






Term Abdominal Pregnancy with a Live Fetus Incidentally Found During Cesarean Section: A Case Report

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Background: Abdominal pregnancy is a rare but, serious obstetric condition that has continued to pose difficulties in its diagnosis and management. The clinical presentation takes various forms, mostly nonspecific, leading to the delay in diagnosis and management. With a high degree of suspicion, the diagnosis can be made by an abdominal ultrasound particularly in the early trimesters. The objective of this case report is to share our experience in low resource setting dealing with this rare condition diagnosed incidentally during a planned Cesarean section for another obstetric indication.

Case Report: Twenty-five-year-old primigravida from the Federal Republic of Somalia at a gestational age of 37 + 3 weeks was admitted for elective cesarean section with a diagnosis of Placenta Previa. She had frequent antenatal visits to nearby health facilities with non-specific abdominal symptoms and spotty vaginal bleeding. Intraoperatively, the uterus and right adnexa were normal, while the fetus, chorioamniotic membrane, and placenta were found in the peritoneal cavity and the diagnosis of abdominal pregnancy was made. A 3.5kg live female fetus was delivered with Apgar score of 9 and 10 in the 1st and 5th minutes. Placenta removed through infracolic omentectomy and left adnexectomy. The neonate had facial deformity, bilateral club foot, scoliosis and finger deformities. The mother discharged in good health on the 10th post-operative day and the neonate was linked to orthopedic surgeon for further management.

Conclusion: This case report demonstrates the continuing challenges in early diagnosis and management of this serious obstetric condition. The rarity of the condition in general, and in low resource settings delayed antenatal care (ANC) booking of women, and lack of experience in meticulous ultrasound scanning, are challenges in making an accurate diagnosis. It is recommended that the location of pregnancy should be confirmed in early trimester, vague and nonspecific complaints should be addressed to rule out or rule in ectopic pregnancy.

Keywords: abdominal pregnancy, ectopic pregnancy, ultrasound

Introduction

Abdominal pregnancy (AP) is a rare variant of ectopic pregnancy in which the pregnancy implants in the peritoneal cavity, exclusive of the fallopian tubes, ovaries, broad ligament, and cervix.^{1–3} There are different ways of classifying abdominal pregnancy. Based on the gestational age at the time of diagnosis, it can be early when diagnosed prior to 20 weeks and advanced abdominal pregnancy (AAP) when diagnosed after 20 weeks.^{4,5} It is also classified as a primary abdominal pregnancy which results from fertilization of the ovum in the abdominal cavity, and secondary when peritoneal implantation occurs after aborted or ruptured tubal pregnancy.^{1,5–7} After implantation, the placenta is often attached to multiple sites, including bowel, omentum, uterine cul-de-sac, and pelvic sidewalls.⁸

AP is uncommon, accounting for 1–4% of all ectopic pregnancies or with an incidence of 1:10,000–1:30,000 among all pregnancies.^{2,7} The incidence of advanced abdominal pregnancy is high in developing countries with an incidence between 1 in 1134–3750 deliveries due to inadequate and poor medical care.^{2,3} Despite its low incidence, the fetomaternal morbidity and mortality is very high, particularly when the diagnosis is made in late gestation. The risk

of maternal death from AAP is 7.7 times greater than from tubal pregnancy and 90 times higher than in a normal pregnancy.⁹ The maternal mortality is 0.5–18%, and the perinatal mortality rate is 40–95%.^{2,6,8,10}

The risk factors for abdominal pregnancy are similar to that of ectopic pregnancy, usually seen among patients in low socioeconomic class, a previous history of infertility and history of pelvic infection^{2,11} and is the reason for the higher incidence of AP in developing countries than those in developed countries.

Women with uncomplicated abdominal pregnancy present with nonspecific clinical symptoms, among which the most frequently encountered, are persistent abdominal or suprapubic pain, missed periods, bloody vaginal discharge, and gastrointestinal symptoms like nausea and vomiting making it difficult to incriminate these symptoms to abdominal pregnancy.^{10,11} Due to the rare prevalence of advanced abdominal pregnancy, there is no standard diagnostic algorithm to follow and the diagnostic error can be as much as 50–90%.^{2,12} Due to this advanced abdominal pregnancy can also be discovered in the process of elective cesarean section; hence, a high index of suspicion is crucial to diagnose abdominal pregnancy.^{2,11,13}

Case Report

A 25 years old primigravida woman presented to Daar-Xannan Hospital for cesarean delivery after she was informed to have placenta previa. Her last normal menstrual period (LNMP) was unknown but from early ultrasound done at a gestational age of 15+4 weeks, the gestational age at current admission became 37 + 3 weeks. At admission, her complaint was dull aching intermittent abdominal pain, which worsens with fetal movement and abdominal palpation, and the symptom was incriminated for labor and intraamniotic infection. During the course of the pregnancy, she had frequent antenatal visits to nearby health facilities with the complaint of non-specific abdominal pain, loss of appetite, nausea, vomiting and spotty vaginal bleeding throughout the pregnancy. For these complaints, she was frequently admitted and treated for acute pyelonephritis and serial obstetric ultrasound scans revealed normal intrauterine pregnancy (Figure 1).

On physical examination, she was chronically ill looking with the following vital signs; Blood Pressure: 130/80, Pulse Rate: 116, Temperature: 36.7°C. On abdominal examination, she had mild-to-moderate abdominal tenderness, and fetal heart beat (FHB) of 140–156/min. With the diagnosis of Term pregnancy + Placenta Previa + Chorioamnionitis, she was worked-up with Complete Blood Count (CBC), Renal Function Test (RFT), Liver Function Test (LFT) and Urine analysis (Table 1). She was resuscitated with 1000mL of crystalloid, started broad spectrum IV antibiotics, 2 units of blood typed and cross-matched and was taken for an emergency Cesarean delivery (CD).

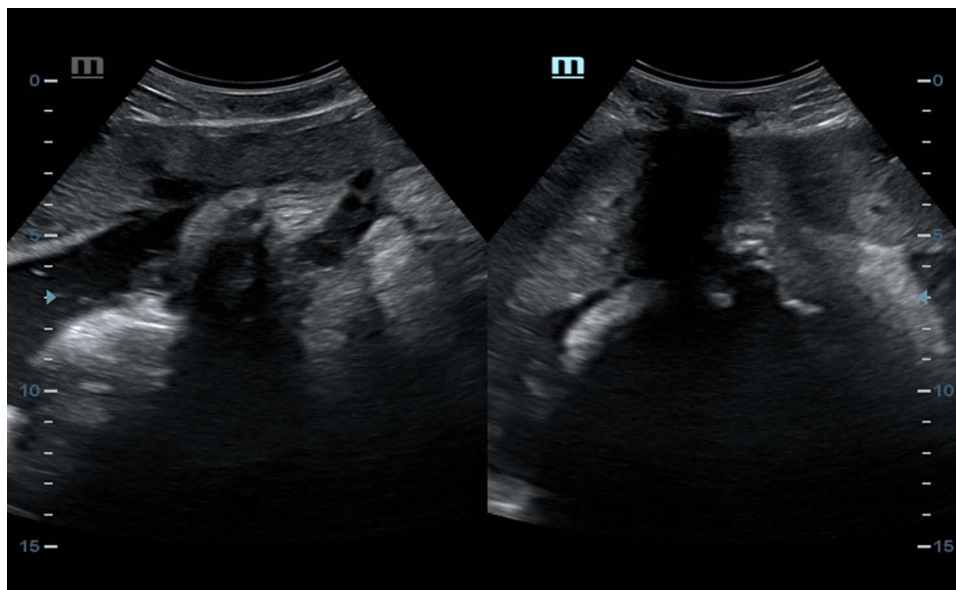


Figure 1 Obstetric ultrasound image at a gestational age of 25w +5d, showing a placental bed closely opposed to the anterior abdominal wall and an ill-defined amniotic cavity with no uterine wall around the fetus, placenta and amniotic membrane.

Table I Laboratory Results for a Case of Term Abdominal Pregnancy with a Live Fetus Incidentally Found During Cesarean Section, Somalia, 2024

Laboratory Investigation	Laboratory Result	Reference Range
Haemoglobin	9.2g/dl	12–16g/dl
White blood count	13,500/ul	4000–10,000/ul
Platelet	355,000	150,000–450,000/ul
Blood group and Rh	AB, Rh+ve	
Serum creatinine	0.9mg/dl	0.5–1.1mg/dl
Aspartate aminotransferase	28U/L	0–42U/L
Alanine aminotransferase	31U/L	0–37U/L
Urine analysis	Leukocyte 2+, WBC 15–20/HPF	

Through a Pfannenstiel abdominal incision abdominal cavity was entered. Immediately after the peritoneum was bluntly entered, the fetal hand appeared in the surgical field, and the diagnosis of abdominal pregnancy was made. A 3.5kg healthy female neonate was delivered with an Apgar score of 8 and 9 in the 1st and 5th minute. The cord clamped and abdominal cavity explored after converting the abdominal incision to a vertical midline incision (inverted T incision) for a better visualization and accessibility. The abdominal cavity cautiously explored and the placenta was attached mainly to the infracolic omentum, left adnexa, and the left pelvic side wall. The left fallopian tube and ovary were embedded within the placental tissue. The uterus was normal non-pregnant sized and pushed towards the right pelvic wall. The right fallopian tube and ovary appear adhered to the pelvic side wall with fibrinous adhesions. After a thorough examination of the placental insertion sites, infracolic omentectomy and left adnexectomy was done to successfully remove the major part of the placenta. Small nodes of placental tissue, which have been attached to the large bowel and small bowel were left in situ. After placental removal, there were multiple oozing sites from the bowel surface, left pelvic side wall, and posterior cul-de-sac. Bowel loops and bladder were evaluated for inadvertent injury. Abdominal cavity lavaged with 1 liter of warm normal saline, drainage tube inserted, and tight gauze pack left in the peritoneal cavity before abdominal wall closure.

Immediately after delivery the neonate was evaluated and the external findings include facial deformity, which is prominent on the right mandible, bilateral club foot, multiple finger pressure deformities and scoliosis (Figure 2). The neonate vital signs remained stable and feeding well.

**Figure 2** Neonatal external physical examination findings showing right mandibular deformity, scoliosis, club foot and multiple finger deformities.

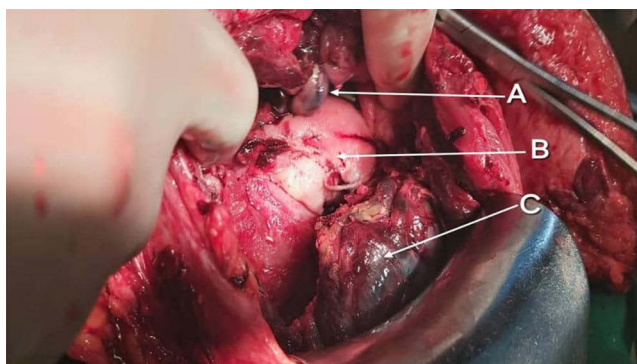


Figure 3 Re-laparotomy for gauze pack and remaining placenta removal in Term abdominal pregnancy: (A) Secured omentectomy site with small placental tissue, (B) Large bowel, (C) Remaining placental tissue that was attached to the left adnexal tissue and pelvic side wall which was then removed during the re-laparotomy.

During the 1st 24hrs of postoperative course the patient was transfused with 03 units of fresh whole blood, vital signs remained within normal range and the drainage output was 400mL. After 48 hours, the patient was then transferred to the operation theatre for re-laparotomy to remove the abdominal gauze pack. The abdominal gauze pack, remaining placental tissue that was attached to the left adnexa and pelvic side wall, and blood clots in the peritoneal cavity removed (Figure 3). There were no sites of bleeding, peritoneal cavity lavaged with 1 liter of normal saline and abdominal wall closed in layers with abdominal drainage in situ.

The patient hemodynamic condition was stable, tolerated feeding and then discharged with her neonate on the 10th post-operative day.

Discussion

An abdominal pregnancy is a rare type of ectopic pregnancy, with an incidence of 1:10,000–1:30,000 of all pregnancies.^{9,10} It is classified as primary or secondary based on the pathophysiological mechanism, the latter being the most common type.¹⁴ Primary peritoneal implantation is rare and is defined by the following Studdiford's three criteria: (a) normal tubes and ovaries, (b) absence of uteroplacental fistula, and (c) sufficiently early diagnosis to exclude the possibility of secondary implantation^{3,15,16} making our case less likely to be a primary abdominal pregnancy as all of the criteria are absent. Hence, our case is highly likely to have secondary abdominal pregnancy as the left tube and ovary are part of the placental implantation sites.

Abdominal pregnancy is also classified based on the gestational age at the time of diagnosis. It is early abdominal pregnancy when identified before 20 weeks and advanced abdominal pregnancy when identified after 20th week of gestation,¹⁵ with the latter being the diagnosis in our case. In a series review of 163 cases from 13 countries since 1946, the prevalence of advanced abdominal pregnancy was found to be 1 in 8099 hospital deliveries,³ which is much less common than its early counterpart.

The clinical presentation of our case during the course of her pregnancy was worsening abdominal pain with nausea and vomiting. This has been the most consistent clinical symptom identified in many case reports.^{2,14,17,18} The diagnosis of an abdominal pregnancy is often made by an ultrasound examination that demonstrates the amniotic sac to be extra-uterine, with an empty uterine cavity,¹⁵ which was missed in our case despite ultrasound scanning at 15 weeks of gestational age. In a case series of 10 women with abdominal pregnancy from Parkland hospital, all had ultrasound scanning during the antenatal period, and correct diagnosis was made in only 6 of 10 cases.¹ Hence, an abdominal pregnancy can go undetected until an advanced gestational age despite serial ultrasound scanning, and rarely until term⁷ as is in our case.

The diagnosis of an abdominal pregnancy may only be an intraoperative finding after laparotomy was done for an acute abdomen as a case report from Congo¹⁹ or after cesarean section is done for obstetric indications, as in a case report from Niger.³ In a series review of 163 cases from 13 countries since 1946, the diagnosis of advanced abdominal pregnancy was made pre-operatively in only 45% of the cases. This is also supported by the findings from the United States, where from 5221 total cases of abdominal pregnancy, preoperative diagnosis was made in only 11% of the cases.¹⁷ These findings are similar to our case due to the missed opportunities to diagnose abdominal pregnancy during the repeated antenatal contacts and the incidental finding of abdominal pregnancy during Cesarean delivery. A preoperative diagnosis with preoperative preparation

including bowel preparation, assurance of sufficient blood products, and availability of a multidisciplinary surgical team is crucial to decrease the fetomaternal grave complications.¹

The management of abdominal pregnancy depends on the gestational age at diagnosis and maternal hemodynamic status.¹¹ The management of abdominal pregnancy typically involves surgical intervention through laparotomy, supplemented with methotrexate treatment if the placenta remains partially or fully in place.³ The main challenge in the management of advanced abdominal pregnancy is whether or not to remove the placenta after fetal delivery.⁴ In our case, the placenta was found to be mainly attached to the omentum with its remaining part attached to the left fallopian tube and ovary, and this made it easy to remove in its entirety. Such omental insertion is very rare as few cases are reported in the literature.⁸ Hemostasis was secured well on the area of the omentectomy site, but with multiple oozing areas in the left pelvic side-wall and from the left adnexa, where tight gauze packing was applied and left in situ to be removed after 48hrs. The management provided in our case is similar to a case report from Niger, where the placenta was extracted safely from its attachment on the left adnexa,³ and a case report from the United Kingdom where an omentally inserted placenta was removed by partial omentectomy and left salpingectomy⁸ with smooth postoperative course and the mother and neonate discharged in good health in both of the case reports. Similarly, different case series suggest that safe surgical ligation of the placental blood supply followed by complete placental removal is feasible in around 60% of cases of abdominal pregnancy, and should be the preferred choice to reduce maternal morbidity and mortality.^{4,8,17} The removal of the placenta has benefited our case by reducing the risk of morbidity and mortality from hemorrhage and sepsis, as medical follow-up and adherence to subsequent management plans is almost impossible for such patients from the rural areas of Somalia.

Abdominal pregnancy is usually associated with very high maternal, fetal and perinatal mortality and morbidity. The maternal mortality rate ranges between 0.5% and 20%.¹¹ In our case the mother had severe hemorrhage leading to the transfusion of 4 units of cross matched fresh whole blood. Maternal morbidity and mortality are usually higher if the placenta is left in place as a treatment option as this leads to early and late hemorrhage and a nidus for infection.^{3,11} The perinatal mortality is classically high ranging from 40% to 95% and surviving fetuses have various birth defects due to compression (lack of the amniotic fluid) and vascular disruption.¹¹ In our case the neonate survived and discharged on the 10th neonatal day and linked to an Orthopedic surgeon for the skeletal deformities including facial asymmetry, right mandibular deformity, club foot, upper and lower extremity finger deformity.

Conclusion

Our case demonstrates the continuing difficulty in diagnosing this rare but serious condition despite frequent antenatal contacts. This is in part due to the rare nature of the condition and physicians most of the time incriminate the sign symptom of advanced abdominal pregnancy to other clinical scenarios. Hence, a high index of suspicion and localization of the pregnancy in relation to the uterine and bladder walls should be documented when women come for their early ultrasound scan. This can be done by creating awareness and continuous ultrasound training of health professionals in developing countries like Somalia.

Abbreviations

AAP, Advanced abdominal pregnancy; ANC, Antenatal Care; AP, Abdominal pregnancy; BP, Blood pressure; CBC, Complete blood count; CD, Caesarean delivery; IV, intravenous; LFT, Liver function tests; PR, pulse rate; RFT, Renal function test.

Data Sharing Statement

Data important for case reports were included in the article, and additional sources of information were not needed.

Ethical Consent

Written informed consent for the publication of the case and images was obtained from the patient. Ethical approval for publication was then obtained from the Institutional Review Board of Burao University. In addition to this verbal consent was obtained from the family to report the case and to use the images for the publication.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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