



Acute generalized peritonitis revealing an ovarian pregnancy: a case report

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Introduction and importance: Abdominal pregnancy is still seen in developing countries due to inadequate medical facilities. The clinical indicators manifest in various forms and are nonspecific, making it challenging to diagnose and often leading to delayed detection. The occurrence of an infectious complication that leads to the development of generalised acute peritonitis is rare. The author present a case of 34-year-old patient who presented with febril generalised acute peritonitis caused by an abdominal pregnancy. The result of the abdominal ultrasound and the serum β -human chorionic gonadotropin (β -HCG) level led to initial diagnostic confusion.

Case presentation: A 34-year-old primigravida with no medical or surgical history of comorbidity prior consulted in the authors' department for generalised abdominal pain in the context of fever and amenorrhoea for more than 4 months. Physical examination revealed a painful and contracted abdomen. The biological assessment showed white blood cells at 27 100/ul, the haemoglobin level at 11.8 g/dl. The serum β -HCG level was less than 5 UI/l. The abdominal ultrasound noted a peritonitis secondary to an abscess of the appendix. Exploratory laparotomy revealed 200 ml of pus in the peritoneum and a mass in the right iliac fossa at the expense of the ovary with agglutination of the intestines loops. After adhesiolysis, a single-piece excision of the mass was performed, the break-in showing a macerated foetus, a right adnexectomy and an appendectomy. The maternal outcome was good.

Clinical discussion: Abdominal pregnancy remains an inadequately diagnosed condition in developing countries. This case reminds clinicians that abdominal pregnancy remains a differential diagnosis of all abdominal pain in a woman of childbearing age including when the serum β -HCG level was less than 5 UI/l.

Conclusion: It is imperative to increase awareness among pregnant women about high-quality prenatal care, including early obstetric ultrasound, from conception. Meanwhile, healthcare professionals should receive continuous training and the technical platform modernised.

Keywords: Abdominal pregnancy, acute peritonitis, case report, ectopic pregnancy

Introduction

Abdominal pregnancy is the implantation and development of a fertilised egg in the peritoneal cavity^[1]. It is rare and occurs with an incidence between 1/7000 and 1/15 000 deliveries in developed countries, although it is more prevalent in underdeveloped countries where medicalisation is inadequate, with an incidence between 1/1134 and 1/3750 deliveries^[2–5]. Abdominal pregnancy is considered to be a reflection of underdevelopment^[1]. The clinical signs are polymorphic and nonspecific, which makes the

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HIGHLIGHTS

- Prolonged abdominal pregnancy is a rare form of ectopic pregnancy that is still witnessed in developing countries due to inadequate medical facilities
- A 34-year-old primigravida with no medical or surgical history of comorbidity presented with febril generalised acute peritonitis caused by an ovarian pregnancy.
- Initial diagnostic confusion occurred due to the result of the abdominal ultrasound and the serum β -human chorionic gonadotropin level that was less than 5 UI/l, leading to a mistaken assumption of appendicitis as the cause of the generalised acute peritonitis.
- The exploratory laparotomy revealed a mass in the right iliac fossa which was identified as an ovarian pregnancy and a single-piece excision of the mass was performed, the break-in showing a macerated foetus, a right adnexectomy and an appendectomy.
- This case reminds clinicians that abdominal pregnancy remains a differential diagnosis of all abdominal pain in a woman of childbearing age including when the serum β -human chorionic gonadotropin level was less than 5 UI/l. Ultrasound is less effective after the first trimester.

diagnosis difficult and often incidental during an exploratory laparotomy^[6]. Surgical intervention is necessary in almost all cases, and the prognosis for the foetus is typically poor. As for the

mother's prognosis, it is reliant on early diagnosis and modernisation of technical equipment. Occlusive, infectious, and especially haemorrhagic complications should be life-threatening^[7,8]. We report a case of abdominal pregnancy discovered fortuitously intraoperatively in a 34-year-old patient treated in our department for acute peritonitis. The importance of this case is to highlight the difficulty in making the diagnosis of abdominal pregnancy in our environment despite the more frequent use of ultrasound. This work has been in line with the SCARE 2023 criteria^[9].

Case presentation

It was a 34-year-old black African woman, gravida 1. She had no medical or surgical history of comorbidity. She had also no family history of comorbidity. She consulted our department for intense abdominal pain in the right iliac fossa lasting 10 days, which then spread to the entire abdomen. According to the patient, she had been in amenorrhoea for more than 4 months. She also complained of an intermittent fever. During questioning, the patient stated that two months ago there was a sensation of movement in the right iliac fossa, accompanied by intermittent abdominal pain. The patient had no bleeding. She reports an unprotected sexual intercourse preceding amenorrhoea. On examination, her general condition is altered, conjunctiva and mucous membranes were normally coloured, blood pressure was 90/50 mmHg, the heart rate was 123 bpm, temperature at 39.5°. On abdominal examination, generalised abdominal pain and guarding were noted. There was also a mass in the right iliac fossa, which was difficult to assess due to pain. On vaginal examination, the cervix was long posterior and closed. We note a painful serif of Douglas' membrane. The abdominal ultrasound noted the following : an abscess in the right iliac fossa with agglutination of the intestinal loops and fistulization of the abscess into the peritoneal cavity. Appearance of peritonitis secondary to an abscess of the appendix. The biological assessment showed: hyperleukocytosis with white blood cells at 27 100 / ul, haemoglobin level at 11.8 g/dl, platelets at 226 000 /ul. Blood sugar, kidney, and liver tests were normal. The serum β -human chorionic gonadotropin (β -HCG) level was less than 5 UI/l. The diagnosis of acute generalised peritonitis was made and we performed an exploratory and therapeutic laparotomy. Intraoperatively, 200 ml of pus was aspirated. Upon exploration we discover numerous false membranes ; there was also a mass in the right iliac fossa that contained the right ovary, appendix, and pus with fistulization into the abdominal cavity. An adhesiolysis and ablation of the mass was conducted, removing the right adnexa. Additionally, an appendectomy was performed. Following the confirmation of good haemostasis, the abdominal cavity was washed with isotonic saline and the abdominal wall was closed layer by layer on two drainage tubes. After dissecting the sample, we identified a macerated foetus with a gestational age of 14 weeks. The appendix presented itself as normal (Fig. 1). Due to cultural customs, the parents chose to bury the operating specimen, which resulted in the inability to conduct a pathological examination. The surgical procedure was performed by a senior surgeon and two residents in general surgery. The patient's postoperative course was favourable, and they were discharged from the hospital in good health on the seventh day after the operation. She was satisfied with the treatment received. On discharge the

patient received the following recommendations : Consult very early in a maternity unit with ultrasound equipment for the next pregnancy, be regular in prenatal visits, and do at least four ultrasounds, including two in the first trimester of pregnancy. One month later, the patient attended a consultation with no reported complications or complaints. The patient is currently being followed by our team.

Discussion

This report describes a rare case of abdominal pregnancy in a 34-year-old primigravida. The patient was unmarried, had no formal education, and resided in a resource-constrained setting. The diagnosis and management of abdominal pregnancy presents a challenging scenario in rural areas, where the educational standard of the population correlates with issues accessing quality health care^[1]. Abdominal pregnancy constitutes an obstetric emergency since its rupture poses a life-threatening risk to the mother. The initial 4 months of pregnancy entail a higher risk of complications^[10]. The occurrence of generalised acute peritonitis as an infectious complication, as presented in this case report, is uncommon. The incidence of abdominal pregnancy is variable. It is exceptional in developed countries with an incidence between 1/7000 and 1/15 000 deliveries. It is more common in underdeveloped countries and evaluated at 1/1134 in South Africa, 1/2583 in Senegal and 0.152% in Nigeria^[2-5]. The physiopathology is still poorly understood. The physiopathological mechanism makes it possible to distinguish secondary abdominal pregnancies, the most common, resulting either from a tubo-abdominal abortion, or from the rupture of a tubal ectopic pregnancy, or from the migration of an intrauterine pregnancy through 'a breach of hysterotomy or uterine perforation^[7]. Primary abdominal pregnancies are even rarer and are defined by Studdiford's three criteria^[2,7] which are as follows: normal Fallopian tubes and ovaries, absence of uteroperitoneal fistula and exclusive contact of the egg with the peritoneal surface. In our observation, it was a right ovarian pregnancy.

The factors that might explain the higher prevalence of abdominal pregnancy in developing countries are : the sequelae of genital infections, often septic abortions, endo-uterine manoeuvres, and the lack of follow-up of pregnancies^[2,11]. In this case, the patient did not consult despite the 4 months of amenorrhea that occurred after unprotected sexual intercourse. Indeed, in our context, pregnancies of unmarried women are frowned upon by society. As a result, patients keep their pregnancies secret and only see them in the event of a complication. In this case, given the stigma attached to pregnancy in unmarried women, information about the obstetric origin of the peritonitis was given only to the patient. The patient was then at liberty to choose whether or not to share the information with her family.

The literature highlights additional risk factors, such as in vitro fertilisation, uterine scarring, and intrauterine device contraception^[2,11].

Clinically, the diagnosis of abdominal pregnancy depends on the stage of the pregnancy. A group of signs makes it possible to orient the diagnosis towards an abdominal pregnancy^[1,12]: first, digestive disorders (vomiting, constipation, subocclusion, abdominal and pelvic pain with or without metrorrhagia), secondly, anaemia with impaired general condition. Thirdly, during the second and third trimester; a very superficial foetus often in an



Figure 1. Operating parts for abdominal pregnancy. Note a macerated foetus (B1, B2), the right adnexa with the placenta and foetal membranes (C). The appendix appears normal (A).

atypical, high transverse position. We can palpate a second pelvic mass corresponding to the enlarged but empty uterus. On vaginal examination, the cervix is often fixed under the pubic symphysis, it is hard and long. Sometimes the picture is dominated by an evolving complication such as internal or external bleeding, anaemia, jaundice, oliguria, toxic-infectious syndrome as in this case report. At the paraclinical level; Ultrasound is crucial in diagnosing abdominal pregnancy^[2,6]. No ultrasound was performed on the patient prior to her admission to the emergency room. In fact, in this case, a 6-week scan may have prevented this issue. The patient only underwent an emergency scan due to acute peritonitis. She had to travel approximately one hundred kilometres to Niamey to undergo the ultrasound due to a shortage of obstetrician-gynaecologists, surgeons, and radiologists in Niger. In our observation, ultrasound did not result in a diagnosis of abdominal pregnancy. This diagnostic confusion is easily understood during the second trimester of pregnancy and also in the context of acute febrile peritonitis. Indeed, at this stage, the radiologist seldom requires information on the position of the gestational sac, which can be challenging to determine towards the end of the first trimester. In this case, the radiologist concluded that the peritonitis was of digestive origin due to the acute generalised peritonitis, fever, and maceration of the dead foetus.

In developed countries where MRI can be easily conducted, the diagnosis of certain conditions can be made more effectively. Magnetic resonance imaging can identify an empty uterus, a

foetus in the abdominal cavity not surrounded by myometrial tissue, a frequently transverse presentation, and oligo-amnios^[3].

Therapeutically, the management of abdominal pregnancy typically involves surgical intervention through laparotomy, supplemented with methotrexate treatment if the placenta remains partially or fully in place. The therapeutic approach is dependent on the gestational age and necessitates a multi-disciplinary team. Prior to 20 weeks, medical termination of pregnancy is frequently suggested^[1,5,6]. After 20 weeks, the antenatal diagnosis of advanced abdominal pregnancy with a live foetus presents the challenge of deciding whether to continue or terminate the pregnancy. The primary issue during abdominal pregnancy procedures is the fate of the placenta, which is dependent on its insertion site. Due to the haemorrhagic nature of placental extraction, it is often necessary to leave it in place and perform a second intervention later. The placenta atrophies, enabling its extraction with minimal blood loss. The extraction of the foetus and placenta was performed in a single operation time in our patient without difficulty and with good haemostasis. On the prognostic level: the foetal prognosis is reserved with a high stillbirth rate, 75–95%^[5,7,10]. The causes of death are related to foetal hypotrophy and malformations. These factors, associated with poor vascularisation of the placenta, could explain the fragility of this foetus. The maternal prognosis depends on the precocity of the diagnosis and the technical platform. Maternal mortality varies from 0 to 18%, mainly due to bleeding and

infectious complications^[7,13]. In this case report, the patient developed an infectious complication leading to generalised acute peritonitis.

Conclusion

Abdominal pregnancy is more common in underdeveloped countries, where it often occurs in advanced stages due to inadequate medical care and low socioeconomic status. Progression of ovarian pregnancy to a revealing infectious complication is rare. We report the first case of generalised acute peritonitis of infectious origin revealing an abdominal pregnancy documented in our country. Diagnosis and treatment are frequently challenging in our setting. Despite advances in anaesthesia-resuscitation, the maternal and foetal outlook is still bleak, particularly in deprived and under-resourced areas. This case reminds clinicians that diagnosis of abdominal pregnancy must be discussed in the presence of abdominal symptoms in a woman of childbearing age and to request an appropriate ultrasound examination. It is essential to increase awareness among pregnant women about high-quality prenatal care, starting from conception. This can be achieved by the continuous training of health professionals and modernising the technical platform. During a subsequent pregnancy, it is imperative to be under the care of a specialist at a centre equipped with ultrasound facilities.

Ethical approval

The publication of this case report has been authorised by the quality service of our institution because case reports are exempted from ethical approval in our institute.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Author contribution

Y.B.T., and H.S.D. were involved in study conception and design, and participation in patient treatment, surgery, data collection, manuscript drafting, draft review, and manuscript finalisation. S.M., L.J.D. and R.S. participated in patient treatment, data collection, data analysis and interpretation, and draft manuscript review for intellectual content. All authors read and approved the final manuscript.

Conflicts of interest disclosure

The authors declare that they have no conflicts of interest.

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Data availability statement

Supplementary data to this article can be found from the corresponding author.

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