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Case Report

## Broad ligament pregnancy - a rare form of ectopic

Mangala Sonak<sup>1</sup>, Arya Chaubey<sup>2</sup>, Disha Rama Harikanth<sup>3</sup>, Manjushri Waikar<sup>4\*</sup>

Department of Obstetrics and Gynaecology, Government Medical College, Nagpur, Maharashtra, India

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**\*Correspondence:**

Dr. Manjushri Waikar,

E-mail: manjuw123@gmail.com

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### ABSTRACT

Ectopic pregnancy in the broad ligament is a serious form of extrauterine pregnancy which is very rare. The diagnosis is very difficult to establish especially in acute cases leading to many complications and maternal morbidity and mortality. We present the case of 22-weeks-old abdominal pregnancy who underwent emergency laparotomy for acute symptoms before her complete diagnostic evaluation. Ruptured broad ligament pregnancy was noted with hemoperitoneum. The patient recovered completely after surgery and was discharged in a stable condition. The diagnosis of broad ligament pregnancy is difficult to establish and challenging to manage because of its rarity, varied presentation and intra-operative complications. High chances of morbidity and mortality in both mother and foetus prompts increased awareness among both obstetricians and patients.

**Keywords:** Abdominal pregnancy, Broad ligament pregnancy, Ectopic pregnancy, Laparotomy

### INTRODUCTION

Ectopic pregnancy is defined as pregnancy outside the normal uterine cavity; of which abdominal pregnancy is very rare representing about 1% of all ectopic pregnancies and has a maternal mortality rate between 0.5 and 20 % and a perinatal mortality rate between 40 and 95%.<sup>1,2</sup> It has been noted that abdominal pregnancy is more common in developing countries probably because of the high frequency of pelvic inflammatory disease.<sup>1,3</sup>

Broad ligament pregnancy is a type of ectopic in which the foetus or gestational sac develop within the leaves of the broad ligament.<sup>3</sup> This serious form of extrauterine pregnancy is very rare and has a reported incidence of 1 in 1,83,900 pregnancies and occurs in about 1 in 245 ectopic pregnancies.<sup>2,3</sup> Primary broad ligament ectopic pregnancy occurs within the broad ligament itself whereas Secondary Broad ligament Pregnancy occurs following tubal rupture and grows in the broad ligament.<sup>4</sup>

As such no specific clinical features are present to help in accurate diagnosis. It presents as acute abdominal emergency during pregnancy and the diagnosis is commonly achieved during surgical exploration. However, imaging studies like ultrasonography and MRI plays a role. The complications of pregnancy in the broad ligament include abdominal pain, rupture of the gestational sac with hemorrhage into the peritoneal cavity, per vaginal bleeding, an abnormal lie, placental insufficiency and pseudo labour followed by foetal death.<sup>1,3</sup>

Given its rarity, there is limited literature is available on the management of broad ligament ectopic pregnancies. In hemodynamically unstable patients' laparotomy is mandatory. The management involves surgical removal of fetus and placenta.<sup>1</sup> Increasing number of cases treated laparoscopically at early gestations have also been reported.<sup>5</sup> This case is reported because of its rare occurrence and the challenges encountered in the treatment.

## CASE REPORT

A 26-year-old, G3P2L2D1 was referred from a Primary Health Care Centre to Obstetrics and Gynaecology department of GMCH Nagpur with ultrasonography findings suggestive of extra-uterine single live pregnancy with 22 weeks of gestation. Past obstetric history revealed that she underwent caesarean section after previous vaginal delivery for twin pregnancy 7 years back. Patient does not have history of any contraceptive use after last child birth and she conceived spontaneously. She belonged to poor socio-economic strata and resided in a rural area. She had amenorrhea since 6 months and she did not seek any medical help for the same. When she developed mild pain in abdomen, she approached the health care facility.

On examination patient was vitally stable with Blood Pressure of 110/70 mmHg, pulse rate 90/minute and moderately pale; systemic examination was within normal limits. Abdomen was distended and the mass of 24 weeks size was felt in abdomen with palpable fetal parts on right side of flank. Uterine contour was not made out and there were no Braxton hicks' contractions. Fetal heart sounds were heard on fetal doppler. On per vaginal examination cervical external OS was closed and bleeding was absent.

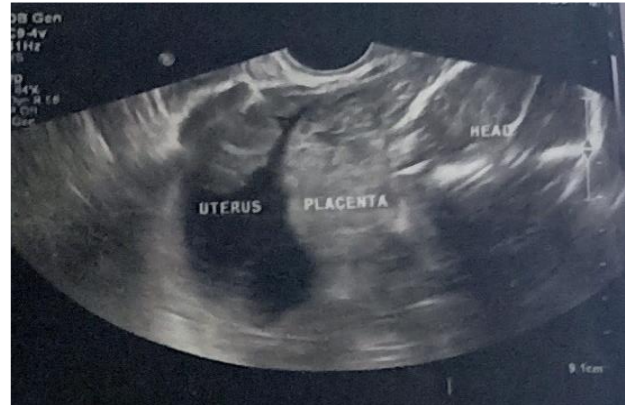
Ultrasonography was done which suggested single live intra-abdominal pregnancy of 20 weeks 2 days with head in pouch of douglas. The fetal axis was away from uterine axis predominantly on the right side with regular fetal cardiac activity. The fetal sac showed very less amount of liquor and uterus was identified separately and uterine cavity showed mild amount of fluid within. MRI was suggestive of live pregnancy in? Non communicating thinned out unruptured rudimentary horn with patchy placenta percreta? Rare possibility of abdominal ectopic pregnancy in a contained sac with no free fluid in peritoneal cavity.

Patient was planned for angiographic embolization but suddenly she developed acute pain in abdomen and had 2 episodes of vomiting on day 5 of admission. Her BP was 90/60mmhg and tachycardia of 120/min. Abdominal examination revealed dull percussion with mild tenderness.

She was taken up for emergency exploratory laparotomy. Abdomen was opened by vertical paramedian incision under general anesthesia and hemoperitoneum of 1200 cc was drained.

A dead foetus of 500 grams was taken out from the abdominal cavity. Cord identified ligated and cut. Uterus was intact and 12-14 weeks in size. Previous caesarean section scar was intact. Evidence of separated placenta present and half of the placenta was adherent to posterior inner leaf of right broad ligament. The membranes of ruptured sac wall were seen posteriorly in pouch of douglas.

Adhered placenta, right fallopian tube with right broad ligament clamped, cut and ligated. Left fallopian tube and ovary normal. Abdomen exploration was done to rule out any placental invasion in bowel or omentum and haemostasis checked. Abdomen closed in layers. Placental tissue and fallopian tube sent for histopathological examination. Two Unit whole blood was transfused. Patient had an uneventful post-operative course and she was discharged in stable condition on day 12.



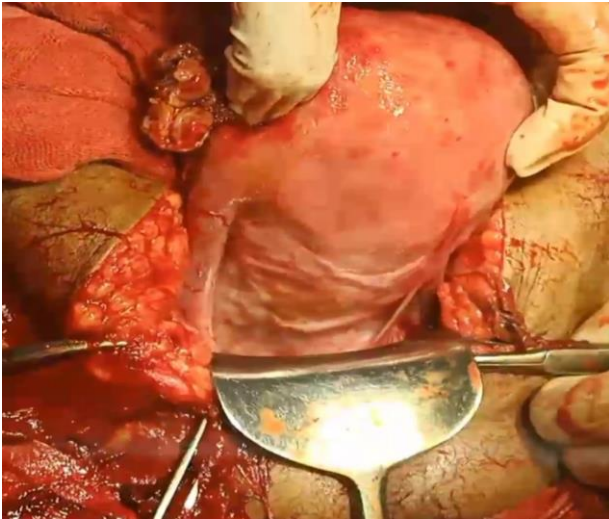
**Figure 1: Ultra-sonography image of abdominal pregnancy.**



**Figure 2: 500 grams fetus of broad ligament pregnancy.**



**Figure 3: Placenta attached to posterior leaf of ruptured broad ligament.**



**Figure 4: Intact uterus with right sided pedicle after detaching the broad ligament pregnancy.**

## DISCUSSION

Abdominal pregnancy is a life-threatening condition with maternal mortality eight times greater than the usual tubal ectopic pregnancies.<sup>6</sup> It is classified as primary or secondary. The diagnosis of primary abdominal pregnancy is confirmed according to Studdiford's criteria which is based on the following anatomic conditions: normal tubes and ovaries, absence of an uteroplacental fistula and attachment exclusively to a peritoneal surface early enough in gestation to eliminate the likelihood of secondary implantation from primary site.<sup>7</sup> Secondary abdominal pregnancy is the secondary implantation with original implantation of zygote having occurred elsewhere which is in the fallopian tubes, ovaries and peritoneal surfaces.<sup>3</sup>

Ectopic pregnancy usually presents with symptoms of abdominal pain, vaginal bleeding, fainting episodes, collapse, shoulder tip pain and pelvic pain.<sup>3</sup> Presentation may be delayed if it remains silent.<sup>4</sup> This delay facilitates the growth of the ectopic pregnancy in the broad ligament and delays the presentation of symptoms such as in this case. Also, our patient belonged to a low resource area with limited facilities and hence lacked of awareness.

It is imperative to consider overall clinical symptoms, investigations and the general status of the patient before planning the treatment. The site of implantation and availability of vascular supply are believed to be factors that may influence the possibility of fetal survival. The high maternal mortality rate is primarily because of the risk of massive haemorrhage from partial or total placental separation.<sup>2,8</sup> The placenta can be attached to the uterine wall, bowel, mesentery, liver, spleen, urinary bladder and ligaments. It can be detached at any time during pregnancy leading to torrential blood loss.<sup>1</sup> Accurate localization of the placenta preoperatively could minimize the blood loss during surgery by avoiding incision into the placenta.<sup>9</sup>

Pregnancy in the broad ligament is rarely diagnosed before surgical intervention even using ultrasonogram. Nonetheless, the diagnosis remains a challenge. If there is no intrauterine pregnancy on ultrasonography and the ectopic sac is beside the lower part of the uterus a strong suspicion of broad ligament ectopic should be considered. Magnetic resonance imaging (MRI) provides additional information for evaluating the extent of uterine and mesenteric involvement<sup>10</sup> and may help in surgical planning. Non-contrast MRI using T2-weighted imaging is a sensitive, specific and accurate method for evaluating ectopic pregnancy.<sup>11</sup> Unfortunately these advanced imaging technologies are not readily available everywhere.

The management is exploratory laparotomy. However, in a stable patient in the early gestation, laparoscopic removal can be considered for small broad ligament pregnancies.<sup>5</sup> For an abdominal pregnancy, to reach advanced stage of gestation with viable foetus is very uncommon<sup>2</sup> and guidelines for its management are yet unclear with few cases published including delivery of a healthy full-term baby.<sup>1,5</sup> However, Martin et al. reported foetal death in 15 cases of advanced abdominal pregnancy where expectant management was attempted to get good neonatal outcomes.<sup>12</sup>

Conservative management or medical management is not recommended for broad ligament ectopic pregnancy if the diagnosis is certain. Interventional radiology also plays a crucial role to minimize morbidity and mortality by offering therapeutic options that obviate surgery and hence increases the chances of fertility preservation. Options include chemical injection of an ectopic gestational sac, uterine artery embolization, aspiration and drainage.<sup>13</sup>

Therefore, early diagnosis and prompt surgical intervention helps to improve the morbidity and mortality in patients with broad-ligament ectopic pregnancy.

## CONCLUSION

Ectopic pregnancy in the broad ligament is a rare, life-threatening form of abdominal pregnancy with diagnostic challenges, delayed treatment and high maternal morbidity and mortality especially due to bleeding from the detached placental site. High index of clinical suspicion in cases of abnormal lie, displaced cervix along with radiological aids can help in early diagnosis and prompt surgery thereby preventing any fatal consequences. Thus, we emphasize that this differential diagnosis must be kept in mind while dealing with any reproductive age group women with atypical presentations of pregnancy.

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