

An interstitial ectopic pregnancy managed with laparoscopic cornual resection

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Abstract

Introduction: Interstitial ectopic pregnancy is a rare type of tubal ectopic pregnancy associated with increased case fatality rate due to profuse haemorrhage. It is initially asymptomatic and ruptured later than other tubal ectopic pregnancies.

Case report: A 31 years old primigravida presented with per vaginal bleeding at period of amenorrhoea of six weeks. Her examination findings were unremarkable and transvaginal scan revealed left sided interstitial pregnancy. Her initial serum beta human Chorionic Gonadotropin (β -hCG) level was 7300 mIU/ml. As she was haemodynamically stable, there were no signs of rupture and serum β -hCG was dropping, she was initially managed expectantly. As she developed abdominal pain with per vaginal bleeding and drop in serum β -hCG was slow, expectant management was abandoned and surgical management was planned. Laparoscopy was performed and revealed a left sided interstitial pregnancy with thinned out myometrium. As laparoscopy guided transcervical suction evacuation has failed, laparoscopic cornual resection was performed after vasopressin infiltration into myometrium. She had uneventful recovery and was followed up until her serum β -hCG became less than 30 IU/L.

Discussion: An Interstitial ectopic pregnancy must be differentiated from cornual and angular pregnancies with clearly defined ultrasound diagnostic criteria. Three dimensional (3D) ultrasound and magnetic resonance imaging (MRI) will further help in diagnosis of interstitial ectopic pregnancy. It can be managed expectantly, medically or surgically depending on the patient's clinical condition, preference and serum β -hCG level.

Key words: interstitial ectopic pregnancy, laparoscopic cornual resection, cornual pregnancy, angular pregnancy

Sri Lanka Journal of Obstetrics and Gynaecology 2021; **43**: 190-193

DOI: <http://doi.org/10.4038/sljog.v43i3.7952>

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Received 26th August 2021

Accepted 7th October 2021



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Introduction

Interstitial ectopic pregnancy is a type of tubal ectopic pregnancy where fertilized ovum gets implanted in the interstitial part of fallopian tube which is surrounded by myometrium. It accounts for 1% - 6.3% of ectopic pregnancies and 2% - 4% of tubal ectopic pregnancies^{1,2}. They are initially asymptomatic and rupture occur late as surrounding myometrium allows substantial distension. 20% of interstitial ectopic pregnancies rupture after 12 weeks. There is high risk of profuse haemorrhage following rupture, as it lie near the uterine artery. Case fatality rate of interstitial pregnancy is 2% - 2.5% which is twofold of other tubal ectopic pregnancies and accounts for 20% of deaths due to ectopic pregnancies^{3,4}.

Case report

A 31 years old primigravida presented with per vaginal bleeding at period of amenorrhoea of six weeks. On examination, she was not pale, vital parameters were normal and abdomen was soft. Transvaginal scan

showed empty uterine cavity, gestational sac without a fetal pole near the left cornual region, surrounded by thin rim of myometrium (less than 5mm), completely separated from the uterine cavity and no pelvic free fluid. Transvaginal scan findings were suggestive of an interstitial pregnancy. Serum beta human Chorionic Gonadotropin (β -hCG) level was 7300 mIU/ml. As patient was haemodynamically stable with no signs of rupture, serum β -hCG was repeated in 48 hours and 96 hours and the values were 6634 mIU/ml and 5541 mIU/ml respectively. Development of abdominal pain and per vaginal bleeding and serum β -hCG persisting above 5000 mIU/ml without significant reduction lead to decision of surgical management after discussing with the patient. During laparoscopy, a left sided interstitial pregnancy with thinned out surrounding myometrium projecting towards the left cornual region of the uterus was noted. Initially laparoscopy guided transcervical suction evacuation was attempted and as it failed, decided to perform laparoscopic cornual resection. Diluted vasopressin was injected into the myometrium below the ectopic sac to reduce bleeding.

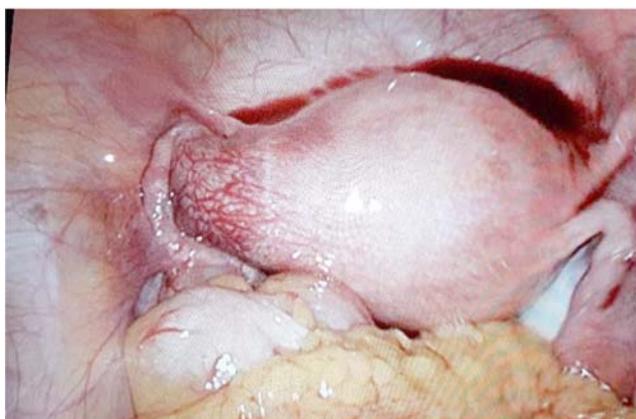


Figure 1. Left interstitial ectopic pregnancy.



Figure 2. Cornual resection with monopolar hook.

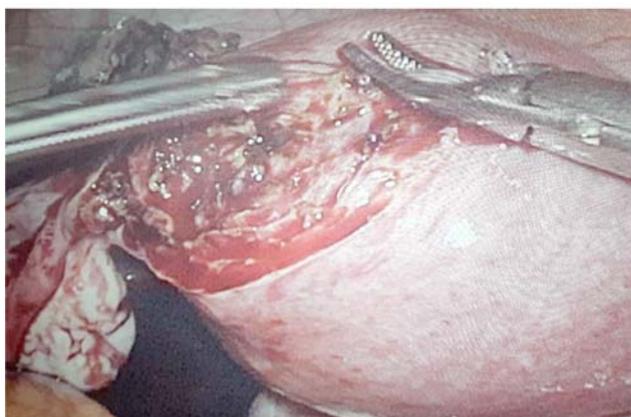


Figure 3. Following cornual resection.



Figure 4. Scar repaired with barbed suture.

Left side cornual resection was done with monopolar diathermy with estimated blood loss of 100ml and the scar was repaired with barbed suture. She had uneventful recovery and followed up until her serum β -hCG became less than 30 IU/L. She was advised to delay pregnancy for 6 months, explained the increased risk of uterine rupture during subsequent pregnancies and necessity of early caesarean section.

Discussion

Pregnancy detected in the cornual region of uterus can be either intrauterine or ectopic pregnancy⁵. In case of ectopic pregnancy, it can be either interstitial pregnancy where the embryo is implanted in the interstitial part of the fallopian tube or cornual ectopic pregnancy where the embryo is implanted in the rudimentary horn of a unicornuate uterus^{1,5}. In case of intrauterine pregnancy, the embryo could be implanted in the cornu or horn of a bicornuate or septate uterus or it can be an angular pregnancy where the embryo is implanted in the lateral angle of the endometrial cavity near the ostium just medial to the uterotubal junction^{2,5}. Although the terms cornual, interstitial and angular pregnancy are used alternatively in the past, they are different^{2,6}.

Transvaginal scan is performed to find the location of a pregnancy. There are clearly defined ultrasound criteria to diagnose and differentiate interstitial pregnancy from cornual and angular pregnancy^{1,2}. They are:

1. Empty uterine cavity^{1,2}.
2. Gestational sac at lateral edge of the uterus, more than 1cm away from uterine cavity and covered in all planes by thin myometrium of less than 5mm^{1,2}.
3. Interstitial line sign – It is a thin echogenic line from uterine cavity to the gestational sac which represent the interstitial portion of fallopian tube. It has sensitivity of 80% and specificity of 98% in diagnosis of an interstitial ectopic pregnancy. But it is difficult to be visualized in 2D ultrasound^{1,5}.

In a transvaginal scan, a cornual ectopic pregnancy will have following features:

1. Mobile gestational sac completely surrounded by thick myometrium and away from the uterine body¹.

2. Main uterus is connected to single fallopian tube¹.
3. Vascular pedicle connecting the sac to unicornuate uterus¹.

An angular pregnancy has following characteristics:

1. It is completely surrounded by the endometrium in all planes, but not by the myometrium. But both cornual and interstitial pregnancies are completely surrounded by myometrium^{1,2}.
2. Angular pregnancy will be medial to the round ligament and displaces it upward and outward. But the interstitial pregnancy will be lateral to the round ligament².

3D ultrasound scan and MRI will further help to differentiate angular pregnancy from interstitial pregnancy². In T2 weighted MRI, an interstitial pregnancy appear as a hyperintense heterogeneous mass surrounded by hypointense myometrium. But an angular pregnancy is predominantly surrounded by hyperintense endometrium².

Interstitial ectopic pregnancies can be managed expectantly, medically or surgically¹. It can be managed expectantly if the patient is haemodynamically stable and has no risk of immediate rupture^{1,6}. If the serum β -hCG is low, it has high success rate⁶. In our index case, as the patient became symptomatic, the expectant management was abandoned.

Medical management with local or systemic methotrexate has success rate of 97.83% and 79.9% respectively. Local injection of 25-50 mg methotrexate is associated with less systemic side effects. But it is more invasive and administered transvaginally under ultrasound guidance or laparoscopically. Methotrexate is recommended only in patients who are haemodynamically stable without significant abdominal pain. The success rate is high in patients with β -hCG less than 5000 IU/L. Local injection of potassium chloride into the gestational sac is recommended when fetal cardiac activity is present^{1,6}.

Surgery is recommended for haemodynamically unstable patients, ruptured ectopic pregnancies and heterotopic pregnancies¹. There are several surgical modalities. Following laparoscopic cornual resection the pregnancy rate is good, but has increased risk of uterine rupture during pregnancy due to scarring⁶. Laparoscopic cornuostomy is associated with increased risk of persistent interstitial pregnancy, but

it preserves uterine architecture. It has increased risk of haemorrhage and need cornual reconstruction which warrants advanced laparoscopic skills. Vasopressin injection, end loop application and encircling suture around cornu will reduce bleeding⁶.

Further research is necessary to determine the best surgical technique for interstitial ectopic pregnancies. Individualized decision should be made considering patient's preference, fertility wish and other gynaecological problems.

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