



Sultanate of Oman  
Ministry of Health  
Directorate General of Khoula Hospital  
Obstetrics and Gynecologists Department

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### Acronyms:

EP	Ectopic Pregnancy
DGKH	Directorate General of Khoula Hospital
IUCD	Intra-Uterine copper device
ED	Emergency Department
TVS	Transvaginal ultrasound
B-HCG	Beta Human chorionic gonadotropin
PID	Pelvic Inflammatory Disease
FFP	Fresh Frozen Plasma
GS	Gestational Sac
CRL	Crown-rump length
UAE	Uterine Artery Embolization
TZ	Transformation Zone



### Guidelines of Ectopic Pregnancy

#### 1. Introduction

Ectopic pregnancy (EP) occurs when a fertilized ovum implants outside of the uterine cavity. It is a common cause of morbidity and mortality in women of reproductive age in the first trimester. It affects 1-2 in every 100 pregnancies and is responsible for 10% of all maternal deaths. The exact etiology of ectopic pregnancy is unknown. Whilst the incidence of EP is increasing, the associated morbidity and mortality has decreased. EP should be considered in any patient presenting early in pregnancy with vaginal bleeding or lower abdominal pain in whom intrauterine pregnancy has not yet been established. 97% of all ectopic pregnancies are tubal; the remaining 3% are non-tubal.

#### 2. Scope:

These guidelines are applied to doctors working in Obstetrics & Gynecology Department at DGKH.

#### 3. Purpose:

The purpose of these guidelines is to standardize the management and diagnosis of ectopic pregnancy to minimize maternal mortality and morbidity.

#### 4. Guidelines:

##### 4.1. The following are the risk factors for ectopic pregnancy:

- 4.1.1. History of pelvic inflammatory disease
- 4.1.2. Fallopian tube surgery/ pelvic surgery
- 4.1.3. Previous ectopic pregnancy
- 4.1.4. Assisted conception.
- 4.1.5. IUCD in situ
- 4.1.6. Cigarette smoking

##### 4.2. Diagnosis:

- 4.2.1. A high index of suspicion should be maintained of ectopic pregnancy in any woman of reproductive age presenting to ED/ admission room with the following:
  - A. Abnormal vaginal bleeding.



B. Lower abdominal pain.

C. Collapse.

4.2.2. Combining TVS with measurements of serum B-HCG using a discriminatory zone of 1000-1500IU.

### **4.2.3. The differential diagnosis includes:**

A. Ruptured corpus luteum of pregnancy

B. Torsion of an ovarian cyst

C. Pedunculated fibroid

D. Appendicitis

E. Renal colic

F. PID

G. Endometriosis

### **4.3. Management of suspected tubal ectopic pregnancy:**

All women in reproductive age group with lower abdominal pain and/or vaginal bleeding and /or amenorrhea are expected as Ectopic pregnancy and the following steps should be done:

4.3.1. Clinical examination

4.3.2. Transvaginal ultrasound (TVS)

4.3.3. Serum B-HCG

### **4.4. Management of Acute presentation with rupture as the following:**

4.4.1. Quickly assess the patient

4.4.2. Insert 2 wide bore cannulas.

4.4.3. Blood for relevant investigations and cross-matching

4.4.4. Volume replacement – crystalloids/blood/ FFP

4.4.5. Follow ABC in cases of shock.

4.4.6. Inform the third on call immediately/consultant on call.

#### **4.5. Ectopic pregnancy can be managed Expectantly, Medically or Surgically see appendix 1.**

Women should be advised, whenever possible, of the advantages and disadvantages associated with each approach used for the treatment of ectopic pregnancy and should participate fully in the selection of the most appropriate treatment. The decision to offer conservative, medical or surgical treatment can only be made by the consultant on call.

##### **4.5.1. Expectant Management:**

###### **A. Indications:**

- i. Clinically stable with minimal symptoms.
- ii. initial B-HCG <1000 IU/l
- iii. No pregnancy visible on TVS (pregnancy of unknown location)
- iv. Tubal mass < 2 cms, absent fetal parts.
- v. No blood or free fluids in pelvis on ultrasound.
- vi. B-HCG is decreasing over 48hrs.

###### **B. Spontaneous resolution rate 44-69%.**

###### **C. Intervention starts in the following situation:**

- i. If symptomatic or worsening symptoms.
- ii. If B-HCG increasing / plateauing and no evidence of intrauterine pregnancy
- iii. TVS scan changes. Management must be switched to medical or surgical dependent on clinical situation.

##### **4.5.2. Medical management:**

Methotrexate should never be given at the first visit, unless the diagnosis of ectopic pregnancy is absolutely clear, and a viable intrauterine pregnancy has been excluded.

###### **A. Indications:**

- i. Un-ruptured tubal ectopic.
- ii. No significant pain.
- iii. Hemodynamically stable.
- iv. adnexal mass <4 cm. No fetal heart



- v. B-HCG <5000iu/l (if B-HCG >5000, administration of methotrexate depends on the consultant decision as well as clinical picture).
- vi. Normal LFT, RFT, CBC.
- vii. No evidence of intraperitoneal hemorrhage either clinically or on TVS.
- viii. Patient aware of regular follow up process and able to comply.

### **B. Contraindications:**

- i. Hemodynamically unstable.
- ii. Fetal heart present.
- iii. B-HCG >5000.
- iv. Adnexal mass diameter >4 cms.
- v. Hepatorenal disease, thrombocytopenia (platelet count <100).
- vi. Active infection or immunosuppression.
- vii. Breastfeeding.
- viii. Evidence of intraperitoneal hemorrhage on TVS.
- ix. Non-compliant.

**C.** Patient should be counselled about the side effects, complications and follow up before starting medical management.

### **D. Medication:**

- i. Dosage:** Methotrexate-Dose – 50 mg/m<sup>2</sup> intramuscular. (Selected cases 1 mg /kg) success rate varying from 52% to 94% for single dose administration.
- ii. Side effects include:** Stomatitis, Conjunctivitis, gastritis, diarrhea, abdominal pain in the first week (common) hepatorenal toxicity, Photosensitivity. and anaphylaxis.

**E.** Pregnant staff or breast-feeding should not handle cytotoxic drugs.

**F.** During treatment, the women must avoid alcohol, folic acid, sun exposure and sexual intercourse.





**G.** Patient need not be admitted while on medical treatment, she can go home after the methotrexate injection with proper advice on follow up and when to seek medical advice.

### **H. Monitoring and follow-up after medical management**

- i. B-HCG, CBC, RFT, LFT, group and save on day 0.
  - ii. IM methotrexate injection given on day 1
  - iii. Serum B-HCG will be done on day 4, day 7
  - iv. CBC, LFT, RFT will be repeated on day 7.
  - v. If serum B-HCG on days 4 and 7 after administration has decreased  $>15\%$ , repeat HCG weekly until HCG  $<15$ .
  - vi. If by day 7 B-HCG has not fallen by  $>15\%$ , 2<sup>nd</sup> dose of methotrexate may be necessary.
  - vii. If still B-HCG fall is not adequate after the second dose ( $<15\%$  from previous), surgical management indicated.
  - viii. Up to 75% of patient may complain of pain on day 3-7(tubal miscarriage).
  - ix. B-HCG may initially rise between day1-4(up to 86% of patients).
- I.** Avoid vaginal examination. TVS may be undertaken during first treatment week or subsequently if clinically indicated.
- J.** Overall success rate is 65-95% after single dose.
- K.** 3–27% of women requiring a second dose.
- L.** women treated with methotrexate wait at least 3 months before trying to conceive again.
- M.** Do not prescribe anti D for medical management of ectopic pregnancy.
- N.** In the absence of a history of subfertility or tubal pathology, tubal patency approximately 80%.
- O.** Risk of recurrent ectopic pregnancy rate 10-20%.

### **4.5.3. Surgical Management:**

- A.** A laparoscopic surgical approach is preferable to an open approach and has to be decided by the on-call consultant.



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

C. In women with a history of fertility-reducing factors (previous ectopic pregnancy, contralateral tubal damage, previous abdominal surgery, previous pelvic inflammatory disease), salpingotomy should be considered. If it's done women should be informed about the following:

- i. Risk of persistent trophoblastic disease is 8-18%
- ii. need for serum B-HCG level follow-up. (After 7 days from the surgery then weekly)
- iii. small risk for further treatment in the form of systemic methotrexate or salpingectomy if B-HCG not falling.

D. Indications of surgical management are as follows:

- i. Ruptured ectopic with significant haemoperitoneum.
- ii. Recurrent ectopic in the previously treated tube.
- iii. Uncontrolled bleeding at salpingostomy.
- iv. Non-compliant patient for medical management.
- v. Women with significant pain
- vi. Desire for permanent contraception
- vii. Known tubal disease with planned IVF for future pregnancy.
- viii. Failed medical therapy.
- ix. Beta HCG >5000, or large adnexal mass > 4 cm
- x. Ectopic pregnancy with visible FH

## 5. Management of non- tubal ectopic pregnancy:

### 5.1. Cervical pregnancy:

5.1.1. Medical management with methotrexate can be considered for cervical pregnancy, if the GS <9 weeks, B-HCG <10,000, CRL<10mm.



- 5.1.2. Surgical methods of management with dilatation and curettage are associated with a high failure rate and should be reserved for those women suffering life-threatening bleeding/ acute haemorrhage.
- 5.1.3. Perform follow-up B-HCG at one week or urine pregnancy after 3 weeks.
- 5.1.4. Following methods has been described:
  - A. Systemic methotrexate. Successful rate reaching 91%
  - B. Intracervical methotrexate
  - C. Dilatation and Curettage with ultrasound guidance.
  - D. Hysteroscopic resection, of TZ and UAE.
- 5.1.5. 1g tranexamic acid iv and a large Foley catheter with a 20ml balloon, Bakri balloon or cervical cerclage can be used to minimize bleeding

### **5.2. Caesarean scar pregnancy:**

- 5.2.1. Women diagnosed with caesarean section scar pregnancy should be counselled that such pregnancies are associated with severe maternal morbidity and mortality.
- 5.2.2. Medical and surgical interventions with or without additional haemostatic measures should be considered in women with first trimester caesarean scar pregnancy.
- 5.2.3. There is insufficient evidence to recommend any one specific intervention over another for caesarean scar pregnancy, but the current literature supports a surgical rather than medical approach as the most effective.
- 5.2.4. The following has been described:
  - A. Primary medical treatment consists of using methotrexate, which may be administered by local injection into the gestational sac under ultrasound guidance or systemically by intramuscular injection. The disadvantage of using medical treatment is that the trophoblast remains in-situ, so the risk of haemorrhage is retained



B. Surgical treatment consists of either evacuation of the pregnancy using suction or hysteroscopic resection or excision of the pregnancy as an open, laparoscopic or transvaginal procedure.

5.2.5. Suction evacuation is probably the most frequently described procedure and has been combined with Foley catheter insertion or UAE as additional haemostatic measures.

### **5.3. Interstitial pregnancy:**

5.3.1. Medical management consist of pharmacological approach using methotrexate has been shown to be effective, although, there is insufficient evidence to recommend local or systemic approach.

5.3.2. Surgical management by laparoscopic cornual resection or salpingotomy is an effective option.

5.3.3. Hemostatic measures may include:

- A. Injection of highly diluted vasopressin: 20units in 1000ml of sodium chloride 0.9% to give use 100 to 150 ml of this diluted solution or
- B. Electrocautery
- C. End loop application
- D. Purse-string suture

5.3.4. Alternative surgical techniques could probably include hysteroscopic resection in specialized center.

### **5.4. Cornual pregnancy:**

5.4.1. No scope for medical management.

5.4.2. Cornual pregnancies should be managed by excision of the rudimentary horn via laparoscopy or laparotomy.

### **5.5. Heterotopic pregnancy:**

5.5.1. Expectant management: is an option in heterotopic pregnancies where the USS findings are of a nonviable pregnancy.

5.5.2. USS follow-up is necessary to ensure resolution of the ectopic pregnancy as



B-HCG levels cannot be used due to the IUP.

### 5.5.3. Medical management:

Methotrexate should only be considered if the intrauterine pregnancy is nonviable.

### 5.5.4. Surgical management

Surgical removal of the ectopic pregnancy is the method of choice for viable pregnancy.

## 6. Responsibilities

6.1. Superintendent of Obstetrics and Gynecology Department shall

6.1.1. Ensure that all doctors are aware of the Policy

6.1.2. All doctors shall follow the policy correctly when managing ectopic pregnancy



**6. Document History and Version Control**

<b>Document History and Version Control</b>			
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01	Initial Release	Dr.Reeni	2013
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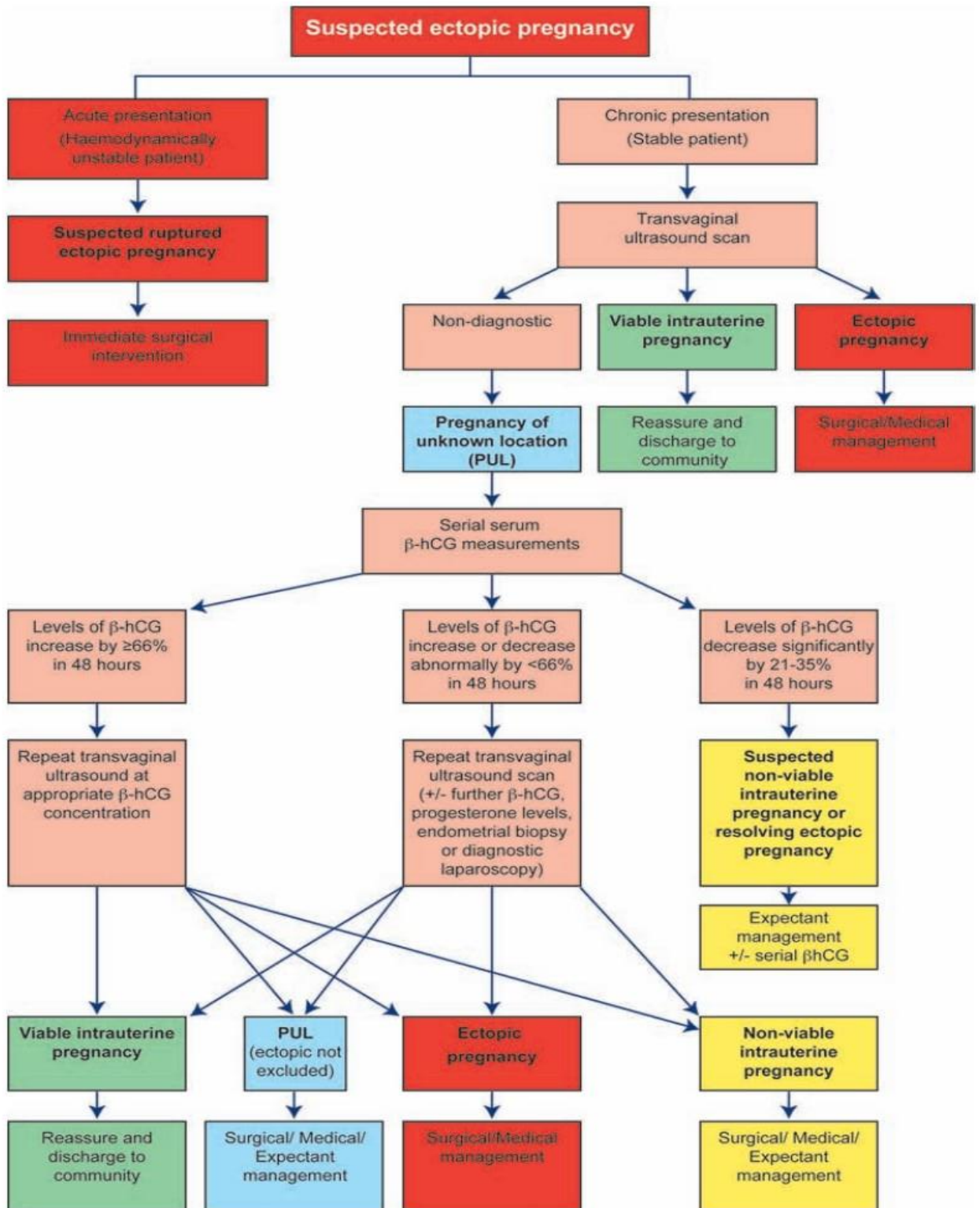
**6. References:**

<b>Title of book/ journal/ articles/ Website</b>	<b>Author</b>	<b>Year of publication</b>	<b>Page</b>
Diagnosis and Management of Ectopic Pregnancy	Green-top Guideline No. 21, RCOG	2016	
Diagnosis and management of ectopic pregnancy	Vanitha N Sivalingam,1 W Colin Duncan,2 Emma Kirk,3 Lucy A Shephard,4 Andrew W Horne5	4 <sup>th</sup> July 2011	
Ectopic Pregnancy: Diagnosis and Management	ERIN HENDRIKS, RACHEL ROSENBERG	2020	
Medical Management of Ectopic	Cambridge University Hospitals NHS Foundation Trust	2017	
Surgical Management of Ectopic	Cambridge University Hospitals NHS Foundation Trust	2019	



**Appendix 1:**







## Guidelines of Ectopic Pregnancy

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