

Abdominal pregnancy at term. Conservative management. An extremely rare case report

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Abstract

The development to term of a pregnancy attached into the abdominal cavity is a rare finding and is associated with an increased risk of maternal and fetal morbidity and mortality. We present a case where an abdominal pregnancy was first discovered at the time of a planned caesarean section for suspected major placenta praevia and transverse lie. After the fetal extraction (2750 grams, Apgar score 6 and 8 at 1 and 5 minutes), the placenta was seen inserted onto the root of the mesentery, the sigmoid colon and mesosigmoid and on the fundus of the uterus. The decision was to leave the placenta in situ after the ligation of the umbilical cord. The postoperative course was uneventful. A magnetic resonance imaging was performed during the hospital stay and three months later, showing the involution of placenta. No complications were recorded during two years of follow-up. When an abdominal pregnancy is unexpectedly encountered at term, the placenta can be left in situ in order to avoid uncontrolled hemorrhage and unwanted lesions to the abdominal organs to which placenta is attached; a planned second stage surgery can then be taken into consideration for its removal in case of complications. In our case, a conservative management was adopted, with close clinical and imaging (MRI, abdominal ultrasound) follow-up and the patient had an uneventful recovery with a gradual involution of the placenta.

Keywords: abdominal pregnancy, placenta, ectopic pregnancy, conservative management, magnetic resonance imaging

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Rezumat

Evoluția până la termen a unei sarcini dezvoltate în cavitatea abdominală este o eventualitate rară și este asociată cu un risc crescut de morbiditate și mortalitate maternă și fetală. Prezentăm un caz în care sarcina abdominală a fost pentru prima dată descoperită în timpul unei cezariene planificate pentru o suspiciune majoră de placenta previa și prezență transversală. După extracția fătului (2750 g, scor Apgar 6 și 8 la 1 și 5 minute), a fost observată placenta inserată pe rădăcina mezenterului, a colonului sigmoid și a mezosigmoidului și a fundului uterin. A fost luată decizia de a lăsa placenta in situ după legarea cordonului ombilical. Evoluția postoperatorie a fost fără complicații. O examinare imagistică prin rezonanță magnetică a fost realizată în cursul spitalizării și la trei luni după naștere, arătând involuția placentei. În cursul celor doi ani de urmărire postnatală nu a fost înregistrată nicio complicație. Când o sarcină abdominală este diagnosticată pentru prima dată la termen, placenta poate fi abandonată pentru a evita o hemoragie ce nu poate fi controlată și a nu produce lezarea intempestivă a unor organe de care placenta este aderentă; planificarea unei intervenții chirurgicale în timpul doi poate fi luată în considerație pentru îndepărtarea placentei în caz de complicații. În cazul prezentat, a fost adoptată o conduită conservatoare, cu o urmărire atentă clinică și imagistică (IRM, ecografie), pacienta având o recuperare fără complicații și cu o involuție progresivă a placentei.

Cuvinte-cheie: sarcină abdominală, placenta, sarcină ectopică, conduită conservatoare, imagistică prin rezonanță magnetică

1. Introduction

An abdominal pregnancy occurs when a first-trimester pregnancy is detached from its tubal attachment, expelled into the abdominal cavity and continues its evolution by implantation at the level of the low abdominal cavity structures⁽¹⁾. An abdominal pregnancy advancing to term and resulting in a live fetus and a good maternal outcome is a rare obstetrical event. Abdominal pregnancy rarely progresses to term and, if this happens, the prognosis is very poor, with an estimated maternal mortality rate of 5.1 to 1000 cases^(2,3). The death risk is 7.7 times higher compared to other forms of ectopic

gestation⁽²⁾. Extraordinarily, intrauterine pregnancy can be associated with an ectopic pregnancy, or with synchronous ectopic and intrauterine pregnancy⁽⁴⁾. The neonatal mortality rate varies between 40% and 95%⁽⁵⁾ and the fetal malformations are estimated to occur in 20-49% of the cases, and especially in relation with oligohydramnios.

Ultrasonography (US) is the diagnostic tool of choice. If the diagnosis of abdominal pregnancy is not established in the first trimester, the chance to diagnose it later is very small. Abdominal pregnancy at term should be suspected in case of abnormal presentation, painful

fetal movements, palpation of the fetal parts under the abdominal wall and fetal death.

The treatment of an abdominal pregnancy at term is surgical, irrespective of the viability of the fetus. Adequate blood replacement should be made available prior to laparotomy⁽³⁾.

The most debatable attitude regards the placenta. Some authors recommend the removal of the placenta, unless it is attached to major vessels or vital structures, avoiding life threatening risks such as sepsis, abscess formation, hemorrhage or intestinal obstruction. Others prefer leaving the placenta *in situ*, because the bleeding caused by its detachment can be life threatening⁽⁶⁾.

Placental involution could be followed-up postoperatively by US, computed tomography (CT) scan or by magnetic resonance imaging (MRI).

The aim of this article is to evaluate the long-term outcome of an extremely rare case of extrauterine pregnancy with a viable fetus at term and to compare the results with the data from literature.

2. Case presentation

A 35-year-old woman, G3, P3, with no relevant medical or obstetrical history, was admitted to the “Filantropia” Clinical Hospital, a third level maternity from Bucharest, Romania, at 38 weeks of gestation, for transverse lie and suspected major *placenta praevia* as suggested by ultrasound examination, for an elective caesarean section. She had no US assessment in the first trimester and the diagnosis of abdominal pregnancy was missed at the routine anomaly scan at 23 weeks.

The patient’s medical and family history was unremarkable. She had two previous vaginal deliveries, no abortions and during this pregnancy she was poorly investigated in other service. She reported no gastrointestinal or urinary symptoms during pregnancy.

The clinical examination was unremarkable.

At laparotomy, the amniotic sac was the first structure that appeared intraabdominally and it spontaneously ruptured. A male fetus of 2750 g was extracted, with Apgar scores of 6 and 8 at 1 and 5 minutes. The

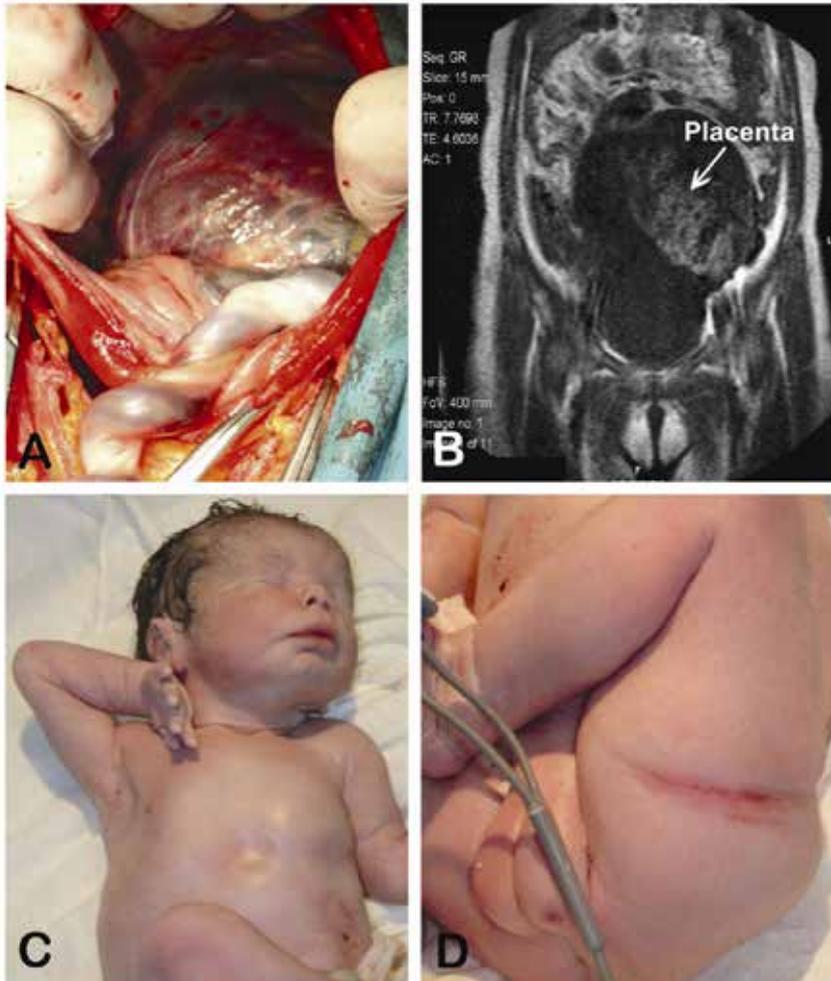


Figure 1. **A.** Placental insertion on the lower abdominal structures; **B.** Post-caesarean section MRI. Localization of the placenta; **C.** Malposition of the right upper limb (abduction and flexion); **D.** Compression of the left thigh by the umbilical cord

placenta was inserted into the root of the mesentery, the sigmoid colon and the mesosigmoid and on the fundus of the uterus. The decision was to leave the placenta *in situ* after ligation of umbilical cord (Figure 1A). The newborn had signs of malposition of upper and lower limbs (Figure 1B) and compression of the left thigh (Figure 1C). The postoperative course was uneventful. The patient was closely monitored for intraperitoneal bleeding and infections, but none of these occurred. She was discharged from the hospital on postoperative day 7 and continued the investigations in the outpatient clinic.

An MRI was performed during the hospital stay and three months later, showing the involution of placenta (Figure 1D).

The postoperative outcome was uneventful during the 10 years of follow-up. The computed tomography showed placental regression after two years, with no further complications (Figure 2).

Also, during the clinical examination 10 years later, the patient reports no clinical changes.

3. Discussion

Abdominal pregnancy is an ectopic gestation where the trophoblast has implanted into the peritoneal cavity, outside the uterine cavity and the fallopian tubes. The incidence is very low, reported to be 1 to 10,000 births⁽³⁾ in USA. The most frequent sites of implantation are omentum, broad ligament of the uterus, uterine serosa and abdominal organs⁽³⁾.

The exact mechanism of developing an abdominal pregnancy is insufficiently known. There are two possible theories: a secondary implantation from an aborted tubal pregnancy or a primary intraperitoneal fertilization between sperm and ovum⁽⁸⁾. However, cases of abdominal pregnancies were reported even after *in vitro* fertilization (IVF) with suspected uterine wall perforation⁽⁹⁾.



Figure 2. Computed tomography showing placenta regression after two years, with insertion on the root of the mesentery and posterior parietal peritoneum, as well as urinary bladder and uterine fundus

Abdominal pregnancy can accompany a very wide range of clinical manifestations, depending on the implantation site. Nausea and vomiting can occur in pregnancies implanted on large and small bowel, bleeding from uterine decidualization⁽¹⁰⁾, acute abdomen and hemorrhagic shock in cases of large vessels or viscera rupture. An abdominal pregnancy can have no abnormal symptoms and can reach term or even postterm, without a clear diagnosis. There were cases diagnosed postterm after failed induction⁽¹¹⁾ or at the time of an elective caesarean section for other reasons (suspected major *placenta praevia* in the case presented above and abnormal fetal lie).

A very low index of suspicion is carried out by obstetricians regarding abdominal pregnancy, especially due to its rare incidence. However, the diagnosis needs to be established in the first trimester. The most frequent sign is the absence of the myometrium between the amniotic sac and the mother's bladder⁽⁸⁾, and an empty uterus can be seen. When suspected, CT scan and MRI can be used for clarifying the diagnosis, as well as for the evaluation of placental abnormal adherence.

Regarding the treatment, this needs to be individualized and depends especially on the time of diagnosis and on occurring complications. The elective treatment in the first trimester is surgery with the aim of pregnancy removal. This may be very difficult in cases of pregnancies implanted near vascular surfaces.

In contrast with fallopian tube ectopic pregnancies, where methotrexate has been found to be the elective treatment in selected cases, in abdominal pregnancies this treatment was not found to have the expected outcome⁽¹²⁾.

However, if the diagnosis is made in the late second trimester, expectant management can be considered. This is recommended in order to achieve fetal pulmonary maturity and it has been successful in some cases⁽¹³⁾.

When the decision to deliver is taken, usually the fetus can be delivered easily, but the main issue remains the management of the placenta. The obstetrician is faced with two possibilities: to remove the placenta or leave it. Trying to remove the placenta can be a life-threatening procedure due to high risk of bleeding. The option of ligating the umbilical cord and leaving placenta *in situ* seems to be the best management, with a minimal risk of bleeding. This latter procedure presents additional risks of infection and delayed bleeding⁽¹⁴⁾ during the follow-up period and can be sanctioned by surgical interventions in multidisciplinary teams.

Feticide and leaving both the fetus and placenta inside peritoneal cavity had also been described⁽¹⁵⁾.

Apart from the postoperative expectant management, some authors recommended methotrexate for placental resolution, but most of the studies reached the conclusion that it is not beneficial. In the cases where methotrexate was used, this caused an accumulation of large amount of necrotic tissue where bacteria can grow and increase the risk of infection⁽¹⁶⁾. Another argument against the postoperative use of methotrexate is given

by the fact that, near term, the number of mitotically active trophoblast cells is very low⁽¹⁷⁾.

The prediction of the outcome is almost impossible. Maternal death due to severe uncontrolled bleeding with severe anemia is the worst complication⁽¹⁸⁾. Common fetal findings include head asymmetry, limbs malformations and umbilical cord compression.

In our case, we decided to leave the placenta *in situ* due to the increased risk of heavy bleeding in case of detachment and to prevent bowel injury and subsequent infection. A part of the placental blood supply was from the uterus and this might be an important reason for this pregnancy reaching term, being known that some vascular attachment to the uterus is associated with better chances of fetal survival⁽⁸⁾.

Although this situation is extremely rare, there are some cases reported in the literature, most of them diagnosed intraoperatively. In one case, the authors reported that a relaparotomy was necessary on the third postoperative day due to abdominal bleeding, but otherwise both mother and baby recovered well⁽¹⁹⁾.

There are multiple cases of abdominal localization diagnosed antenatally which ended by termination, some of them by selective embolization before surgery. The placenta was also left *in situ*⁽²⁰⁾.

5. Conclusions

Abdominal pregnancy is a rare obstetrical event and is associated with a high rate of maternal and fetal/neonatal morbidity and mortality. Extremely rare, abdominal

pregnancy can reach full term. It is a potentially lethal condition due to placental adherence to abdominal organs. The diagnosis relies on the ultrasound examination during the first trimester. Delivery is achieved through laparotomy, irrespective of the status of the fetus, and the most debatable attitude regards the placenta. In carefully selected cases or limited resources, the conservative management by leaving the placenta *in situ* could be the best option of management to prevent catastrophic bleeding. Close follow-up is required. ■

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Ethical statement. The case report is published according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board (Ethics Committee) of the "Filantropia" Clinical Hospital of Obstetrics and Gynecology, Bucharest, Romania.

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