for the patients, offering reassurance and explanation of the procedure or examination. Patients should be given privacy while undressing and dressing.

The pregnant person's age and individual preference should be taken into account. These can be related to previous experiences, which sometimes the patients may disclose during consultation or examination. Keep discussion relevant and avoid unnecessary personal comments[3].

A female chaperone should always be present during a transvaginal scan carried out by a male healthcare professional.

However the following general principles should be observed:

- If for some reason one can not offer a chaperone, it should be explained to the patient and, if possible, delay the examination to a later date. The discussion and its outcome should be documented.
- The presence and name of the chaperone should be documented.

More details may be obtained from publications of the Royal colleges of Nursing[4], Radiologists[5] and Obstetricians and Gynaecologists[6].

16. APPENDIX 3 - GUIDANCE ON RECORDING ULTRASOUND IMAGES

It is not necessary to seek separate permission from the patient to make the recordings of Ultrasound images. Nor is consent required to use them for any purpose, provided that, before use, the recordings are effectively anonymised by the removal of any identifying marks[7].

Record Keeping and Data Collection

Until such time as computer based records are developed data should be maintained in hand-written registers.

Accurate record keeping is needed to ensure that pregnancy outcome is recorded with sufficient detail and that feedback is comprehensive.

The training of appropriate support staff to maintain high standards of record-keeping is recommended.

Guidance on maintaining Registers

The monitoring of the management procedures in terms of acceptance and outcome can only be achieved through maintaining accurate registers. The following issues are important to establish the diagnosis and its management.

All first visit scans should be given a diagnosis and grouped under "**definitive diagnostic groups"**, such as:

- *Viable pregnancy / Threatened miscarriage* if associated with bleeding
- *Complete Miscarriage*
- *Incomplete Miscarriage*
- *Silent Miscarriage*
- *Ectopic pregnancy or*
- *Hydatidiform mole*

Those scans that do not fit into any of the above categories are grouped under the "**initial diagnosis"** group on the proforma until a "definitive diagnosis" is confirmed on subsequent examination:

- *Early gestational sac* (EGS): with or without a yolk sac.

  An intrauterine gestational sac measuring less than 25mm should be classified under EGS until a repeat scan confirms either a demised embryo or proves it to be an empty gestational sac, otherwise known as an anembryonic pregnancy. Blighted ovum is a term that is no longer acceptable as embryos seen on earlier scans frequently gets absorbed leaving an empty gestational sac or some remnants within it. A silent miscarriage can therefore be simply classified as either embryonic or anembryonic depending on the presence or absence of an embryo within the gestational sac.

- *Inconclusive Scan* result: if an intrauterine or extrauterine pregnancy can not be demonstrated on scan.

There could be *three* reasons for a scan result to be classified as inconclusive with a positive pregnancy test; a very early pregnancy *or* a complete miscarriage *or* an ectopic pregnancy. At subsequent follow-up visits a diagnosis may become clear. If it is not possible to group a pregnancy into any of the above diagnostic groups at follow-up, it is classified as *pregnancy of*

unknown location (PUL). A diagnosis of PUL is made by a process of exclusion and it is treated as a potential ectopic pregnancy.

- *FH not located:* A pregnancy in which an embryo measuring <7mm is visible, but cardiac activity is not demonstrable

At a subsequent scan when a diagnosis becomes possible they are placed under the respective definitive groups as mentioned above under 1.

Rescans: Scans that are performed after a diagnosis has been made are grouped under *'Rescans'* to avoid repeated counting of the same patient in a diagnostic category.

Other categories: Consultation only, PT only, Beta hCG only, others who do not fit into any of the specified groups. The grouping of patients under specified categories makes data collection easy for audit purposes.

Data from the handheld register should be entered on electronic Database regularly.

- All non-viable pregnancies - *Incomplete/Silent miscarriages* should be grouped according to the method of treatment and their outcome recorded.

- All *ectopic pregnancies* should be grouped according to the method of treatment and their outcome recorded.

REFERENCES

- Basama FMS Audit: Womens perception of transvaginal sonography in an early pregnancy assessment unit. J Obstet Gynecol 2001;21:603-604.
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- Making and Using Visual and Audio Recordings of Patients. Guidance for Doctors. General Medical Council.
- 2002. www.gmc-uk.org

17. APPENDIX 4 - GUIDELINES FOR ULTRASOUND SCANNING

RCOG Criteria[1]

Ultrasound scanning (transabdominal and transvaginal) is a technical skill which requires significant training followed by supervision of competence. It should only be carried out by staff who have undertaken this training and be assessed as competent. This document assumes that all those undertaking ultrasound scanning in early pregnancy will be competent and appropriately qualified. This will include:

- Recognition and management of appropriate equipment,
- Preparing the pregnant person for optimum scan images eg filling the bladder, where appropriate.
- Optimising image using appropriate depth and zoom.
- Good practice in annotation and archiving of the scan.
- Recording and escalating abnormality as per the guidance in this document.

Transvaginal ultrasound scan should be offered to all patients with suspected miscarriage or ectopic pregnancy. If transvaginal ultrasound scan is unacceptable to the pregnant person then transabdominal ultrasound can be offered but the limitation of this method should be explained.

A single transvaginal ultrasound may not always accurately diagnose miscarriage therefore in many instances a repeat scan should be undertaken in 7-14 days. This is necessary to confirm the diagnosis. Medical or surgical treatment **must not be commenced** until diagnosis is confirmed.with transvaginal ultrasound in all 1st Trimester cases.

Addendum to Green-top Guidelines No. 25[2] (Oct 2006) of RCOG: The Management of Early Pregnancy Loss [20 October 2011]

Recent research suggests that given inter-observer variability in ultrasound measurements and the greater variation in early embryonic growth than has hitherto been assumed, a more conservative approach to the diagnosis of early pregnancy loss is warranted.

1. Ultrasound diagnosis of miscarriage should only be considered with a mean gestation sac diameter >/= 25mm (with no obvious yolk sac), or with a fetal pole with crown rump length >/=7mm (the latter without evidence of fetal heart activity).

2. **A transvaginal ultrasound scan should be performed in all cases unless this is unacceptable to the pregnant person.**

3. Transvaginal ultrasound diagnosis of miscarriage with with a mean gestation sac diameter >/= 25mm (with no obvious yolk sac), or with a fetal pole with crown rump length >/=7mm (the latter without evidence of fetal heart activity) should be confirmed with a second opinion or repeat ultrasound scan in minimum 7 days.

4. Trans abdominal ultrasound suggestive of gestational sac with no fetal pole or foetal pole with no visible heartbeat should have a second scan in a minimum of 14days before a diagnosis is made.

Who should perform scan?

All clinicians undertaking early pregnancy ultrasound scan should refer to the Ultrasound Guidelines for Obstetrics and Gynaecology which states minimum training requirements:

(a) A recognised post graduate certificate in gynaecology ultrasound or higher **or**

(b) Completed RCOG Modules:

Basic early pregnancy ultrasound (8-12) weeks
Intermediate ultrasound gynaecology
Intermediate Ultrasound of early pregnancy complications **or**

(c) Clinicians without the above may perform of examinations depending on their particular training and experience, but this must be under direct supervision from a clinician who can demonstrate the competencies above to the satisfaction of the UHB and in line with policy. **and**

(d) The Health Board must be informed in writing of those individuals who will be undertaking sonographer reporting. **and** the individuals NMC or GMC registration.

Information should be recorded including:

i) Number of sacs and gestational sac diameter (GSD)
ii) Regularity of the outline of sac
ii) Presence of haematoma
iii) Presence of a yolk sac
iv) Presence of a fetal pole
v) CRL measurement (mm)
vi) Presence of cardiac activity
vii) Extra uterine observations – ovaries, adnexal mass, fluid in the P.O.D.

Ultrasound landmarks of Early Pregnancy

Gestational age	Anatomical landmarks	Comments
4 weeks 2 days	Eccentrically placed Gestational sac measuring 2-3mm	May represent pseudosac 10-20% of ectopic pregnancies have an intrauterine pseudo GS
5th week	DDS	Results from approximation of decidua capsularis and decidua vera. May be present in one third ectopics.
5 weeks	GSD 8-10mm Secondary yolk sac (YS) Size varies from 3-8mm (average 5mm) Embryo 2-3mm Cardiac activity (CA)	Confirms IUP Large YS > 10mm – poor prognosis. Confirms viability (97% of embryos with CA have a normal outcome)
6 weeks	GSD 25mm Embryo 4-9mm Head and trunk distinguishable	MSD > 25mm, if no YS – poor prognosis
7 weeks	Head size = YS Embryo 10-15mm Limb buds Rhombencephalon	MSD > 25mm, if no embryo – poor prognosis
8 weeks	Embryo 16-22mm Midgut herniation Choroid plexus, spine, limbs	
9 weeks	Embryo 23-30mm	
10 weeks	Embryo 31-40mm Stomach, bladder, Skeletal ossification	
11 weeks	Gut returning Most structures identified 4-chamber cardiac view	

DDS Double decidual sign
GSD Gestational sac diameter
MSD Mean sac diameter
IUP Intrauterine pregnancy

A Brief Guide to Management of Early Pregnancy Ultrasound Findings

Ultrasound appearance	Diagnosis	Plan of management
Intrauterine gestational sac (GS), embryo and cardiac activity (CA)	Viable pregnancy	Back to GP for referral to ANC
If actively bleeding		Admit for reassurance
If a significant haematoma noted		Rescan 1 week later
If >12 weeks		Check the need for Anti-D immunoglobulin
GSD <25mm– no YS/embryo	*Possible early pregnancy*	Rescan 1 week later
GSD >25mm– no YS/embryo Measure MSD, (see page 21) MSD < 25mm MSD ≥ 25mm	Uncertain viability - *Rescan1 wk* Silent miscarriage*	*Conservative management, rescan 2 weeks later **OR** Medical/Surgical (see under non-viable pregnancy)
Crown Rump Length (CRL) <7mm CA not demonstrated	*Possible viable* **FH not located**	Rescan 1 week later
CRL ≥ 7mm CA not demonstrated	Silent miscarriage **FH absent**	Rescan 1 week later if still in doubt If no change on second scan discuss management
Empty uterus Adnexal mass Fluid in Pouch of Douglas (POD)	*Tubal Miscarriage/ Ruptured ectopic pregnancy*	Admit for assessment: Observation laparoscopy/laparotomy
Empty uterus Adnexal mass seen No other abnormal finding	*Unruptured ectopic pregnancy*	Conservative/medical management Follow up with serial hCG (see guidelines for ectopic pregnancy)
Empty uterus No adnexal abnormality [Serum β-hCG negative <5] [Serum β-hCG positive]	*Complete miscarriage or never pregnant* *Inconclusive scan (Diagnosis uncertain)* possible early pregnancy possible ectopic pregnancy possiblecomplete miscarriage	No follow-up Repeat serum hCG 48 hours later. Rescan if necessary (see guidelines for 'Inconclusive scan) Warn of the possibility of ectopic pregnancy and to report if severe pain occurs. Give contact tel. numbers.
Pregnancy of Unknown	Diagnosis by exclusion	Follow up with serial β-hCG

Location (PUL)		Treat as potential ectopic
Endometrium/tissue diameter <15mm	*Complete miscarriage*	Advice follow-up 2 weeks later if bleeding persists
Endometrium/tissue diameter >15mm	*Incomplete miscarriage*	Discuss management (see guidelines on management of incomplete miscarriage)
Homogeneous mass within the uterus	Suspect *trophoblastic disease* Serum hCG assay	Surgical evacuation (see guidelines for trophoblastic disease)

Adequate time should be allowed for patients to make decisions. After giving thorough explanation and answers to their queries, allow time in privacy. A quiet room would be more suitable for the pregnant person with their partner/relative/friend. Patients should also be encouraged to go home and telephone later with their decision giving the reassurance that it will not be harmful in the least to do so if they prefer to discuss with their family and contact the unit after one or two days.

Embryos with CRL smaller than expected or no growth noticed after 1 week tend to be chromosomally abnormal.[3] Patients should be reassured that the exact cause of a miscarriage can not be determined and in majority of cases it is due to some genetic abnormality within the conceptus that leads to a miscarriage.[4] Patients should also be told that miscarriages, in general, are not linked to parental chromosomal abnormality. A brief explanation of the outcome of the fertilised ova may be helpful in understanding that not all fertilised ova end up in full term normal pregnancies.

References:

1. Royal College of Obstetricians and Gynaecologists. Guidance on ultrasound procedures in Early Pregnancy. Standing joint committee on obstetric ultrasound of RCR/RCOG. 1995.
2. Royal college of Obstetricians and Gynaecologists. The Management of Early Pregnancy Loss. Guidelines No. 25. London: RCOG; 2006.
3. Drugan A et al. The smaller than expected first trimester fetus is at risk for chromosome abnormalities. Am J. Obstet Gynecol 1992;167:1525-8.
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18. APPENDIX 5 - GUIDELINES FOR RHESUS PROPHYLAXIS

The current recommendations for the administration of anti-D immunoglobulin are as follows[1].

Confirmed miscarriage:
Anti-D immunoglobulin should be given to all non-sensitised Rh D-negative patients who miscarry after 12 weeks, whether complete or incomplete and to all patients who miscarry below 12 weeks when the uterus is evacuated surgically.

Threatened miscarriage:
Anti-D should be given to all non-sensitised Rh D-negative with threatened miscarriage after 12 weeks, in patients in whom bleeding continues intermittently after 12 +0 weeks, anti-D Ig should be given at six weekly intervals.

Routine administration of anti-D is not required below 12 weeks, unless the bleeding is heavy or associated with abdominal pain as gestation approaches 12+0 weeks.

Ectopic pregnancy:
All Rh D-negative patients with ectopic pregnancies whether managed surgically should be given anti-D.

Documentation from the EPAU clinic must clearly state whether or not anti-D was administered in the clinic.

There is minimal evidence that administering Rh immune globulin for first trimester vaginal bleeding prevents maternal sensitization or development of haemolytic disease of the newborn[2].

Administration
Timing: Anti D immunoglobulin should be given as soon as possible within 72 hours of a bleed or treatment. If it is not given within 72 hours every effort should be made to give it within 10 days as this may still provide some protection.

Dose: The recommended dose of Anti-D Ig, before 20 weeks of pregnancy, is 250IU. It is best given into the deltoid muscle as injections into the gluteal region often only reach the subcutaneous tissues and absorption may be delayed. Patients who have a bleeding disorder should receive anti-D Ig via the subcutaneous or intravenous route.

Repeat dose: Where bleeding continues intermittently above 12 weeks, anti D should be given at six weekly intervals.

References:
1. Royal College of Obstetricians and Gynaecologists. The Use of Anti-D Immunoglobulin for Rhesus D prophylaxis. Green-top Guideline No. 22 London: RCOG 2011.
2. Hannafin B, Lovecchio F, Blackburn P. Do Rh-negative patients with first trimester spontaneous abortions need Rh immune globulin? Am J Emerg Med 2006 Jul;24(4):487-9.

19. APPENDIX 6 - MANAGEMENT OF EARLY GESTATIONAL SAC GUIDELINE

At 4^{+2} weeks blastocyst measuring 1.5-2mm is recognisable as an early gestational sac. The appearance of an early gestational sac (EGS) is the earliest reliable sign of pregnancy. The ability to demonstrate a true intrauterine gestational sac practically excludes an ectopic pregnancy since concurrent intrauterine and extrauterine pregnancies are rare.

When a gestational sac-like structure is located within the uterus and no YS is visible, its relationship to the endometrial cavity is carefully studied. One should first confirm that it is definitely a GS rather than a pseudosac.

Ultrasound features of EGS

- It is seen as an anechoic structure with an echogenic rim.
- It is eccentrically placed i.e. it remains within a thickened decidua on one side of the uterine cavity.
- It is typically located in the fundus on the posterior wall.

Gestational sac diameter (GSD) is a useful indicator of Gestational age (GA) before Crown rump length (CRL) measurement is available. GSD is usually measured as the single longest diameter of the sac. For diagnosis of anembryonic sac one should take three measurements (two in longitudinal section of the sac and one in the transverse) and calculate the mean sac diameter (MSD), which should be ≥ 25mm. Make a note of any contents visible within the sac.

An early gestational sac should be distinguished from the pseudosac that occurs in ectopic pregnancy. The pseudogestational sac is merely fluid or blood collection in the uterine cavity and it represents the endometrial cavity itself.

Management Protocol

EGS needs to be differentiated from an *inconclusive scan* result, in which no intrauterine or extrauterine pregnancy is demonstrable. Essentially the findings are normal.

Arrange for a follow up scan in 1-2 weeks

A healthy gestational sac grows by 1.2mm/day.
A yolk sac will usually be visible at next scan in a normal pregnancy.
Presence of a yolk sac is confirmatory of a gestational sac.

There is no risk of missing a complication in this group as they are followed up until an embryo with a heart beat is seen or a miscarriage is diagnosed.

Following up every early gestational sac with serial hCG measurements leads to unnecessary visits and wastage of resources.

20. APPENDIX 7 - GUIDELINES FOR VIABLE INTRA-UTERINE PREGNANCY

Definition: A normally sited gestational sac with clearly identified cardiac activity.
An ultrasound scan of the sagittal section of uterus and cervical canal will demonstrate the intrauterine location of the gestational sac.

A ***threatened miscarriage*** is one in which:

- the patients bleeds a little from the vagina
- cervical os is closed
- there is little abdominal pain and
- pregnancy is still viable

Demonstration of fetal heart activity is generally associated with a successful pregnancy rate of 85-97%[1], depending on the period of gestation. Among patients presenting to EPAU 60% of pregnancies are found to be viable of which about 30% threaten to miscarry. Subchorionic haematomas are seen in up to 18% of patients with a threatened miscarriage[2]. Location of haematomas away from the retroplacental site is more reassuring in the absence of continual vaginal bleeding.

Give advice that:

- *bleeding in early pregnancy is not uncommon*
- *the presence of cardiac activity is reassuring*
- there is no obvious cause for bleeding (but could be from the implantation site or cervix, as it becomes soft and vascular during pregnancy)

Advise to avoid sexual relationship as long as the fresh loss continues.

Give information leaflet on ‘What is a threatened miscarriage’.

All patients attending EPAU receive a contact number.

Advise not to worry if the bleeding continues as it has been and to contact ONLY if the bleeding became heavy and bright.

Patients will go back to GP for referral to ANC via the usual method.

Follow up appointment may be required in the following situations:

1. Significant vaginal bleeding and patient refusing to be admitted
2. A large haematoma[3] is noted
3. Liquor volume is reduced
4. Fetal bradycardia
5. After IUCD/IUS removal in the EPAU

The Cardiac Activity / Fetal Heart (FH):
FH is the term generally used to denote Cardiac activity. Theoretically, cardiac activity should always be evident when the embryo is over 2mm. However, in around 5-10% of embryos between 2 and 4 mm, it can not be demonstrated. In the absence of cardiac activity in an

embryo measuring <7mm, FH is documented as **not located.** A transvaginal scan must be be arranged in one week. FH should be recorded as absent, implying a silent miscarriage, only after confirmation on a second scan.

At 6 weeks	60-150 bpm (mean 125 bpm)
6-9 weeks	175 bpm
Thereafter gradually decreases	
14 weeks	160 bpm (approximately)

Bradycardia has been found in pregnancies that subsequently miscarried. However, a single observation of slow heart rate does not necessarily indicate subsequent embryonic death, follow-up is therefore essential.

Reference:

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21. APPENDIX 8 - MULTIPLE PREGNANCY GUIDELINE

The most common of the multiple pregnancies is the Twin pregnancy.

Twins may be monochorionic or dichorionic.

Around one-third of twin pregnancies in the UK have monochorionic placentas.

Monochorionic placentation can also occur in higher-order multiples.

Ultrasound Prediction of chorionicity
Chorionicity is better assessed by ultrasound before 14 weeks than after 14 weeks.

Establish chorionicity by inspection of the dividing membrane. Look for the 'lambda' or 'twin peak' sign (dichorionic) or 'T-sign' (monochorionic) at the membrane–placenta interface.[1]

Dichorionic Twins
Two separate gestational sacs are seen right from the beginning.
Dichorionic twins may be dizygous or monozygous.

A 'Lambda' or 'Delta' or 'Twin peak' sign:
- The membranes are thick, composed of 4 layers – 2 chorions and 2 amnions.
- It provides strong evidence for chorionicity.
- Lambda or delta or twin peak sign is not consistently present in dichorionic twins.
- If absent does not rule out the presence of dichorionicity.
- Parents can be told that there is a 3-in-4 chance that their twins are non-identical and a 1-in-4 chance that they are identical, if they are of the same sex.[2]

Monochorionic Twins
- Single gestational sac is seen.
- Monochorionic twins may not be identified until the appearance of two yolk sacs within the single gestational sac.
- Two embryos are seen.
- Amnionicity can be established only at 7.5-8 weeks when the amnion starts to separate from the embryo.
- Monochorionic, monoamniotic pregnancies (1% of twin pregnancies) carry a very high risk of cord entanglement.

The 'T' sign:
- Membranes appear T-shaped.
- The membranes have 2 layers of amnion only
- In the presence of the 'T' sign it is extremely likely that the twins are monochorionic.
- Parent**s** can be told that the twins are over 95% likely to be identical.[2]

References:

- Sepulveda W, Sebire NJ, Hughes K, Odibo A, Nicolaides KH. The lambda sign at 10–14 weeks of gestation as a predictor of chorionicity in twin pregnancies. *Ultrasound Obstet Gynecol* 1996;7:421–3.
- Van Jaarsveld CHM, Llewellyn CH, Fildes A, Fisher A, Wardle J. Are my twins identical: parents may be misinformed by prenatal scan observations. BJOG 2012;119:517-518

22. APPENDIX 9 - MISCARRIAGE GUIDELINE

Definition: Miscarriage is spontaneous loss of a pregnancy before 24 weeks.

Sensitivity: Patients feel sensitive about the way we refer to pregnancy loss. As their loss is not out of choice, use of language like termination/abortion can be sometimes offensive to patients at this vulnerable time. Hence documentation for management of early pregnancy loss should be worded appropriately.

Support: At all times patients should be supported in making informed choices about their care and management. Adequate explanation supplemented with written information should be given. Ample time should be allowed for making a decision and if necessary another appointment arranged.

Recognition of the loss, adequate information and support are key to the management of miscarriage. The grief reaction following first trimester miscarriage can be as profound as after still birth.

Importance of Care: *The introduction of Early Pregnancy Assessment Units has assisted the triage of patients presenting with bleeding in the first trimester but has also been associated with more conservative and expectant management of non-continuing pregnancies. Nine patients died as a consequence of complications of spontaneous miscarriage, an increase compared with each of the five previous triennia. Four of these deaths occurred secondary to infection and the remaining five patients died as a result of haemorrhage. Persistent bleeding needs to be recognised as an indication for prompt surgical evacuation of retained products of conception.*[1]

Classification: A miscarriage may be Complete, Incomplete/Inevitable or Silent, depending on the stage of the process.

9.6 Complete Miscarriage[2]

When there has been complete expulsion of the products of conception from the uterine cavity, it is termed as **complete miscarriage**.

Diagnosis on ultrasound scan - AP diameter of endometrial tissue <15mm

It is the morphology rather than the amount of tissue that matters. There may be very little pregnancy tissue giving bright echoes or a large amount of blood showing no echogenicity at all.

A routine follow up appointment is not required after a complete miscarriage.

If one is in any doubt of it being a complete miscarriage on ultrasound scan as there has been no previous scan to confirm the loss, and the urine pregnancy test (PT) is still positive, arrange a PT in three week's time.

Advise patient to do a pregnancy testat home three weeks later.

Give her a contact telephone number to inform if the PT is positive.

However if no tissue is seen on clinical examination or within the uterine cavity, manage as a case of suspected ectopic/inconclusive scan with serial beta hCG assays. The follow up appointment should be after 48 hours.

Diagnosis on clinical examination
If the products of conception have been documented as seen on clinical examination:

- An ultrasound scan is NOT required
- Discharge with the advise to report if bleeding persists longer than three weeks
- Give a contact telephone number
- Provide information leaflet *'What you may have to know after a miscarriage'*.

9.7 Incomplete Miscarriage

Diagnosis on ultrasound scan - AP diameter of Intrauterine tissue >15

Management: If Intrauterine tissue diameter is between 5 - 50mm, consider *non-surgical* approach. It is effective and has no risks involved with surgery.

- ***Conservative method*** should be offered as first line management, provided the bleeding is not heavy. A routine follow-up in all cases is not required as a repeat pregnancy test after 3 weeks can be performed by the patient at home. If bleeding has not started or bleeding and pain are persisting after 3 weeks then a repeat ultrasound scan should be arranged and they patient offered all treatment options if the miscarriage is incomplete.

Alternatively,

- ***Medical management*** may be offered if patient is not willing to wait.

- ***Surgical* evacuation**: *Surgical* method should be reserved for those who:

1. make a specific request for it
2. change their mind during the course of conservative management
3. Tissue diameter of > 50mm
4. have heavy bleeding and/or severe pain
5. have infected tissue (under antibiotic cover)

Studies suggest that, 10% patients who miscarry fall into categories with unstable vital signs or infected tissue[3].

Conservative management of Incomplete Miscarriage has excellent success rate and evidence suggests that it is associated with lower rates of infection than surgical management[4]. Misoprostol has been shown to effectively treat incomplete miscarriage in a number of studies with most showing efficacy at around 90%[5].

Inevitable Miscarriage:
An inevitable miscarriage is one wherein the products of conception are found to be in the cervical canal, and about to be expelled. On ultrasound scan the gestational sac appears elongated and situated in the dilated cervical canal.

Silent Miscarriage: (early embryonic/fetal demise)

Since the introduction of TVS, 'silent miscarriage' and 'anembryonic pregnancy' (absent fetal echo, known as 'blighted ovum' in the past) are felt to reflect different aspects or stages of the same clinical process. Hence the term blighted ovum is now obsolete. It makes no difference to the management whether a pregnancy is embryonic.

Explain all options of management, conservative, medical – home or hospital and surgical.

Conservative management: A good number of patients prefer to leave things to nature to take its own course. Expectant management for 7 -14 days should be used as the first line management strategy (NICE 2014)

Medical management: It may be offered to those who are not willing to wait. Medical approach seems attractive to patients as it gives them some control over the miscarriage.

Surgical management should be reserved for those:

- Who make a specific request for it
- Who change their mind during the course of conservative management
- Where medical management fails
- Incidence of gynaecological infection after surgical, expectant, and medical management of first trimester miscarriage is low (2-3%), and no evidence exists of a difference by the method of management[6].

9.8 Management of Miscarriage

9.8.1 Conservative Management

Patients usually have good access to the facilities and as such a significant number of patients prefer conservative management. It may be continued as long as the patient is willing, provided there are no signs of infection such as:

- Vaginal discharge
- Excessive bleeding
- Pyrexia
- Abdominal pain

Conservative management requires:

- Motivation and preparation
- A thorough and realistic explanation on:
- What to expect: the likely amount of blood loss and pain
- What analgesics to be taken
- What sort of sanitary protection to be used
- Satisfactory answers to their questions and doubts
- Reassurance with regard to infection that it is negligible
- A 24-hour contact telephone number should there be any problems, such as very heavy loss or severe pain. An adequately informed and reassured patient is less likely to contact for any further advice.
- A follow-up appointment for confirmation that the miscarriage is complete
- An information leaflet to support verbal explanation.

Success rates are higher with prolonged follow-up. Follow up scans may be arranged at 2 weekly intervals, until a diagnosis of complete miscarriage is made. However if patient requests a surgical or medical method at any stage it should be arranged.

9.8.2 Medical Management of Miscarriage (MMM)

The MMM has implications for patients safety as it avoids the need for an anaesthetic and surgical instrumentation. The morbidity in those treated medically was lower than in those requiring surgery (1.7% verses 6.6%)[7]. Misoprostol is not licensed for use in miscarriage but is recommended by RCOG. The main advantages over gemeprost are that it does not require refrigeration, it is cheaper and can be administered either by oral or vaginal route.

Varying rates of efficacy have been quoted with medical management of miscarriage. As experience is growing patients are left longer for follow up and higher success rates are achieved.

Cautions

- Asthma
- Haemorrhagic disorders and anticoagulant therapy
- Prosthetic heart valve or history of endocarditis
- Existing cardiovascular disease
- Adrenal suppression (may require corticosteroid)

Use caution with misoprostol in the presence of inflammatory bowel disease.

Prostaglandin (PG) Regimens

- Single dose misoprostol 800microgram (4 x 200microgram tabs) by vaginal route. Oral administration is an acceptable alternative depending on the pregnant person's preference.

A large number of studies have demonstrated excellent results with the use of both oral and vaginal routes administration of misoprostol.

In the case of a pregnancy occurring with an IUCD in-situ, this devise should be removed before administration.

MMM may be carried **out at Home or in Hospital.**

MMM at Home for up to 9weeks gestation

Use the proforma for "MMM at home" available in the unit. (See appendix 13)

This treatment includes:

- Information leaflet
- Informed consent
- TTH:
  - **Medication Required:**

Drug	Dose	Quantity to be supplied
Misoprostol **OR**	400micrograms oral < 7 weeks	2 x 200micrograms
Misoprostol	800micrograms vaginal or sublingually 7 – 9 weeks	4 x 200micrograms
Co-codamol 30/500	TWO tablets FOUR times a day every six hours if required	30

Azithromycin	1g orally as a single dose	4 x 250mg
Doxycycline	100mg twice a day for seven days	14 x 100mg
Metronidazole	800mg orally as a single dose	2 x 400mg

- ***Azithromycin OR doxycyline to be prescribed**

- A 'Care Plan' to be attached to the front of notes to record all patient episodes for the ease of follow up
- Advice, blood tests, and follow up as under MMM in Hospital

MMM in Hospital[9]

- Use printed **'Integrated pathway'** booklets on Medical management of miscarriage
- Ensure that the patient has understood and read the information leaflet
- Ask if she has any questions
- Arrange admission with gynaecology ward.
- Obtain written consent for misoprotol +/- surgical evacuation
- Inform the patient regarding the length of stay on the ward. Observe for three-six hours after administration of prostaglandin and discharge if clinically well.
- Inform that in case of heavy bleeding ERPC may be required and therefore she should be prepared to stay overnight if necessary
- Patients may or may not pass POC while on the ward. They should be advised of what to expect when they go home and not referred to EPAU for a scan before their follow up appointment as most of them would miscarry at a later stage after discharge from the hospital.

Prescribe in the integrated pathway:

- **Medication Required:**

Drug	**Dose**
Misoprostol **OR**	400micrograms oral < 7 weeks
Misoprostol	800micrograms vaginal or sublingually 7 – 9 weeks
Co-codamol 30/500	TWO tablets FOUR times a day every six hours if required
Azithromycin	1g orally as a single dose
Doxycycline	100mg twice a day for seven days
Metronidazole	800mg orally as a single dose

- ***Azithromycin OR doxycyline to be prescribed**
-

Patients with gestation:

- <9 weeks on scan have only one insertion of misoprostol 800 micrograms vaginally. Misoprostol tablets are administered usually by the pregnant person themselves.
- >9 weeks on scan can have a maximum of four further doses of misoprostol 400 micrograms at 3-hourly intervals, orally.

Further advice, blood tests and follow up

- Give patient information on:

- Admission to gynaecology ward
- Medical management of non-viable pregnancy
  - ⇨ the likely amount of blood loss, be realistic
  - ⇨ to take analgesics at the time of insertion of misoprostol
  - ⇨ sanitary protection – only sanitary towels to be used and no tampons
  - ⇨ Arrange blood tests
- a full blood count and
- determination of ABO and Rhesus blood groups with screening for red cell antibodies

Infection rates after expectant, medical and surgical management are not significantly different and are reassuringly low[10].

Misoprostol and Pyrexia
Fever and shivering are commonly associated with prostaglandins but are predominantly transient, self limiting and do not result in additional health complications. Temperature increase within one hour of administration with a peak in temperature rise between 1 -2 hours following administration with decline over a period of three hours. Routine conservative practices such as antipyretic medication, encourage fluid intake, damp sponging or fans may be considered. RCOG (2011) report a study where treatment with intravenous antibiotics for presumed infection accounted for all excess morbidity in patients undergoing medical abortion.

9.8.3 Surgical Evacuation

Surgical evacuation should be preferably managed on a day case basis unless there is heavy bleeding. Alternatively, the patient needs to be admitted to the Gynaecology ward.

Give the patient information on admission procedure including appropriate patient information leaflet(s). Explain the surgical procedure and obtain written consent with Doctor familiar with procedure. Mention rare anaesthetic and uncommon surgical risks involved such as uterine perforation (1%), cervical tears, intra-abdominal trauma (0.1%), intrauterine adhesions, haemorrhage and infection.

Arrange for measurement of haemoglobin concentration and determination of ABO and Rhesus blood groups. Administer Anti-D immunoglobulin to all non-sensitised Rh negative patients undergoing surgical evacuation.

All at risk patients (usually patients under the age of 25 years) undergoing surgical evacuation for miscarriage should be screened for *Chlamydia trachomatis.*[11]

Alternatively, give azithromycin 1g orally as a single dose prior to discharge.

Prescribe prophylactic co-amoxiclv 1.2g IV to be given at the time of induction and metronidazole 1g rectally at the time of surgical evacuation as per the local protocol.

Ensure that products of conception are seen at evacuation.

Routine histopathology investigation for miscarriage and social termination of pregnancy is of limited clinical value therefore should not be requested (NICE 2012). The decision regarding the indications for referral of a placenta for histopathology should be determined by the Consultant Gyneacologist responsible for the care of the patient in line with The Royal College of Pathologists (2011) Tissue pathway for histopathological examination of the placenta which contains a suggested list of indications for referral in Appendix A.

A follow-up appointment is usually not required after a surgical evacuation.

Give patient information on *"What you may need to know after a miscarriage".*

References:

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2. MC et al. The reliability of ultrasonography in the management of spontaneous abortion, clinically thought to be complete: a prospective study. Am J Obstet Gynaecol 1993; 168 (1): 12-5
3. Ballagh SA et al. Is curettage needed for uncomplicated incomplete spontaneous abortion? Am J Obstet Gynecol 1998; 179 (5) 1279-82.
4. Trinder J, Brocklehurst P, Porter R, Read M, Vyas S, Smith L. Management of miscarriage: expectant, medical, or surgical? Results of randomised controlled trial (miscarriage treatment (MIST) trial). BMJ 2006;332(7552): 1235-38
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12. Royal College of Pathologists. Histopathology of Limited or no Clinical Value: Report of a Working Party Group. London: RCPath; 2002.
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23. APPENDIX 10 - MANAGEMENT OF GESTATIONAL TROPHOBLASTIC DISEASE MANAGEMENT

Incidence: 1.4 / 1000 live births in the UK. Women from Asia have a higher incidence compared with non-Asian women (1/387 versus 1/752 live births).
Risk of further molar pregnancy is low – 1 in 80
More than 98% of patients who become pregnant following a molar pregnancy will not have a further molar pregnancy nor are they at increased risk of obstetric complications.
Need for chemotherapy: in complete mole 15%
in partial mole 0.5%

Ultrasound features in trophoblastic disease	**Diagnosis**
Uterine cavity filled with homogeneous central echoes and no gestational sac	Complete mole
Complex mass with multiple echo free spaces in the placenta. (The ultrasound features of a complete mole are reliable but the ultrasound diagnosis of a partial molar pregnancy is more complex.) May have recognisable foetus present with possible triploidy.	Partial molar pregnancy
Twin sacs, one viable fetus and the other complex mass with cystic spaces	Twin pregnancy with a viable fetus and mole (complete or partial)
Ovaries: Soap bubble or spoke-wheel appearance of the ovaries in up to 50% of cases	Theca lutein cysts secondary to the very high hCG levels

Colour flow imaging can be helpful in demonstrating avascular nature of the mass.

Explain the diagnosis and the need for follow-up in a screening centre.

Twin pregnancy of a fetus and coexistent molar pregnancy:

- The outcome for a normal pregnancy with a coexisting **complete mole** is poor, with approximately a 25% chance of achieving a live birth. There is an increased risk of early fetal loss (40%) and premature delivery (36%).
- A twin pregnancy with a **partial mole** may proceed after appropriate counselling. Prenatal invasive testing for fetal karyotype should be considered.

However if complications such as pre-eclampsia and haemorrhage develop, termination of pregnancy may be indicated. The probability of achieving a viable baby is 40%.

Investigations:
FBC, blood group and thyroid function tests
hCG measurements (hCG levels are enormously raised)
Chest x-ray if any chest symptoms
Review with hCG results.

Arrange for surgical evacuation in Day unit/ Gynae ward.
Give patient information leaflets on:

- Admission to Day Surgery Unit or Gynae ward
- Understanding Hydatidiform Mole

Treatment:
Surgical evacuation is the treatment of choice. Because of the lack of fetal parts, a suction curette of 12 mm is usually sufficient to evacuate complete molar pregnancies.

Cervical preparation prior to surgical evacuation is safe.

Routine repeat evacuation is not warranted. It may be recommended in selected cases. In such cases consultation with the screening centre should be sought.

Avoid:

- Medical evacuation, since mifepristone increases the sensitivity of the uterus to prostaglandins
- Oxytocic agents, until evacuation of the mole is completed. If patient is experiencing significant haemorrhage prior to evacuation use of oxytocics will be necessary.

In partial molar pregnancies where the size of the fetal parts deters the use of suction curettage, medical termination can be used.

Histology

- All products of conception obtained after evacuation should be sent for histopathological examination.

Follow-up:

- Arrange weekly HCG until histology results available and registration at tertiary centre is complete.
- Advice on contraception:
  - May use any hormonal preparation including “the pill” before hCG levels have returned to normal.
  - not to use intrauterine contraceptive devices until hCG levels are normal to reduce the risk of uterine perforation
  - If oral contraception has been started before the diagnosis of GTD was made, the pregnant person can be advised
  - to remain on oral contraception but she should be advised that there is a potential but low increased risk of developing GTN.

Advice on future pregnancies:

- Patients should be advised not to conceive until the hCG level has been normal for six months.
- Patients who undergo chemotherapy are advised not to conceive for one year after completion of treatment.

Patients with persistent abnormal vaginal bleeding after a nonmolar pregnancy should undergo a pregnancy test to exclude persistent GTN.

REGISTRATION AT GTD SCREENING CENTRES

FILL UP AND DESPATCH REGISTRATION FORM FOR THE REGIONAL SCREENING CENTRE AT CHARRING CROSS HOSPITAL, LONDON. FURTHER INFORMATION MAY ALSO BE OBTAINED FROM THE HYDATIDIFORM MOLE AND CHORIOCARCINOMA UK INFORMATION SERVICE WEBSITE AT WWW.HMOLE-CHORIO.ORG.UK.

Follow up after GTD is individualised.by the tertiary centre.

Screening centres

Trophoblastic Tumour Screening and Treatment Centre
Department of Medical Oncology
Charing Cross Hospital
Fulham Palace Road
London W6 8RF
Tel: +44 (20) 8846 1409
Fax: +44 (20) 8748 5665
Website: www.hmole-chorio.org.uk

REFERENCE:

1. Royal College of Obstetricians and Gynaecologists. The Management of Gestational Trophoblastic Disease. Guidelines No. 38 London: RCOG February 2012

24. APPENDIX 11 - ECTOPIC PREGNANCY AND RELATED PROBLEMS

24.1. Suspected Ectopic Pregnancy

On Initial Presentation
All patients of reproductive age presenting with abdominal pain or vaginal bleeding should have:

1. A urine pregnancy test
2. Documentation of clinical history any risk factors for ectopic pregnancy in the medical records
3. A clinical assessment for any clinical signs associated with ectopic pregnancy
4. An Ultrasound scan (USS) if the pregnancy test is positive to confirm location and viability of pregnancy
    - Record ultrasound findings and file images on to the mount sheet
    - If ultrasound scan result is **'inconclusive'** (i.e. no intrauterine early gestational sac (EGS) or ectopic pregnancy seen)
    - See Flowchart for 'Inconclusive scan'
    - Explain the possible outcomes
    - Explain the need for further follow up
    - Perform serum β-hCG assay
5. When USS is not available:
    - Arrange Serum β-hCG assay

<u>Clinical picture normal</u>

- Make an appointment in EPAU for a review two-three days later (as an USS may not always be required and hence do not give patients unrealistic expectations)
- Provide telephone numbers of Emergency Gynaecology Unit and EPAU with appointment details before the patient leaves the unit in case of ***increased*** pain or ***heavy*** bleeding and need of advice
- Document the plan of management in the patient's notes
- If there is evidence of a small **early gestational sac (EGS)** please refer to the guidelines on early gestational sacs. In this case it is no longer classified as an inconclusive scan and β-hCG assays are not required.

At Follow-up visit

- Review the previous blood results and any ultrasound findings
- Review patient and her clinical symptoms
- Offer further information and support
- Perform serial **β-hCG** assay every 2-3 days until a diagnosis is established
- Suspected ectopic pregnancy should be discussed with the Consultant on call.
- Interpretation of the serial serum hCG results will dictate the management plan

If and when necessary,

- Perform Ultrasound scan
- Repeat the serum β-hCG

Follow up until a diagnosis is made of either;

- *An early intrauterine pregnancy (IUP) - viable or non-viable*
- *A complete miscarriage*
- *An ectopic pregnancy or*
- *A pregnancy of unknown location (PUL)*

24.2. **Definitions of terms used**

I. Ectopic Pregnancy

An ectopic pregnancy is defined as a pregnancy which has implanted outside the normal intrauterine cavity. Different types of ectopic and their diagnosis and management are dealt with in the latter part of this section.

II. Intrauterine Pregnancy (IUP)

An intrauterine pregnancy, viable or non-viable, may become apparent at subsequent scans.

III. Complete Miscarriage

A diagnosis of complete miscarriage is made taking into consideration a history of heavy vaginal loss, negative ultrasound scan and rapidly falling hCG levels.

IV. Inconclusive Scan

In patients with a positive pregnancy test, an 'Inconclusive Scan' is defined as no evidence of an intra- or extrauterine pregnancy on transvaginal ultrasound.

V. Pregnancy of Unknown Location (PUL)

When the initial ultrasound scan has been inconclusive, clinical follow up may disclose one of the above definite diagnosis I to III. Give patients explanation on these possible scenarios at the first consultation when the scan result is negative.Tthe term PUL is used for those pregnancies in which a persistent level of hCG in the serum is noted at follow up.

Similarly, diagnosis of PULs by a process of exclusion of all possible scenarios such as a complete miscarriage, an intrauterine pregnancy or an ectopic pregnancy seems a more consistent approach to this problem of early pregnancy. Patients should be followed up until hCG has fallen to <20 IU/L. Majority of PULs resolve spontaneously and those that have a persistent hCG level will require Methotrexate as described under medical management of ectopic pregnancy.

Likely diagnosis:

With bleeding - Miscarriage
Ectopic pregnancy
PUL – Resolving

With no bleeding - Normal intrauterine pregnancy

24.3. Understanding hCG measurements

Urine Measurements

The urine test is simple and reliable enough to be used routinely to establish whether or not a pregnant person is pregnant.

A positive urinary pregnancy test should have been carried out before an ultrasound scan is arranged.

Serum Measurements

Measurement of hCG in Serum, permits more accurate quantification which may be useful in the following.[3]

1. Screening in patients at high risk of ectopic pregnancy
2. Determining the appropriate treatment for patients with suspected ectopic pregnancy
3. Monitoring during expectant management or medical management of patients with ectopic pregnancy
4. Evaluation of conservative surgical treatment of ectopic pregnancy

Serum hCG levels double approximately every **two days** in early (<8 weeks) normal intrauterine pregnancy; a lesser increase (<66% over 48 hours) is associated with ectopic pregnancy and miscarriage.[4]

To find out whether or not a pregnancy is normal or pathological, the two useful clinical concepts of hCG measurement are the ***hCG doubling time*** and the ***discriminatory hCG level.***

hCG doubling time

It refers to the time taken for the hCG level to double its original value. An hCG value of <5iu/L is considered to be the non pregnant value.

The doubling time is particularly useful in early pregnancy i.e. before 5.5 weeks or when the serum hCG level is <5000 iu/L. As pregnancy progresses the doubling time also lengthens.

However 15% of normal pregnancies will have abnormal doubling time and 13% of ectopic pregnancies will have a normal doubling time.[5]

Caution

1. In multiple pregnancies the level of hCG on D2 would be a little higher, requiring an extra two or three days for a sac to become visible.
2. The possibility of a heterotopic pregnancy should be kept in mind (1 in 3000 – 4000 of spontaneous conceptions and 1% - 3% of assisted conceptions).

Discriminatory hCG level

It refers to a defined level of hCG above which the gestational sac of an intrauterine pregnancy should be visible on ultrasound. In patients with a hCG result above the discriminatory level, but absence of an intrauterine gestational sac on ultrasound, ectopic pregnancy is a distinct possibility.

With the use of high resolution transvaginal ultrasound the discriminatory level has been reported to be around 1000 iu/L IRP[6]. However the American Fertility Society (1992) suggested that in practice the level ought to be around 2400 iu/L.

The discriminatory level may vary in different units and depends on three factors:

i) hCG assay
ii) quality of ultrasound
iii) the experience of the person performing the ultrasound

It usually lies between 1000 – 2400 iu/L.

A diagnosis of ectopic pregnancy is more likely whenever intrauterine pregnancy is not detected by ultrasound at serum hCG concentration above 2400 iu/L.

References:

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24.4. Ectopic Pregnancy

Incidence
The incidence of ectopic pregnancy has remained static in recent years (11.1/1000 pregnancies). In the EPAU population the incidence is 3%.

In the triennium 2006-2008[1] six women, all of whom had previously been pregnant, died from ruptured ectopic pregnancies during the first trimester of their pregnancy. None of these gestations were cornually or interstitially located. The case fatality rate of ectopic pregnancies in this triennium is the lowest since these figures were first estimated in 1988. This decline, however, has not reached statistical significance as four of the six womenwho died from early ectopic pregnancies again complained of diarrhoea, dizziness or vomiting as early symptoms, without triggering any consideration of extrauterine pregnancy by their medical attendants.

The psychological impact of an ectopic pregnancy is not to be overlooked. The emotional as well as the clinical needs of individual patients should be assessed and managed sensitively. Patients have to cope with: the loss of a baby, the possible loss of fertility and the possible loss of their life.

Site
The most common site is the fallopian tube accounting for nearly 95% of ectopic pregnancies. Other possible sites of an ectopic pregnancy are, interstitial (2%), cervical (0.1%), ovarian (0.01%), caesarean section scar or abdominal (rare). An abdominal ectopic pregnancy may be primary or secondary resulting from a tubal miscarriage.

Risk factors
Risk factors are present only in 25% - 50% of patients with an ectopic pregnancy. They include a history of:

- previous pelvic inflammatory disease
- tubal surgery
- previous ectopic pregnancy
- infertility
- assisted reproductive technology
- intrauterine contraceptive device

The diagnostic performance based on the combined use of transvaginal sonography (TVS) and serum hCG measurement reaches sensitivities and specificity range 95% - 100%[2]. Patients who have had previous ectopic pregnancies or are at risk of ectopic pregnancy should be advised to present early in subsequent pregnancies for confirmation of uterine pregnancy[3].

Symptoms

- Amenorrhoea (not universal)
- Vaginal bleeding
- Abdominal pain
- Faintness / dizziness
- Shoulder tip pain
- GI symptoms - diarrhoea or pain on defecation

Signs

- Abdominal tenderness
- Adnexal tenderness and /or mass
- Cervical excitation
- Shock/Collapse
- The clinical presentation and natural course of an ectopic pregnancy are unpredictable. It is important to have a high index of suspicion for ectopic pregnancy, because the patient may not be symptomatic until rupture occurs, or on the other hand the patient may experience vague abdominal pain and/or vaginal bleeding.

Diagnosis

Ultrasound features

Like any pregnancy an ectopic pregnancy too has a natural history of evolution, hence the ultrasound findings depend on the developmental stage at the time of examination.

Almost all ectopic pregnancies occur in the fallopian tube. Ultrasound features suggestive of ectopic pregnancy are a combination of uterine and adnexal findings:

Uterine:

- an empty uterus
- Variable degree of thickening of endometrium
- A thin endometrium may exclude the possibility of an early intrauterine pregnancy as it is not compatible with an ongoing early implantation
- An intrauterine pseudosac - mere collection of variable amount of fluid within uterine cavity, is found in approximately 5% of all ectopic pregnancies

Adnexal:

- A hyperechogenic tubal ring (‘doughnut’ or ‘bagel’ sign) is the most common finding on scan, probably due to early scanning
- A mixed adnexal mass – either tubal miscarriage or tubal rupture
- An ectopic sac with a yolk sac or an embryo with or without a heart beat
- Fluid in the Pouch of Douglas

The corpus luteum may be present on the ipsilateral side as the adnexal mass in 85% of cases. Upto 5-30% of patients with tubal ectopic pregnancy may not have positive adnexal findings.

Management

If the patient is in significant discomfort she should be admitted to the ward. If she is clinically stable with no discomfort she may be allowed home to return for follow up. Direct contact number for the early pregnancy unit and gynaecology ward should be given and the patient asked to attend at any time if her condition deteriorates.

In the absence of any diagnostic features on ultrasound scan (Inconclusive scan result) and a positive urine pregnancy test serial hCG assay are performed.

Serum hCG assay
An ectopic pregnancy is more likely when the serum hCG is more than 1000 iu/L.
However in the absence of any pain, hCG is to be repeated in 48 hours time.

If the hCG is falling it is suggestive of a resolving intra or extrauterine pregnancy. The rate of fall of hCG tends to be slower in ectopic pregnancy than with complete miscarriages.

A serum hCG level that is increasing or has plateaued may either show an ectopic pregnancy at subsequent scan or remain as a PUL.
Transvaginal ultrasound and quantitative assay of serum hCG not only play a role in the diagnosis of an ectopic pregnancy but also in determining the management options in a particular patient.

Discuss options for management:

1. **Conservative/Expectant management**
2. **Medical management**
3. **Surgical management**

    Either laparoscopic or open
    a. salpingotomy
    b. salpingectomy

Both the ***hCG levels*** and the ***patterns of change of hCG*** are helpful in constructing a plan for ectopic pregnancy.

24.5. **A Guide to Choosing the appropriate treatment based on hCG Measurements and the expected Serial hCG patterns in the follow-up of ectopic pregnancy**

(The clinical picture should always be considered with hCG measurements)

hCG level	Method of treatment	Expected hCG pattern
Low < 1000 iu/L	Expectant management	Steady downward trend
< 1000 iu/L Fluctuating 1000-3000 iu/L	Medical treatment	There may be an initial rise of hCG
> 3000 iu/L – 5000 iu/L	Medical	In carefully selected cases.
> 3000 iu/L+ Viable pregnancy or clinically indicated.	Salpingotomy/ Salpingectomy	Following salpingotomy, 48 hr level ought to be <35% (1/3rd) of pre-operative level. The practice is to repeat after 1 week. No follow up hCG is required after salpingectomy.

IMPORTANT: ***Senior review is essential if deviating from any areas of the protocol.***

24.6. Conservative Management of Ectopic Pregnancy

Not all ectopic pregnancies progress and pose a risk to the pregnant person. Spontaneous resolution of tubal ectopic pregnancies has been well documented in a number of reports.

Selection Criteria for Expectant Management

1. absence of clinical symptoms
2. no sign of rupture or intraperitoneal bleeding
3. a haemoperitoneum of <100ml
4. a tubal mass of less than 2cm
5. no fetal parts
6. serum hCG concentrations below 1,000 iu/L and declining progressively[4]

Haemoperitoneum and conservative management

The finding **of haemoperitoneum** on ultrasound examination may not be an absolute contraindication to conservative management of tubal ectopic pregnancy.[5]

Additional inclusion criteria for conservative management in this study were:
compliance

- stable haemoglobin level on two measurements (0 and 12-24 h apart)
- serum human chorionic gonadotrophin (hCG) < 5000 IU/L
- absence of fetal cardiac activity on TVS
- absence of significant haemoperitoneum, defined as blood above the level of the uterine fundus and/or in Morison's pouch (hepatorenal space).
- Subsequent management was based upon the hCG ratio at 48 h.

All the patients were managed as inpatients until the abdominal pain settled and the serum hCG levels were falling.

Success rate:
The success rate for a spontaneous resolution was 88% when the initial hCG level was <2000 iu/L[6] but only 25% at levels >2000 iu/L[7]. The likelihood of spontaneous resolution is inversely related to the hCG level at initial presentation.

Risk of Rupture
But there is no threshold below which success is guaranteed, and rupture of an adnexal mass can occur even when hCG has decreased to 25 iu/L .[8, 9] This explains the need for follow up until the hCG level has fallen to <15 iu/L. It often involves frequent hospitalisation and/or follow up. Both the physician as well as the patient must be well motivated to accept the long recovery time.

Follow-up:
Monitor serum hCG levels every 2-3 days until less than 15 iu/L, and rescan when required.

Reproductive Outcome:
Hysterosalpingography performed after conservative management has shown patency in the affected tube in upto 93% of cases. [10]

24.7. Medical Management of Ectopic Pregnancy

Many agents including prostaglandins, RU-486, potassium chloride and actinomycin-d have all been tried, but the great majority of patients receiving medical therapy have been treated with methotrexate. A single injection of methotrexate[11] is well tolerated and is effective. Published studies have shown a success rate varying from 52% to 94% for single dose methotrexate. Methotrexate may also be administered locally. [12]

Systemic Methotrexate Treatment in Ectopic Pregnancy

Methotrexate is a folic acid-antagonist (anti-metabolite) which prevents the growth of rapidly dividing cells by interfering with DNA synthesis. It can be administered systematically (IV, IM or orally). Methotrexate is given intramuscularly as a single dose calculated from patient body surface area (50 mg/m^2).

Inclusion Criteria

1. Haemodynamically stable
2. Indications:- Unruptured tubal or other ectopic pregnancy (diagnosed with serial hCG and TVS)
   - Persistent trophoblast after salpingotomy
3. An ectopic pregnancy with serum hCG less than 3,000 iu/L **within 48 hours** of decision to treat
4. An ectopic pregnancy with serum hCG value less than 1,000 iu/L should have repeat serum hCG within 48 hours if the patient remains haemodynamically stable.

- The treatment should begin if the levels of hCG are plateauing
- If the levels of hCG are rising one must exclude intrauterine pregnancy before starting treatment

5. Normal LFTs, U & Es, and FBC

Exclusion Criteria

1. If there is progressively significant intraperitoneal haemorrhages i.e. free fluid in the pelvis on TVS.
2. Ectopic mass >3.5cm.
3. The presence of cardiac activity in an ectopic pregnancy
4. Difficulty with compliance (average follow-up 35 days).
5. Any hepatic dysfunction, thrombocytopenia (platelet count <100,000), blood dyscrasia (WCC <2000 cells cm^3).
6. Women on concurrent corticosteroid therapy

In carefully selected cases, out of protocol management may be successful.

Treatment Protocol

1. Satisfy eligibility and exclusion criteria.
2. Counsel the patient and explain treatment protocol. Give information leaflet.
3. Organise base line blood tests, FBC, blood group, LFTs and U&Es including serum hCG.
4. Check blood results, prescribe anti-D immunoglobulin if Rhesus-negative.
5. Take height in cm and weight in kg, calculate body surface area. Use BNF site via clinical portal.
6. Prescribe methotrexate on the prescription chart the dose is 50mg($m^{2)}$
7. Methotrexate is given intramuscularly in buttock or lateral thigh. The empty syringe or needle and the apron used should be placed in a separate Sharp Safe, labelled "Cytotoxic waste for special incineration".
8. Let the patient rest up to two hours. Check for any local reaction. If local reaction noted consider anti-histamine or steroid cream (very rare).
9. Arrange follow-up in a week's time in EPAU.

Medical Management of Ectopic Protocol

PatientsName: Address: DOB:	Consultant: Date:

Details of Diagnosis:

Calculation of body surface area from:

https//www.medicinescomplete.com/mc/bnflegacy/64/PHP18585-body-surface-area.htm

Weight [ ] Kgs Height [ ] cms Body surface area [ ] m2

Dose of Methotrexate 50mgs per m2 [ ] mgs

Date	Test	Result
	LFT	
	U&E'S	
	FBC	
	Q BHCG	
	Blood Group	

Methotrexate given YES/NO

Forms completed for repeat bloods Day 4 [ ] Day 7 [ ]

Appointment for repeat USS on .....

Signature:		Date:	

Day 7 Review

Date	Test	Result
	LFT	
	U&E'S	
	FBC	
	Q BHCG	
	Blood Group	

2nd Dose Methotrexate required YES/NO

Signature:		Date:	

Regime:

- Day 1 FBC, LFTs, U &Es, serum hCG and methotrexate
- Day 4 serum HCG
- Day 7 serum hCG, FBC, LFTs and U&Es
- Day 7 blood results should be reviewed with regard to resolution, need for a second dose or surgical treatment should be determined if reduction in HCG is <15%...
- Thereafter blood tests should be repeated once weekly until levels of hCG drop below 5 iu/L.

Information for Clinician

1. Up to **75%** of patients may complain of pain on days 3 – 7 (thought to be due to tubal miscarriage).
2. Benefit of D4 β-hCG: A decline in by day 4 after methotrexate treatment appears to be highly reassuring and a rise in β-hCG is less so. (100% vs. 62% - Nguyen et al)[13] (88% vs. 42% - Skubisz et al)[14] A second dose will still not be justifiable on D4 routinely as 62% and 42% of patients in these two studies had treatment success.
3. A second dose of Methotrexate may be given at 7 days if hCG levels fail to fall from the pretreatment value. (**14%** of medically treated patients will require more than one dose of methotrexate)
4. Mean time to resolution is **35 days**.
5. Risk of tubal rupture is **7%** and the risk remains while there is persistent hCG.
6. Folinic acid rescue is not required for this single dose regime.
7. Avoid vaginal examination. TVS may be undertaken during first treatment week or subsequently if clinically indicated.
8. TVS should be used to monitor completeness of resolution of an ectopic pregnancy after hCG values are normalised.[15]
9. Ovarian cysts may be found in the post treatment phase, which undergo spontaneous resolution.

Information for patients

1. Medical treatment for ectopic pregnancy is now well established, and approximately **90%** of patients do not require further surgery. Methotrexate is used for a variety of clinical conditions, e.g. psoriasis, as well as for malignancies.
2. Prolonged follow-up (average 35 days) is required with blood tests until serum hCG level is below 5 iu/l.
3. A further dose of methotrexate may be necessary in **14%** of cases.
4. **75%** of patients experience abdominal pain following treatment, which is due to the drug acting on tubal pregnancy. It usually occurs on days 3-7.
5. Pregnancy should be avoided for 3 months after methotrexate has been given, because of a possible teratogenic effect and increased risk of spina bifida – use a reliable barrier or hormonal contraception. (RCOG). If pregnancy occurs then daily 5mgs folic acid and 15mg folinic acid weekly is recommended. Patient to sign that they understand pregnancy risks on methotrexate form.
6. Side effects of the drug are minimal but may include nausea, vomiting and stomatitis.
7. Maintain ample fluid intake.
8. Avoid alcohol or folic acid containing vitamins during treatment.
9. Avoid sexual intercourse until resolution of the ectopic pregnancy.
10. Avoid exposure to sunlight.

Outcome

- **90%** successful treatment with single dose regime.
- Recurrent ectopic pregnancy rate 10 – 25%.
- Tubal patency approximately 80%.

24.8. Surgical Management of Ectopic Pregnancy

Laparoscopy

In the haemodynamically stable patient, laparoscopy is preferable to open approach.

Advantages
- Shorter hospital stay (1 – 2 days)
- Significantly less blood loss
- Less adhesions formation
- Lower analgesic requirements
- Quicker post operative recovery time
- Recurrent ectopic pregnancy rate lower (5%) than after laparotomy (16.6%)
- Subsequent intrauterine pregnancy (IUP) rate better (70%) than after laparotomy

Disadvantages - Increased risk of bowel/vascular damage

A laparoscopic approach is superior to a laparotomy in terms of recovery from surgery

Laparotomy is to be preferred:

- in cases with haemorrhagic shock
- where a surgeon has inadequate experience of operative laparoscopy
- if lack of equipment and instruments

Do what is safe in the circumstances.

Salpingectomy v Salpingotomy

The following observations were made in a meta-analysis of nine good quality comparative studies:

- There was no significant difference in the IUP between salpingotomy and salpingectomy (53% v 49.3%)
- The recurrent ectopic pregnancy rate was higher after salpingotomy (15%) than after salpingectomy (10%)
- Persistence of trophoblast was noted in 4.8% to 11% of salpingotomy cases, hence need to monitor hCG postoperatively
- In contrast almost no cases of persistence followed salpingectomy. Following salpingectomy, there is no need to measure hCG in the post-operative period

In the presence of a healthy contralateral tube there is no clear evidence that salpingotomy should be used in preference to salpingectomy.

Laparoscopic salpingotomy should be considered as the primary treatment when managing tubal pregnancy in the presence of contralateral tubal disease and the desire for future fertility.[16]

Discuss treatment with the patient and options of conserving or removing the tube.

Recommendations arising from the 33rd RCOG Study Group[3]

No. 26 At laparoscopy for ectopic pregnancy, precise documentation of the state of the pelvis, with particular emphasis on the affected and contralateral tube and ovaries, should be undertaken to determine prognosis of future fertility.

No. 27 The definitive procedure undertaken at surgery (removal of the ectopic: salpingotomy; unilateral salpingectomy; bilateral salpingectomy) should be determined by the reproductive aspirations of the patient, their reproductive history, the state of the pelvis and the availability of assisted conception services.

No. 28 Fimbrial evacuation (milking) of ectopic pregnancy from the fallopian tube should not be done as it predisposes to persistence of tubal pregnancy

Follow-up regime after Salpingotomy

While trophoblast remains in the tube it has a capacity to rupture.

- Follow-up at weekly intervals until serum hCG level is <5 iu/L.
- If hCG level is rising or plateauing consider further treatment with Methotrexate or surgery if hCG levels 3000 -5000iu/L

Outcome after Conservative Surgery in Patients with One Tube

- Recurrent ectopic pregnancy rate 20.5%
- IUP rate 54%

Conservative surgery may be appropriate but only if the patient is aware of the risk involved. Salpingectomy followed by IVF is an alternative therapy in such cases.

24.9. **Management of ruptured ectopic with collapse**

- ABC of resuscitation
- Get help; call senior SPR on call and anaesthetist
- Site two IV lines (at least 16g), commence IV fluids (crystalloid), give facial oxygen and insert indwelling catheter
- Send blood for FBC, Clotting screen and cross-match at least 4 units of blood.
- Arrange admission and laparotomy
- Continue fluid resuscitation and ensure intensive monitoring of haemodynamic state whilst awaiting transfer to theatre
- Do not wait for BP and pulse to normalise prior to transfer
- Pfannenstiel incision, locate tube directly and clamp
- Salpingectomy and wash out of abdomen
- Assess bloods, consider CVP / HDU discuss with anaesthetist
- Record operative findings including the state of the remaining tube

Anti – D immunoglobulin to be given to Rhesus negative patients.

24.10. **References:**

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24.11. **Unusual Sites of Ectopic Pregnancy**

Ultrasound features of non-tubal pregnancies and their management have been well documented. [1,2,3,4]

Heterotopic pregnancy
Interstitial pregnancy
Cervical pregnancy
Ovarian pregnancy
Caesarean scar pregnancy
Abdominal pregnancy

Management of these ectopic pregnancies is not straight forward. Treatment has to be individualised based on the size of the pregnancy and its viability.

Ectopic pregnancy	Ultrasound features	Management
Heterotopic	- An intrauterine pregnancy and a concurrent ectopic pregnancy	Surgical
Interstitial	- Bright echogenic trophoblastic tissue or gestational sac (GS) in the cornual region. - GS located away from the lateral margin of the myometrium - Thinning of the myometrial mantle	Conservative/Methotrexate (MTX)
Cervical	- Intracervical GS - Thick trophoblastic ring - No distortion of endometrium and cavity - Closed cervical canal in continuity with the endometrial cavity - Internal os not funnelled (Should be differentiated from isthmico-cervical pregnancies that are implanted low in the uterine cavity, above the cervical canal)	Conservative/MTX/surgery
Ovarian	- Hyperechogenic mass within the ovary Subcapsular bleeding(must be distinguished from a haemorrhagic cyst)	Conservative/Methotrexate
Caesarean scar	- Uterine cavity is empty - GS implanted into the scar in the anterior part of the isthmus of the uterus - Negative 'sliding sign'[5]	Refer to Bristol
Abdominal	- Empty uterus separate from the fetus - Fetus seen without the surrounding uterine mantle - Unusual location of the placenta - Extremely low amount of liquor	Methotrexate/Laparotomy

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25. APPENDIX 12 - SUPPORT, FOLLOW-UP AND COUNSELLING AFTER A MISCARRIAGE

There has been a definite move over the last 10 years to manage miscarriage problems with greater sensitivity and understanding. Medical, nursing and ultrasonography staff should be trained in counselling skills, support techniques and other issues around problems in early pregnancy. It is recognised that in pregnancy, ultrasonic diagnosis, repeated testing and the uncertainties of the outcome may lead to substantial anxiety in the patients under care. (1)

Support
All patients attending the EPAU and undergoing outpatient management of an early pregnancy problem should be offered a contact number following their initial referral. Literature should be provided regarding the various scenarios that are possible to consolidate verbal information.

1. Miscarriage – Treatment options? OG 17 EIDO Aug 2014
2. Medical management of miscarriage - Hospital
3. Medical management of miscarriage at Home
4. Surgical management of miscarriage OG18 EIDO Aug 2014
5. What you may need to know after a miscarriage.
6. What is threatened miscarriage?
7. Inconclusive Scan Result
8. Ectopic pregnancy
9. Medical treatment of ectopic pregnancy
10. Surgical treatment of ectopic pregnancy OG28 EIDO Aug 2014
11. Understanding hydatidiform mole
12. Recurrent miscarriage

Patient information leaflet no. 5 *'What you may need to after a miscarriage'*, provides information on various questions that these patients may have after a miscarriage. It also tells them about annual remembrance service held by hospital chaplains.

a. Follow up
A routine follow-up appointment is not given after the completion of the treatment of miscarriage/ectopic pregnancy. Nevertheless all patients are given contact numbers along with the appropriate leaflets which contain various telephone numbers. Patients who contact the unit are given the support and advice they need but those who require formal counselling will be referred to the counselling service by their GPs or the early pregnancy unit.

b. Counselling
Patients have different abilities and mechanisms to cope with a pregnancy loss. A good number of them will come out of the grieving process. It is only a small number of them that will require formal counselling by the counsellors. Generally, those who require formal counselling would need more than one visit.

Counselling should also be available to **staff** should this be deemed necessary, in acknowledgement of the sometimes stressful nature of their work.

Support Organisations
1. Miscarriage Association
   C/o Clayton Hospital

Wakefield
West Yorkshire WF1 3JS
Tel. 01924 200799

2. The Child Bereavement Trust
   11, Millside
   Riverdale
   Buckinghamshire
   SL8 5EB
   Tel. 01494 765001

3. National Childbirth Trust
   Alexandra House
   Oldham Terrace, Acton
   London W3 6NH

4. The Ectopic Pregnancy Trust
   Maternity unit
   The Hillingdon Hospital
   Pield Heath Road, Uxbridge,
   Middlesex UB8 3NN
   Tel. 01895 238025

26. APPENDIX 13 – MEDICAL MANAGEMENT OF MISCARRIAGE AT HOME TREATMENT PROFORMA

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Hywel Dda University Health Board

Medical Management of Miscarriage (MMM) at home
Treatment proforma

Addressograph	Date:
	Gestational age: / 40
	USS: GSD: mm wks
	CRL: mm wks

ELIGIBILITY CRITERIA

1. Age >18 years ☐
2. Gestation <7weeks by scan ☐
3. A responsible adult at home ☐
4. Within 30 minute car drive of the hospital ☐
5. No allergies to active ingredients or any excipients ☐
6. Hb not <100g/L ☐

Contraindications to medical treatment:

- Smokers aged over 35 years ☐
- Chronic adrenal, hepatic or renal failure ☐
- Severe asthma ☐
- Prosthetic heart valve or h/o endocarditis ☐
- Porphyria or haemorrhagic disorders ☐
- Long term anticoagulant therapy, corticosteroid or NSAIDS therapy ☐

Check list:

HISTORY

Drug History: Nil / .....Drug Allergies:.....

PATIENT INFORMATION Verbal ☐ Written ☐

- Reassurance that the process mimics a natural miscarriage ☐

Use of misoprostol in management of miscarriage is an unlicensed indication but has been widely used with a good safety record

- Medication side effects including pain, nausea, vomiting and diarrhoea

- Amount of blood loss variable
(light period, heavy period or very heavy loss with clots and tissue, bleeding up to 3 weeks)
- Pain variable – mild discomfort to labour like contractions

- Not to panic and be calm

- To use sanitary towels and not tampons

- To use covered hot water bottle if that gives comfort

- To protect the mattress

- Aware of contact numbers

- Success with the method is up to 90%

- If treatment fails or very heavy bleeding occurs

surgical evacuation may become necessary

Consent form FBC G & S Blood group …….

Medication Required: Drug	**Dose**	**Quantity to be supplied**
Misoprostol OR	400micrograms oral < 7 weeks	2 x 200micrograms
Misoprostol	800micrograms vaginal or sublingually 7 – 9 weeks	4 x 200micrograms
Co-codamol 30/500	TWO tablets FOUR times a day When required	30
Azithromycin	1g orally as a single dose	4 x 250mg
Doxycycline	100mg twice a day for seven days	14 x 100mg
Metronidazole	800mg orally as a single dose	2 x 400mg

Azithromycin OR doxycyline to be prescribed

Follow up appointment at 2 weeks: Date: ……

LETTER TO GP MEDICATION PACK

Nurse Signature: ……..

Print Name …….. Date:……..