

ECTOPIC PREGNANCY CURRENT MANAGEMENT GUIDELINES

Ectopic Pregnancy remains the leading cause of death in early trimester of pregnancy. The incidence of ectopic pregnancy has been rising over the last 20 years.

Ectopic pregnancy occurs at a rate of 19.7 cases per 1,000 pregnancies in North America and is a leading cause of maternal mortality in the first trimester[1].

Hemorrhage from ectopic pregnancy is still the leading cause of pregnancy-related maternal mortality in the first trimester and accounts for 4 percent of all pregnancy-related deaths, despite improved diagnostic methods leading to earlier detection and treatment [2].

The technical advancement in the field of Sonography & minimal access surgery has greatly enhanced the possibility of both diagnosing and treating the condition effectively.

Risk Factors:

- Previous ectopic pregnancy
- Ovulation induction (specially with controlled ovarian hyperstimulation with tablets and gonadotropins has four fold increased risk compared to the controls.)
- Pelvic inflammatory disease
- Infertility and Assisted Reproductive Technology
- Cigarette/Beedi Smoking

Medical management of Ectopic Pregnancy:

The most practical and efficient method of methotrexate administration is single intramuscular injection.

Dose :50mg/m²

Alternative regimen is to give multiple doses of methotrexate of 1 mg/kg on day 1,3,5 with oral folinic acid rescue on day 2,4,6. However there is no evidence to suggest that this regimen is superior to single dose regimen.

Criteria for selection of patients for methotrexate therapy:

The patient should be reliable, compliant and able to return for followup.

The size of gestational sac should not exceed 3.5cm.

Absence of fetal cardiac activity on ultrasound.

No evidence of tubal rupture.

Beta HCG level less than 5000 mIU/ml

No blood dyscrasias, renal or hepatic dysfunction.

Methotrexate Monitoring protocol:

A decrease in beta HCG by more than 15% between day 4 and day 7 after treatment shows successful medical treatment.

75 % of the ectopic pregnancies will be resorbed by single dose therapy. However after 7 days if not, second dose of methotrexate will further add success in another 15%. Finally still 10% may need surgery.

Criteria of success for medical management

- 1) Decreasing HCG titers
- 2) Patient is stable.
- 3) No evidence of rupture or significant bleeding

Methotrexate is only recommended as first line management strategy under very specific circumstances.

Surgical Management of Ectopic pregnancy

Laparoscopic or Abdominal method, though laparoscopy remains the gold standard where it is possible.

If the other fallopian tube is normal, salpingectomy is preferred, whereas if the other tube is not normal or diseased salpingotomy is preferable. If salpingostomy is done if other tube is normal then it has higher trophoblastic disease as compared to salpingectomy.

Surgical option as a first line treatment to women who are unable to return for the follow up after methotrexate treatment or who have any of the following:

Specific clinical details and criteria for surgical management of ectopic pregnancy:

Ruptured ectopic pregnancy with collapse and /or significant free fluid in the abdomen (haemoperitoneum)

- Significant pain
- Adnexal mass of 35 mm or larger
- Fetal heart beat visible on an ultrasound scan
- Serum Beta HCG level of 5000 IU/litre or more
- Surgical management should be offered provided
- The couple's desires
- Compliance of the patient for medical treatment is doubtful.
- The surgeon's laparoscopic expertise required
- The operating room's equipment adequate.

Tubal Ectopic pregnancies

- Ampullary ectopic pregnancy is most common (80-90%)

Natural progress of Tubal Ectopic Pregnancy

- Disappearance
- Tubal abortion
- Tubal rupture
- Tubal mole
- Continuation of pregnancy.

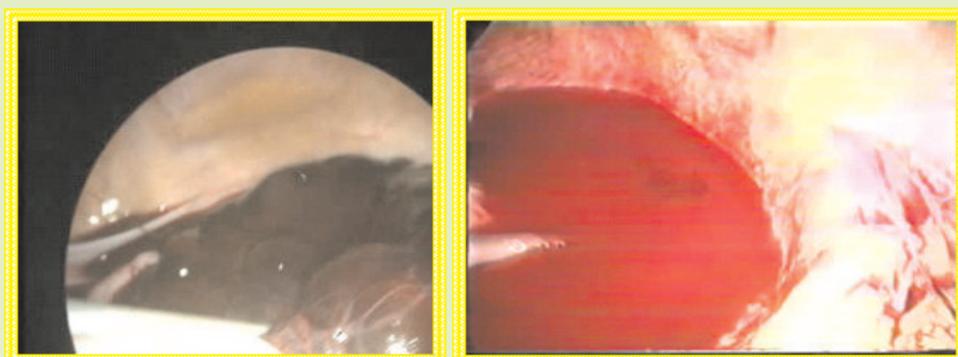
Role of β hCG Titre: Modern management of ectopic pregnancy has been influenced greatly by recent advances in human chorionic gonadotrophin determination, ultrasound and laparoscopy. This allows for the vast majority of tubal pregnancies to be diagnosed before rupture permitting good management.

Management of ruptured tubal ectopic pregnancy

- Surgery ~ Laparoscopy or Laparotomy
- **Laparotomy:** Criteria
- If there is no facility of minimal access surgery at the centre and non availability of expert endoscopic surgeon
- Removal of fallopian tube allows rapid control of bleeding. If the other fallopian tube is normal, there is an 85% likelihood of successful intrauterine pregnancy in future.

Laparoscopic management in a well equipped centre at the hands of expert endoscopic surgeon laparoscopic salpingectomy or salpingostomy is better than laparotomy.

Isthmic Ectopic pregnancy Presentation& management



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- Late presentation
- These isthmic Ectopic Pregnancies are best treated by segmental resection (removal) of the involved portion of the tube.

Cornual& Rudimentary horn ectopic

Diagnosis & Management

Transvaginal ultrasound is used for diagnosis.

Laparoscopy is the main modality for management.

Pregnancy in rudimentary horn have been seen to grow upto 16weeks.

Removal of rudimentary horn with Ectopic Pregnancy should be performed.



Cornual& Rudimentary horn ectopic



Heterotopic Pregnancy

Heterotopic Pregnancy

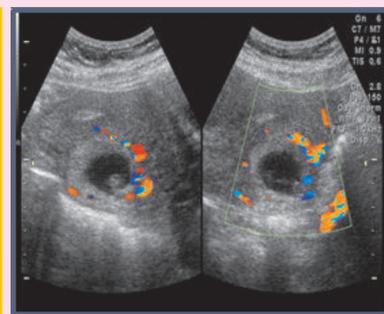
Concomitant intra uterine & extra uterine pregnancy heterotropic-
Diagnosis and management:

- After a Intrauterine pregnancy is seen,the extra-uterine anatomy should be closely examined with pelvic ultrasound.
- Suspicious adnexal masses can be investigated with Doppler ultrasound in an attempt to improve sensitivity and specificity
- Management- Salpingectomy or salpingostomy conserving intrauterine pregnancy is the treatment of choice .Medical management with methotrexate is not an option if continuation of the intrauterine pregnancy is desired.

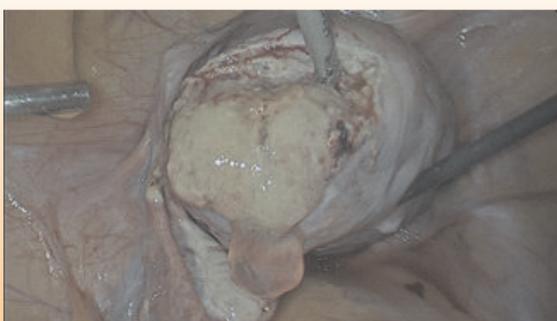
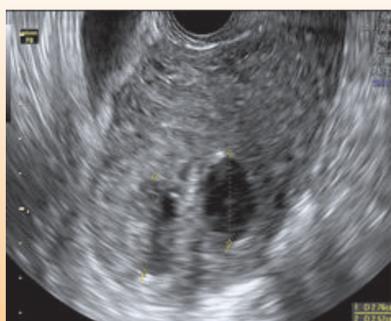
Intramyometrial Pregnancy

Myometrial pregnancy represents a rare subtype of ectopic pregnancy that occurs after myomectomy or uterine surgery.

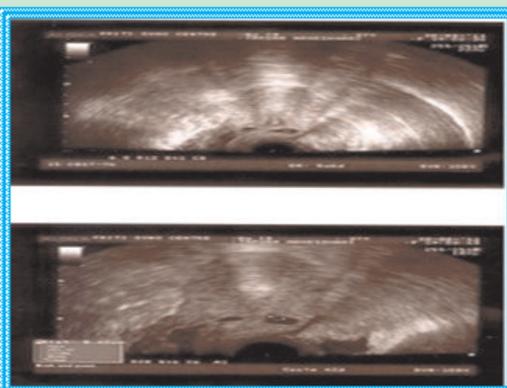
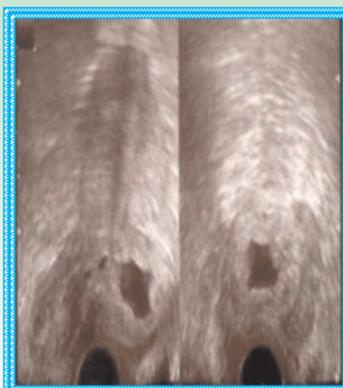
Management is by Injecting potassium chloride(KCl) and administering methotrexate.Surgical removal can also be considered.



Post Myomectomy Advanced Intramyometrial Ectopic Pregnancy



Lower Segment Caesarean Section Ectopic pregnancy Ballooning anteriorly



Caesarean Scar- Ectopic

Diagnosis is by pelvic ultrasound and ColorDoppler. Ultrasound appearance of an anterior bulging mass outside the contour of the uterus with no space between ectopic pregnancy and bladder may be indicative.

These pregnancies can also be confused with cervical ectopic pregnancy.

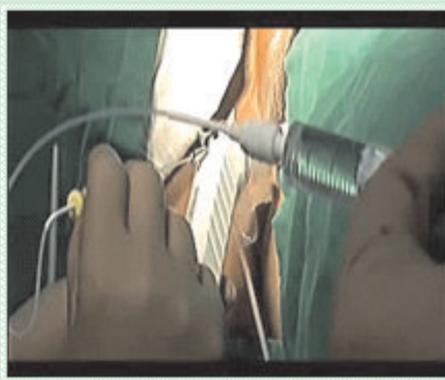
The optimal treatment of cesarean section scar ectopic pregnancies is surgical removal of pregnancy and suturing of the scar. Presentation of the patient often dictates the mode of treatment.

Cervical Pregnancy Diagnosis & treatment

Ultrasound – Gestational sac is typically round or oval & may contain a yolk sac or a fetus with a heart beat; whereas in spontaneously aborting pregnancy, it is crenatedand has no fetal cardiac activity and will decrease in size or disappear within a few days.

Management- Ultrasound guided Intra cardiac potassium chlorideinstillation or Methotrexate therapy.

Surgical- Uterine artery embolization / ligation done before curettage .If bleeding is not controlled patientmay need hysterectomy.



Transvaginal local instillation of 10 %KCl 0.1mg under sonographic guidance .

Chronic Ectopic – Diagnosis & Management

- Amenorrhea and Positive Urine pregnancy Test
- B-hCG – levels are low ~ 20-100
- Most common presentation – Abdominal pain and Adnexal mass on ultrasonography.



Case of chronic ectopic in presence of Fibroid Uterus

Ovarian Ectopic pregnancy Diagnosis & management

- B-HCG and transvaginal ultrasound.

Spigelberg's criteria

- The fallopian tube, including the fimbria ovarica, is intact and clearly separate from the ovary
- The gestational sac definitely occupies the normal position of the ovary
- The sac is connected to the uterus by the utero-ovarian ligament
- The ovarian tissue is unquestionably demonstrated in the wall of the sac.

Management Excision of ovarian ectopic is preferred, Oophorectomy or salpingo oophorectomy should be avoided.

To reduce incidence of Ectopic pregnancy in IVF-ICSI program following measures are taken

- Reduce number of embryos transferred
- Aim for single embryo transfer
- Real time Ultrasound guided Embryo transfer for exact placement of embryo in the uterus below the fundus

The American College of Obstetrics and Gynaecology (ACOG) 2018 guidelines for clinical management for tubal ectopic pregnancy

Most cases of tubal ectopic pregnancy that are detected early can be treated successfully either with minimally invasive surgery or with medical management using methotrexate. However, tubal ectopic pregnancy in an unstable patient is a medical emergency that requires prompt surgical intervention.

Some of the key recommendations include:-

Level A (based on good and consistent scientific evidence)

- In clinically stable women in whom a nonruptured ectopic pregnancy has been diagnosed, laparoscopic surgery or intramuscular methotrexate administration are safe and effective treatments. The decision for surgical or medical management of ectopic pregnancy should be guided by the initial clinical, laboratory, and radiologic data as well as patient-informed choice based on a discussion of the benefits and risks of each approach.

• Surgical management of ectopic pregnancy is required when a patient is exhibiting any of the following:

- hemodynamic instability
- Symptoms of an ongoing ruptured ectopic mass (such as pelvic pain)
- Signs of intraperitoneal bleeding

Level B (based on based on limited or inconsistent scientific evidence)

- Serum hCG values alone should not be used to diagnose an ectopic pregnancy and should be correlated with the patient's history, symptoms, and ultrasound findings.
- If the concept of the hCG discriminatory level is to be used as a diagnostic aid in women at risk of ectopic pregnancy, the value should be conservatively high (e.g., as high as 3,500 mIU/mL) to avoid the potential for misdiagnosis and possible interruption of an intrauterine pregnancy that a woman hopes to continue.

Take Home Message

- When surgical treatment is indicated for women in ectopic pregnancy it should be performed laparoscopically in an equipped centre by expertise in endoscopy .
- Serum hCG values alone should not be used to diagnose an ectopic pregnancy and should be correlated with the patient's history, symptoms, and ultrasound findings.
- The hCG discriminatory level is to be used as a diagnostic aid in women at risk of ectopic pregnancy, the value should be as high as 3,500 mIU/mL
- If all other parameters are stable in a patient of ectopic pregnancy with beta HCG between 1500-5000mIU/mL injection methotrexate should be offered as a treatment.
- Laparoscopic Salpingostomy and laparoscopic salpingectomy are better than laparotomy in treatment of ectopic pregnancy.
- Laparoscopic Salpingostomy remains the definitive and universal treatment of ectopic pregnancy in patients who are hemodynamically stable and who wish to preserve their fertility otherwise salpingectomy is performed.
- Laparoscopic salpingotomy may be practiced as conservative surgery for proximal ectopic pregnancy, gestational mass size is not as important and is not a relative contraindication for conservative laparoscopic surgery.
- All scans must be performed by trained & experienced sonologist of diagnosing ectopic pregnancies.
- Methotrexate is only recommended first line management strategy under specific circumstances as mentioned above.

References:

1. Ectopic Pregnancy

JOSIE L. TENORE, M.D., S.M., Northwestern University Medical School, Chicago, Illinois
Am Fam Physician. 2000 Feb 15;61(4):1080-1088.

2. Ectopic pregnancy: Epidemiology, risk factors, and anatomic sites ...

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