Heterotopic pregnancy in a natural conception presenting as an acute abdomen: Management and delivery of a live baby at term


ABSTRACT

Introduction: Heterotopic pregnancy is a rare clinical condition where both intrauterine and extra uterine pregnancy coexists. In a spontaneous conception, the diagnosis is difficult to make, but an important one to consider in the presence of acute abdominal pain, hemorrhagic shock, and intrauterine pregnancy. Case Report: A 28-year-old G4P0+4 with a family history of multiple gestation who presented with acute abdomen and haemorrhagic shock at a gestational age of nine weeks and five days. The diagnosis of ruptured ectopic pregnancy coexisting with viable intrauterine gestation was made with ultrasound findings as well as clinical features necessitating emergency exploratory laparotomy. Ethical approval was obtained from the ethics and research committee of Federal Teaching Hospital Abakaliki. Successful treatment of ectopic pregnancy with uneventful convalescence and viable intrauterine pregnancy delivered at term. Conclusion: Obstetricians should keep a high index of suspicion of heterotopic pregnancy among women of reproductive age, especially for pregnant women presenting with abdominal pain and hemoperitoneum.

Keywords: Delivery, Heterotopic, Pregnancy, Laparotomy, Tubal rupture

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INTRODUCTION

Heterotopic pregnancy (HP) refers to the simultaneous presence of intrauterine pregnancy and ectopic pregnancy, which is very rare but a potentially life-threatening condition [1–15].

Duverney first described this diagnosis in 1708 in autopsy findings of a patient who died from an ectopic pregnancy [2]. Since then many cases of heterotopic pregnancies have been reported [3]. It can result from natural conception cycle or following assisted reproductive technology (ART) [4–8]. The incidence of heterotopic pregnancy was previously quoted to be 1 in 30,000 pregnancies; but recent publications have revised this to 1 in 3,889 pregnancies [2–7]. The incidence of heterotopic pregnancy may increase to as high as 1 in 100 pregnancies if assisted reproductive technologies (ART) are used [8, 9].
The actual etiology of HP is still unknown, although studies have shown that pelvic inflammatory disease, previous ectopic pregnancy, previous tubal surgery, pelvic adhesions, and ART are high risk factors of HP; however, some patients may not have obvious risk factors [1–10]. The most common site of ectopic gestation is the fallopian tube (95% to 97%). Other sites include the cervix, ovary, and abdomen [8].

Clinical presentations of HP are non-specific and may include abdominal pain, an adnexal mass, peritoneal irritation, and vaginal bleeding, as well as acute chest pain radiating to the shoulder [1–9]. Heterotopic pregnancy carries a considerable risk of maternal morbidity and mortality owing to the risk of rupture of the ectopic pregnancy, especially in developing countries where the diagnosis is difficult and delayed [11].

Ultrasonographic examination plays an important role in the diagnosis of HP, which presents as an intrauterine pregnancy co-existing with a separate adnexal mass or gestational sac [6]. However, even when ultrasonographic examination has been performed, the ectopic pregnancy may be missed or misdiagnosed as hemorrhagic corpus luteum cyst [9]. Early and accurate diagnosis of HP is in most cases difficult and in fact, it is reported that about 58.93% to 73.75% cases of HP are not confirmed prior to surgery [9]. The ultrasonographic findings of a ruptured ectopic in heterotopic pregnancy are fluid particularly hemorrhagic in the pouch of Douglas, adnexal masses, or hematosalpinx with viable intrauterine gestation [10].

Surgery plays an important role in the management of heterotopic pregnancy [12]. The goal is to remove the ectopic pregnancy and to conserve the intrauterine pregnancy [13]. Ectopic pregnancies can be removed surgically via laparotomy or laparoscopy. Between 58% and 70% is successfully delivered at term following conservative treatment [14].

We, therefore, report a case of heterotopic pregnancy with ruptured ectopic and term delivery after exploratory laparotomy and left partial salpingectomy.

CASE REPORT

A case of Mrs CU, 28-year-old Gravida 4 Para 0+3 civil servant at a gestational age of nine weeks and five days who presented to the emergency department with a 3-day history of sudden onset lower abdominal pain and intermittent vaginal bleeding. There was associated dizziness and fainting attacks. The pregnancy was spontaneously conceived. She had a history of treatment of genital tract infection but no previous pelvic surgeries. She had previous history of three spontaneous miscarriages with no post abortal sepsis. Her social history was unremarkable.

On examination, she was in painful distress, anxious, conscious, afibrile, pale, anicteric and no pedal oedema. The pulse rate was 114 beats per minute, low volume and regular, and the blood pressure was 100/60 mmHg. The abdomen was full and moved with respiration and there was generalized abdominal tenderness. The vulva was smeared with altered blood with adnexal tenderness, fullness in the pouch of Douglas and positive cervical excitation tenderness. Her packed cell volume was 22%.

An urgent abdominopelvic ultrasound showed a viable fetus at gestational age of nine weeks and four days, a left adnexal cystic mass with solid echogenic components and haemoperitoneal fluid (Figure 1). A diagnosis of heterotopic pregnancy - viable intrauterine pregnancy and ruptured tubal ectopic pregnancy was made. The diagnosis and treatment was explained to her.

She had an emergency exploratory laparotomy with left partial salpingectomy with intraoperative findings of a bulky uterus of approximately nine weeks gestational age, haemoperitoneum of about one litre, and ruptured left ampullary ectopic gestation (Figure 2). She was transfused two units of whole blood. Mrs. CU had ruptured tubal pregnancy with hypovolemic shock (Figure 3).
She made uneventful recovery post operation and she was discharged eight days following surgery. Specimen from the site of rupture was sent for histology and the result confirms products of conception from the left tubal ectopic pregnancy. She subsequently booked for antenatal care and the antenatal period was without complications. At 40 weeks gestation, she had elective caesarean section with the delivery of a live male neonate that weighed 3.5 kg and Apgar scores of 9 and 10 at 1st and 5th minutes respectively. She made unremarkable recovery and she was discharged home with her baby. At postnatal clinic visit, she was stable and she was counseled for family planning and to present to the hospital once she missed her period in her next pregnancy.

**DISCUSSION**

An early and accurate diagnosis of HP is often difficult and challenging especially in a natural conception due to the rarity of HP [9]. The delay or failure of diagnosis may lead to potential life-threatening conditions such as the rupture of EP, hypovolaemic shock or even loss of life, so the early and accurate diagnosis of HP is extremely critical [10].

Most recent case reports and case series in developing countries revealed that patients with heterotopic pregnancies are more likely to have tubal rupture and present in hypovolemic shock [4, 10].

The incidence of HP is rising due to increased genital tract infection and wider use of assisted reproductive techniques [11]. Mrs CU had genital tract infection which was treated in a peripheral hospital and also has a family history of twinning. She most likely would have had double ovulation with one resulting in intrauterine gestation and the other resulting in tubal ectopic pregnancy. According to Tenore, pelvic inflammatory disease is the leading cause of ectopic pregnancy among all identified risk factors [12]. Therefore, early diagnosis and adequate treatment of genital tract infection are recommended in order to avert its long term complications.

Currently, there is no universal guideline for the management of HP [6–14]. Most patients with HP have a strong desire to preserve the viable intrauterine pregnancy, so the key point of treatment is to preserve the viable intrauterine pregnancy and to treat the ectopic pregnancy, this makes the treatment of HP difficult and challenging [15].

Even though, heterotopic pregnancy usually presents a diagnostic difficulty. A high index of suspicion is required for diagnosis, especially in those with risk factors or when there are clinical features suggesting heterotopic pregnancy. Therefore, a trans-vaginal ultrasound examination is recommended in early pregnancy, particularly among patients who conceived via ART or those with risk factors for ectopic pregnancy [14]. Despite the value of ultrasound, its role in the definitive diagnosis of HP is still debatable. The sensitivity of trans-vaginal sonographic examination in the diagnosis of early HP is reported to be between 26.3% and 92.4% [14]. This missed diagnosis of heterotopic gestation is also more worrisome and common in developing countries where the ultrasound may not have high resolution to identify an early ectopic gestation and also where early ultrasound is not routinely done due to late booking for antenatal care by pregnant women [4, 14]. Mrs CU did not present to the hospital for assessment after she missed her period which preclude early diagnosis of heterotopic pregnancy until she presented with tubal rupture.

Laparotomy or laparoscopy is a surgical treatment modality for HP depending on the patient’s clinical state [1–15]. To those patients who are hemodynamically unstable or with any signs indicating rupture of the ectopic pregnancy, emergency surgery is strongly recommended to rescue the patient [8, 15]. Selective surgery is only suitable for those HP patients with stable hemodynamic condition. Surgical procedures include salpingectomy, salpingostomy, cornual resection, oophorectomy, and even total abdominal hysterectomy [6–10]. Surgical management gains the advantage of complete removal of the ectopic pregnancy, but it may be associated with a higher rate of miscarriage of the intrauterine pregnancy [14, 15]. The miscarriage rate is quoted to be as high as 15% [13, 15].

Ultrasound guided aspiration of ectopic gestation with or without embryo-killing drug, which is thought to
be minimally invasive, has been performed as treatment modality of ectopic pregnancy for years, its safety and effectiveness have been well demonstrated [5–8, 15]. The challenge of this treatment modality depends on the site of the ectopic gestational sac. This should be done only when the ectopic gestational sac is clearly visualized [7, 15]. Both potassium chloride and hyperosmolar glucose can be used as embryo-killing drugs in the management of HP. Methotrexate is contraindicated because of its teratogenic effects on the viable intrauterine pregnancy [10, 15].

Expectant management may be an option in those patients with stable hemodynamic state and are asymptomatic [15]. The main advantage of expectant management is that it avoids complications of surgery [14, 15]. Nevertheless, expectant management should not be considered in patients with viable ectopic pregnancy or clinically unstable. Rupture of ectopic pregnancy can occur during expectant management [14, 15]. Therefore, regular ultrasonographic re-examinations and close observations in the hospital are essential for patients who opted for expectant management. Once there are symptoms or signs indicating ectopic rupture or enlargement of ectopic pregnancy, emergency surgical intervention is recommended in order to ensure good maternal outcome [15].

CONCLUSION

Heterotopic pregnancy is rare, but is increasing in frequency with ART. Every clinician treating women of reproductive age should keep this diagnosis in their differential, especially for pregnant women presenting with acute abdominal pain and hemoperitoneum.

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