

# Abdominal Pregnancy: A Case Report and Literature Review

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## ABSTRACT

We report a rare and unusual case of an Abdominal pregnancy that was delivered successfully at term. It is the first documented case in the local literature in almost 30 years. What makes it even more exceptional is that despite the high mortality associated with the condition, both mother and baby survived the ordeal. She subsequently delivered another child, 2 years later by an elective lower segment caesarean section and had a tubal ligation performed concomitantly. A review of the topic and its management is also presented.

**Keywords:** Abdominal pregnancy, ultrasound

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## INTRODUCTION

Abdominal pregnancy is extremely rare, but one that represents a grave risk to the gravida's health. The first description of this obstetric anomaly was given by Albucasis (Abu El Kassim El - Zaharawi) the well known Andalusian Arab surgeon (1013 - 1106) in the book entitled 'Al Tasif'. In western countries, this obstetric complication is observed in approximately one out of 10 000 deliveries. A search of the local medical literature yielded an article published in 1969 that reviewed the paediatric aspects of advanced abdominal pregnancies encountered from 1958 to 1968 (total of 8 cases)<sup>1,2</sup>. The incidence quoted was 1 in 50 820. This is the first locally documented case since then and it reviews the recent developments and management of this obstetric entity.

## CASE REPORT

Mdm NSC a 23-year-old multiparous patient was seen regularly at the polyclinic until the 28th week of amenorrhoea, when further antenatal care was transferred to KK Women's Hospital.

An ultrasound scan at 7 weeks confirmed a viable pregnancy corresponding to her dates. No fluid was noted in the pouch of Douglas and no adnexal masses were seen. Both ovaries were seen and noted to be

normal. She had complained of a vague epigastric pain on and off over a period of 2 weeks and this was treated symptomatically with antacids. She did not experience any vaginal bleeding, and quickening was felt at 16 weeks. A screening scan performed in the 18th week demonstrated a single fetus in breech presentation. The head circumference, abdominal circumference and femoral length corresponded to dates and no gross abnormalities were detected. The placental attachment was noted in the upper uterine segment and no pelvic abnormalities were noted. The liquor volume was normal. Apart from the breech presentation, the pregnancy progressed without any incident. An ultrasound scan at the 36th week confirmed the persistent breech presentation and the head circumference and abdominal circumference were on the 97th centile of the normogram, liquor volume was normal, but it is interesting that the ultrasonographer experienced considerable difficulty in obtaining adequate images due to the unusual position and attitude of the fetus. At her last antenatal visit at 37 weeks, a transabdominal scan estimated the fetal weight of the breech fetus to be 3.6 kg. A joint decision was made with the parents to deliver the baby by an elective caesarean section at the 38th week. However, she was admitted for the complaints of labour pain associated with "show" at 37 weeks and 5 days of amenorrhoea, 2 days before the scheduled caesarean section.

On physical examination, her general condition was satisfactory. Abdominal examination showed a term size uterus with the fetus lying obliquely. The head was ballotable in the uterine fundus. An urgent ultrasound scan in the labour ward confirmed the findings. Vaginal examination showed that the cervix was closed, tubular and directed anteriorly. The station of the presenting part was high and could not be felt. A cardiotocograph (CTG) showed a reactive trace and weak uterine contractions were registered. The decision was taken to perform an emergency caesarean section.

At operation, a term size live fetus was found lying freely in an amniotic sac in the peritoneal cavity. It was tethered precariously by its cord to the placenta that was implanted onto the serosal surface of the uterus,

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particularly on the right side and dorsal aspect of the fundus, the right cornu, and extending in continuity onto the medial two thirds of the right fallopian tube. Its attachment also included a portion of the omentum and the mesentery of a small segment of the small bowel. The chorioamniotic membranes were already ruptured by the abdominal incision. The uterus was 14 weeks size but there was no breach in the uterine wall which was intact except for the area of placental attachment. Both ovaries and the left fallopian tube were normal. Some placental separation had already occurred during the delivery of the baby and there was a retroplacental haematoma and oozing through the placenta membrane on the posterior aspect of the uterus was noted. There was approximately 150 mls of haemoperitoneum in the cavity. The fetus was delivered in the usual manner by breech extraction.

A general survey was made of the abdominal cavity and the findings were reconfirmed. The decision was taken to remove the placenta. The feeding vessels to the placenta were thought to be originating from the ascending branch of the right uterine artery and the right ovarian artery via the infundibulopelvic ligament. The uterine vessels were ligated along its ascending course on the lateral wall of the uterus with continuous locking of #1 Chromic Catgut (CCG) over the cut surface of the uterus. A repair of the uterus was then completed with #1 CCG. The placenta attachments to the mesentery and omentum were also clamped divided and ligated. With its blood supply arrested a right cornual resection conserving the right ovary was performed with a right partial salpingectomy. After hemostasis was secured, peritoneal ravage was carried out with warm normal saline solution to remove the blood from the peritoneal cavity. 2 drains were inserted, draining the anterior and posterior aspect of the uterus. Pieces of gel foam was placed on the raw surfaces. The abdomen was then closed in layers. A vaginal examination was performed but the vaginal canal was dry and no fresh bleeding was noted.

Intraoperative blood loss was estimated to be 3.5 litres. 4 units of packed cells, 2 litres of fresh frozen plasma, 2 litres of colloids and 2 litres of crystalloids were infused during the operation.

A healthy baby girl was delivered weighing 3540 gm. Apgar score at one and five minutes were 9. No fetal abnormalities were noted. She was discharged from the neonatal ward with no medical complications several days later.

After a stormy immediate post-operative course during which the patient required 4 units of packed cells, 2 units of fresh frozen plasma and 3 litres of crystalloids, she was well and discharged on the 10th POD.

She conceived again approximately 2 years later

during which she had an uneventful antenatal follow-up. She was scheduled for an elective caesarean section at 35 weeks, but, at 36 weeks, she developed Pre-labour Rupture of Membranes and underwent a semi-emergency laparotomy. Findings intra-operatively were a gravid uterus, with an intact left fallopian tube. However, the right tube was absent (from the previous surgery) and adhesions were noted between the right side of the uteri corpus and the lateral abdominal wall. A male fetus was delivered in the usual way from a low transverse uterine incision. Tubal ligation was also carried out during the surgery. The baby boy weighed 2835gm and both mother and baby were discharged after an uneventful recovery three days later.

## DISCUSSION

Abdominal pregnancy is a very rare condition. A literature survey produces an incidence varying from one for every 402 to one for every 50 200 deliveries<sup>(1)</sup>. In the United States, Atrash et al has determined that there are 10.9 events per 100 000 births<sup>(2)</sup>. As it is a variant of ectopic gestation, it seems necessary to calculate its incidence in relation to the frequency of ectopic pregnancies. Hence, the same Atrash group estimated that there are 9.2 abdominal pregnancies per 1000 ectopic gestations. Despite its rarity, its occurrence presents the obstetrician with a serious challenge because the maternal mortality is unacceptably high, 0.5-18%<sup>(2,4)</sup>, and the perinatal mortality rate is equally depressing, ranging from 40-95%<sup>(2,3)</sup>. Term living abdominal pregnancies with both living mother and infant are even more rare.

Abdominal pregnancies are classified into primary or secondary types. Primary abdominal pregnancies are a result of fertilisation of the ovum within the abdominal cavity. They are so rare that some authors have doubted their existence. In contrast, secondary forms of abdominal pregnancy occur much more frequently. It generally occurs after tubal abortion or rupture, usually at the end of the first trimester, caused by the rapidly growing embryo in the fallopian tube<sup>(1)</sup>. The most important factor in the pathogenesis is the presence of an adequate blood supply for the growing fetus. However differentiation between the two types of abdominal pregnancy has little significance because the techniques for diagnosis and treatment are identical<sup>(9)</sup>. If the pregnancy survives beyond the 20th week of amenorrhoea then it is considered an advanced abdominal pregnancy.

As with ectopic pregnancies, the recognized risk factors of abdominal pregnancy include infertility, history of pelvic infections, history of ectopic gestations and endometriosis<sup>(8,10)</sup>. Madam NSC has none of the recognised risk factors predisposing her to her condition.

Early and accurate diagnosis of an abdominal pregnancy, is very important if catastrophic haemorrhage from the placental separation in advanced cases is to be avoided. The initial clinical findings are often like that of an ectopic pregnancy. Typical symptoms include complaints of recurrent attacks of diffuse, crampy abdominal pain, vaginal bleeding, constipation, nausea, vomiting and urinary frequency. These symptoms relate to the site of placental attachment; i.e. bowel or bladder encroachment producing signs of obstruction or inflammation<sup>(4)</sup>. Later, painful fetal movements may be noted high in the maternal abdomen. Abdominal pain has traditionally been the most frequent symptom noted. However, Madam NSC was relatively symptom free except for an episode of abdominal pain that was attributed to "gastritis".

Abdominal examination is frequently inconclusive as well. The abnormal position of the fetus is present in a high percentage of cases and appears to be an important clue that would have directed our suspicion towards the diagnosis. Ease of abdominal palpation of fetal parts is not reliable and this was not noticed in our patient. There was also no abdominal tenderness (particularly over the fetus) even when she was in early labour. In some cases, the cervix uteri is the key to a correct diagnosis<sup>(13)</sup>. In our patient's case, this was closed, uneffaced and directed anteriorly which is typical of an abdominal pregnancy. An incorrect diagnosis is generally due to the fact that this rare entity is not considered in the differential diagnosis at all<sup>(2,4,12,18)</sup>.

Although ultrasound has been found to be a useful non invasive aid in supporting or confirming the diagnosis of advanced extrauterine pregnancy, it can also give a false diagnosis of intrauterine pregnancy as has happened in our patient<sup>(12)</sup>. Our patient had a total of 3 scans, one in the first trimester and the other 2 in the third trimester. On all 3 occasions, the diagnosis was missed during her antenatal follow-up at primary healthcare.

Radiological investigations, particularly lateral radiography of the abdomen with fetal parts overlying the maternal spine was helpful before the advent of more sophisticated methods. Hystero-graphy, while helpful is reserved for cases of fetal death<sup>(14)</sup>. These methods have now been superseded by the less invasive ultrasound. However, scanning requires expertise and experience and will be optimal only if the ultrasonographer is familiar with the acoustic patterns associated with extrauterine gestation, and maintains a high index of suspicion, especially when scanning a patient who has abdominal pain and bleeding. More recently, nuclear magnetic resonance imaging has been shown to be a reliable diagnostic tool, due to the clarity of images in

multiple planes, absence of irradiation, definition of the placenta and its vasculature, its reliability in the diagnosis of fetal abnormalities and in the follow up of placental involution<sup>(14,15)</sup>. Other ancillary investigations like the negative oxytocin stress test<sup>(16)</sup>, hematological findings of anemia, elevated levels of serum beta-hCG and alpha fetoprotein have been used with varying degrees of success<sup>(18)</sup>.

Despite the armamentarium of diagnostic tools, over 50% of cases remained undiagnosed preoperatively. Our case exemplifies to this statistic. Because of the risk of intraabdominal placental separation, most authors advise surgical intervention the moment the diagnosis is confirmed, regardless of the fetal condition. However, some centres allow some degree of delay (to await maturity) provided the fetus is viable, absence of congenital malformations and the fetal growth is normal<sup>(7)</sup>. In addition surveillance must be carried out in a well organised properly equipped unit, with facilities for immediate laparotomy should the need arise.

Management of the placenta still remains an unsolved problem. A complete removal of placenta seems the most logical approach when the feeding blood supply can be easily secured. To avoid haemorrhage, Chervenak et al has described the use of aortic clamps below the renal arteries<sup>(17)</sup>. In our case, the placental bed was localised and anatomically feasible for removing the placenta in toto. If any doubt exists about the safety of the placental removal, it is better to leave it untouched and to ligate the umbilical cord close to the placenta<sup>(18)</sup>. Partial removal of the placenta when its blood supply cannot be secured may result in massive haemorrhage and shock. A decision to leave the placenta often entails careful post-operative monitoring as many complications can occur. These include; secondary haemorrhage, hypofibrinogenemia, intestinal obstruction, ileus, perforation of the bowel, sepsis and abscess formation.

No congenital malformations was present in our infant. However, various studies reported a malformation rate as high as 20-40%. These were attributed to oligohydramnios and compression giving rise to torticollis, facial asymmetry, malformation of the limbs, flattening of the fetal head and malformations of the fetal thorax<sup>(8)</sup>. Many perished in the perinatal period from complications arising from pulmonary hypoplasia. Fetal death is also a threat because of the reduced quantity of amniotic fluid and the precarious blood supply and cases of intrauterine growth retardation have also been reported. As the ovaries and the left fallopian tube were left in situ, her fertility prognosis did not appear to be affected and she delivered her 3rd child 1 year 7 months later.

In conclusion, any obstetric condition presenting

with abdominal pain as well as signs and symptoms that are difficult to explain by the more common complications of pregnancy should have the possibility of an abdominal pregnancy as one of the differential diagnosis. A high index of suspicion with the appropriate imaging technique is needed for a definitive diagnosis. Once diagnosed, close surveillance with prompt and planned delivery is mandatory. Finally, if the placental blood supply cannot be confidently secured, it may be prudent to leave the abdominal placenta in situ and to expect spontaneous resolution.

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