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Case Report

## Secondary abdominal pregnancy following rupture of bicornuate uterus in early third trimester: a case report and review of literature

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### ABSTRACT

Rupture uterus in a nulliparous woman is generally associated with mullerian anomalies and can present with acute obstetric emergency. It is a rare event and generally occurs in first or second trimester. Rupture of rudimentary horn in third trimester is extremely rare and can have adverse outcome for both mother and foetus. We describe a 24 years old primigravida patient with 28 weeks of gestation who came to casualty in gasping condition. She was having acute abdominal pain and distension with circulatory shock. Patient was immediately intubated and resuscitative measures started in casualty. Clinical and ultrasound findings suggestive of abdominal pregnancy and possibility of rupture of one horn of bicornuate uterus with haemoperitoneum. As patient was very critical resuscitative measures started and immediate laparotomy revealed abdominal pregnancy with dead foetus and ruptured right rudimentary horn with part of placenta adherent to omentum which was excised along with excision of rudimentary horn and placenta. Timely laparotomy with aggressive resuscitative measures saved the patients life. This case is extremely rare presentation of abdominal pregnancy in early third trimester and highlights the importance of early diagnosis of abdominal pregnancies and its timely management.

**Keywords:** Abdominal pregnancy, Bicornuate uterus, Haemorrhage, Pregnancy in rudimentary horn

### INTRODUCTION

Abdominal pregnancy is a rare obstetric event, but one that represents a grave risk to the health of pregnant woman. It can present as catastrophic condition leading to maternal morbidity and mortality. Abdominal pregnancy is a condition in which the conceptus develops in the abdominal cavity after being extruded from the fimbriated end of the fallopian tube or through a defect in the tube or uterus. The placenta gets implanted on the abdominal parietal or visceral peritoneum, omentum or the bowel and it adheres so firmly to these structures that complete removal is seldom possible. In very rare cases of uterine rupture the foetus may be extruded into the peritoneal cavity while the placenta remains functional within the uterus and the gestation continues as a uteroabdominal pregnancy.<sup>1</sup> Approximately 1% of all pregnancies are extrauterine and 1-3% of these are

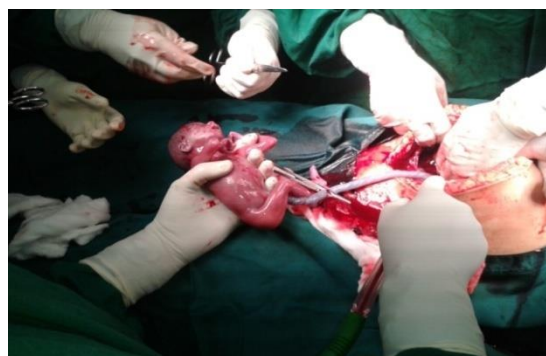
peritoneal implantations.<sup>2</sup> The maternal mortality rate is 0.5 to 18% and perinatal mortality rate ranges between 40% to 95%.<sup>3</sup> The maternal mortality and morbidity rates are very high especially if the condition is not diagnosed and managed at appropriate time. Advanced abdominal pregnancy is defined as pregnancy which is past 20 weeks of gestation and is associated with high foetal and maternal morbidity and mortality. It generally does not reach up to term and usually the end result is the extraction of a dead foetus, however live births have been reported. Abdominal pregnancy usually occurs after tubal abortion or rupture and less often from subsequent implantation with in the abdomen following rupture of a unicornuate or bicornuate uterus. Rudimentary horn pregnancy of a bicornuate uterus usually terminates in rupture during first or second trimester of pregnancy and the presentation in early third trimester is extremely rare. Herein we present a case of 28 weeks abdominal

pregnancy following rupture of right rudimentary horn of bicornuate uterus.

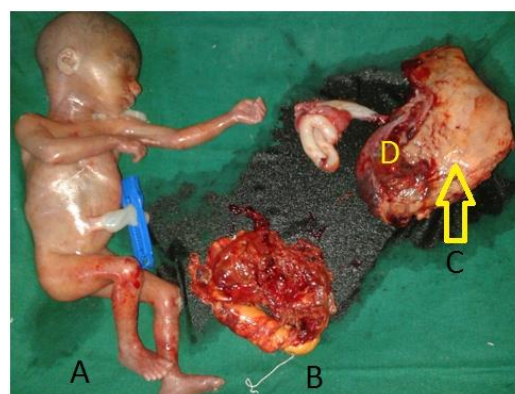
### CASE REPORT

A 24 years old pregnant woman was referred to our casualty in a cardiac ambulance at 28 weeks of gestation in a very morbid condition with drowsiness, gasping and hypotension. Patient a primigravida had conceived spontaneously 1 year after her marriage and had initially started with pain in lower abdomen at 12 weeks gestation for which she consulted at local hospital where she was managed conservatively with analgesics and antibiotics and was discharged after her pain got subsided. At 22 weeks of gestation, patient again had severe lower abdominal pain and vomiting. There was no bleeding per vaginum. She got admitted in a local hospital where ultrasonography was done which revealed bicornuate uterus with a single live gestation of 22 weeks. She was managed with intravenous fluids and analgesics and was discharged. Again at 28 weeks of gestation, at home, patient had severe agonizing lower abdominal pain, several episodes of vomiting and giddiness. She was immediately rushed to same hospital where her condition further deteriorated and was finally referred to our hospital. On arrival, patient was gasping, tachypnoeic and in altered sensorium. There was marked pallor, extremities were cold and clammy, pulse was feeble and blood pressure was not recordable. Abdomen was distended and tense. Uterine size could not be made out, foetal heart sound was not audible. Patient was immediately intubated and rushed to operation theatre. Blood transfusion was immediately started. Quick pelvic examination revealed fullness in the fornices with cervical movement tenderness. There was no bleeding per vaginum. Urgent bedside ultrasonography revealed fetus lying outside uterus in abdomen with no cardiac activity with echogenic free fluid in the abdominal cavity. Uterus was bicornuate. Ultrasound guided tap revealed frank bloody aspirate. Provisional diagnosis of rupture of one horn of bicornuate uterus with haemoperitoneum and resultant haemorrhagic shock with doubtful viability of foetus was made. An emergency laparotomy was done with continuing resuscitative measures. After opening the abdomen, a dead fetus of 1.2kg was lying in the abdominal cavity with umbilical cord attached to the placenta which was adherent to the ruptured right rudimentary horn. There was profuse bleeding from the rupture site the bleeding points were immediately clamped and ligated. The abdominal cavity was full of blood clots weighing around 1kg with free blood around 3.5 liters which was removed. Cord clamped cut and ligated fetus taken out. Major bulk of the placenta was morbidly adherent to this ruptured right rudimentary horn of uterus. However some part of the placenta was implanted on omentum which was necrotic and was excised. Placenta could not be separated from right rudimentary horn so right rudimentary horn of uterus along with placenta was excised. The left horn which appeared to be normal, both the fallopian tubes and both

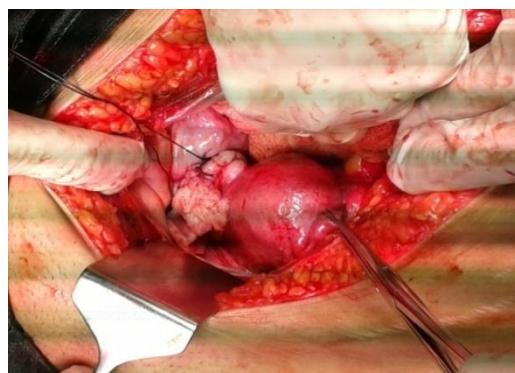
the ovaries preserved for the future reproductive functions. After achieving proper haemostasis, instrument counts and peritoneal toileting abdomen was closed back in layers. Five pints of whole blood and 5 pints of fresh frozen plasma were transfused. Patient had an uneventful recovery and was discharged on 9<sup>th</sup> post-operative day. Advise for contraception given for 6 months. The timely aggressive resuscitative measures and a good surgical expertise saved the precious life of patient.



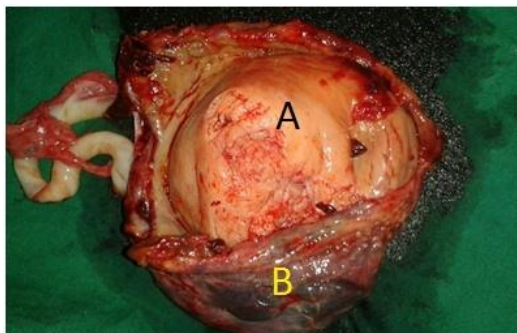
**Figure 1: Foetus was lying in the abdominal cavity which taken out from abdominal cavity.**



**Figure 2: (A) Dead foetus 1.2 Kg, (B) Excised Omentum, (C) Rupture right rudimentary horn, (D) Umbilical cord with placenta adherent to the right rudimentary horn.**



**Figure 3: Preserved left uterine horn with both fallopian tubes and ovaries.**



**Figure 4: (A) Ruptured right horn of uterus, (B) Adherent placenta.**

## DISCUSSION

Pregnancy in a bicornuate uterus is usually considered high risk and requires extra monitoring because of association with poor obstetric outcome. Bicornuate uterus results due to failure of fusion of müllerian ducts or sometimes lower part of the ducts fuse leaving the cornua separate. The cervix and vagina may be single or double. The prevalence of müllerian duct malformations in the general population and in the population of fertile women is estimated to be 4.3% and in the infertile patients approximately 25%. Septate uterus is the commonest anomaly with a mean incidence of approximately 35% followed by bicornuate uterus which is approximately 25% and arcuate uterus approximately 20%.<sup>4</sup> These malformations remain asymptomatic till the patient reaches reproductive age. Such anomalies are reported to result in increased rate of infertility, miscarriage, recurrent pregnancy loss, preterm labour and other obstetric complications. Clinical presentation varies from being asymptomatic to vague complaints of mild lower abdominal pain with gastrointestinal upset and finally to its severest form of acute abdomen with haemorrhagic shock. The most significant threat of a rudimentary horn pregnancy is the risk of rupture because of poorly developed musculature. In bicornuate uterus if pregnancy occurs in the well developed horn, it continues normally and only in cases where conception occurs in the rudimentary horn does danger need to be anticipated.<sup>5</sup> Pregnancy in rudimentary horn occurs in approximately 1/76000 to 1/150000 pregnancies.<sup>6,7</sup> Rupture of uterine horn occurs because of inability of the malformed uterus to expand with increasing gestational age. Timing of rupture varies from 15 to 35 weeks depending on horn musculature and its ability to hypertrophy and dilate. 70% to 90% of ruptures occur before 20 weeks and can be catastrophic.<sup>8</sup> Few cases may reach late second trimester. Chang et al reported rupture of the rudimentary horn as late as 25 weeks of gestation.<sup>9</sup> In our case rupture occurred at early third trimester. First case of uterine rupture associated with rudimentary horn was reported in 1669 by Mauriceau.<sup>10</sup> A case of advanced secondary abdominal pregnancy through a small rent in rudimentary horn was reported by Desai et al.<sup>11</sup> Early diagnosis of the condition is essential but can be challenging. Fedele et al

found ultrasonography to be useful in the diagnosis but sensitivity decreases as the pregnancy advances.<sup>12</sup> MRI has also been used with success to diagnose abdominal pregnancy.<sup>13</sup> The extent of placental invasion, its relationship to the pelvic organs and the vascular supply could be more closely visualised by magnetic resonance imaging.<sup>14</sup> There is no definitive clinical criteria to detect this life threatening condition and diagnosis can be quite difficult because of enlarging horn with thinned myometrium can obscure the adjacent anatomic structures. Nonetheless, in developing countries most of the cases remain undiagnosed until it ruptures and presents as obstetric emergency. Abdominal pregnancies should be interrupted at diagnosis, as the potential for delivering of a healthy infant is poor and the risk of maternal complications is high. However if the diagnosis is made late in pregnancy, a viable infant may be delivered via laparotomy. Thus expectant management to gain foetal maturity has been attempted and has been successful in only few cases.<sup>15</sup> In our case the rupture of rudimentary horn pregnancy occurred at 28 weeks, however in literature after the search we found that most of the cases published are up to 20<sup>th</sup> weeks of gestation hence it appears to be unique case. As this patient came to casualty in a critical state of gasping. The timely aggressive resuscitative measures, a good surgical expertise, high risk consent of grade 5 anaesthesia given by the patient's relative to go ahead with the surgery even though there was a high risk. All these efforts have revived the patient from her very critical condition.

## CONCLUSION

It is imperative for every obstetrician to have in mind the possibility of abdominal pregnancy in cases of rudimentary horn with pain in abdomen. However it still remains a diagnostic and therapeutic challenge when such patients come in acute emergency. Despite considerable improvement in technical abilities, prenatal diagnosis remains elusive in the developing countries resulting in delays in diagnosis and decision making. Timely laparotomy in haemodynamically unstable patients with proper resuscitative measures will definitely help the patient. Pregnancy in an anomalous uterus is a high risk entity, with good clinical acumen one can observe the right course of pregnancy and intervention as if required in such critical emergency the key factor in the management is The immediate replacement of blood & blood products can replace the blood loss in the body & reverse the condition of haemorrhagic shock before it goes to the state of irreversible stage of shock at the same time one should give emphasis on the right surgical treatment to control the bleeding which can reduce the mortality and morbidity of the patient.

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