

Cornual Heterotopic Pregnancy – a Rare Cause for Haemorrhagic Shock

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ABSTRACT

Heterotopic pregnancy represents an intrauterine gestational sac in the presence of an ectopic pregnancy. It is a very rare occurrence in spontaneous pregnancy but its incidence has increased with the use of assisted reproductive techniques, being identified in up to 1% of these cases. There aren't any guidelines regarding the management of heterotopic pregnancies, but the general principles include: elimination of the ectopic pregnancy, conservation of the intrauterine pregnancy and haemostasis. In this article we are going to present the case of a 26 year old woman that presented with haemorrhagic shock secondary to a ruptured spontaneous cornual heterotopic pregnancy at 8 weeks gestation. She underwent emergency laparotomy, excision of the right uterine cornua and aspiration of the uterine pregnancy. The intrauterine pregnancy was removed because, during the cornual excision, the intrauterine gestational sac was ruptured. She had a non-complicated postoperative evolution and was discharged 4 days later.

Keywords: heterotopic pregnancy, cornual, haemorrhagic shock

INTRODUCTION

Heterotopic pregnancy (HP) is a multiple pregnancy, with at least one embryo being viably implanted in the uterus and the other(s) being implanted outside the uterine corpus as an ectopic pregnancy (1). It is most often represented as intrauterine pregnancy in the presence of ectopic pregnancy (2). Heterotopic pregnancies are a very rare occurrence in spontaneous pregnancies with an incidence of approximately 1/30000 (1/10000 to 1/50000) (3,4), but it's overall incidence has increased with the use of assisted

reproductive techniques (ART), in which cases the incidence is ranging from 1/100 to 1/360 (3). A cornual ectopic pregnancy is one of the most life threatening types of ectopic gestations, with a mortality rate which is 6-7 times higher than that of the ectopic pregnancies in general (5). Due to the rarity of this condition there are no evidence based recommendations regarding its management, the literature containing mainly case presentations and case series. In this article we are going to present a case of a women with haemorrhagic shock secondary to a ruptured cornual heterotopic pregnancy. □

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FIGURE 1. Transabdominal ultrasound of the uterus (transverse plane) showing intrauterine gestational sac (SG INTRACAV) and right cornual gestational sac (SG 2), diagnostic findings of cornual heterotopic pregnancy; Note the very close proximity between the two gestational sacs.

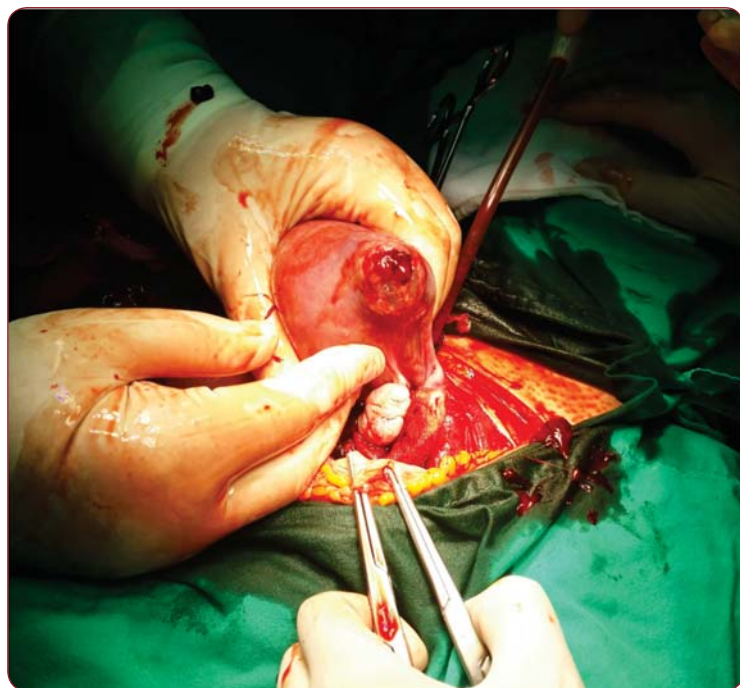


FIGURE 2. Intraoperative image showing the uterus with a ruptured right cornual pregnancy.

CASE REPORT

A 26-year-old woman presented to the emergency room with severe abdominal pain and history of syncope at home. On arrival she was conscious, pale and complaining of severe abdominal pain that had a sudden onset in the pelvic area and subsequently generalised to the entire abdomen and radiated

in the right shoulder. She was a gravida 4, para 2 after two normal vaginal deliveries and two terminations of pregnancy, had no known comorbidities or drug allergies. On examination the patient presented abdominal guarding, rebound and percussion tenderness and a history of approximately 8 weeks of secondary amenorrhoea. Vaginal examination identified intense cervical motion tenderness and a slightly enlarged uterus also very tender on bimanual palpation. She was hypotensive (BP=76/45 mmHg) and tachycardic (HR=110 bpm). Two large bore intravenous (IV) lines were placed and full blood count, coagulation tests, group and cross-match, urea and electrolytes, liver functioning tests were sent urgently to the lab. A urinary catheter was inserted and a pregnancy test was performed which was positive. She was started on high flow IV fluids and a pelvic ultrasound was performed.

The ultrasound identified two gestation sacs, both with visible embryos, one situated in the centre of the uterine cavity and the other in the right uterine cornua (Figure 1).

Doppler examination identified present heart activity for both embryos. Large quantity of free fluid was identified in the abdominal cavity. No other pelvic or abdominal ultrasound anomalies were seen.

The laboratory tests showed leucocytosis (WBC=17x10⁹/L) and anaemia (Hb=7.4 g/dl) with a low haematocrit (Ht=22%) and normal erythrocyte haemoglobin concentration and volume. Three units of red cell concentrate were requested urgently. The other laboratory tests were within normal ranges.

The patient was brought to the operating theatre for emergency laparotomy. Intraoperative findings consisted of a massive haemoperitoneum and a ruptured right cornual pregnancy (Figure 2).

A right uterine cornual resection was performed in order to remove the ectopic pregnancy. During this manoeuvre, the intrauterine gestational sac was accidentally ruptured because of its close proximity to the ectopic pregnancy. The intrauterine pregnancy, now compromised, was aspirated through the cornual opening of the uterine cavity. The uterine cavity was subsequently closed using 2.0 polyglactin 910 (Vicryl®) interrupted sutures and the myometrium and serosa were close with 1 Vicryl® interrupted sutures using a double layered technique.

There were no postoperative complications and the patient was discharged 4 days after admission with the recommendation for an early ultrasound in future pregnancies to rule out ectopic. □

DISCUSSION

HP is a lifethreatening condition for both the mother and the intrauterine pregnancy. Because of the rarity of HP, the literature is lacking evidence based recommendations, the majority of medical information being derived from case reports and small case series.

The diagnosis in our case was easy to establish because of the clear clinical picture and ultrasound findings. Talbot (2) in his systematic review of the literature from 2005 to 2010 found that in approximately 33% of heterotopic pregnancies, the diagnosis was delayed because previous sonographic reports of a normal intrauterine pregnancy gave false reassurance. This high rate of misdiagnosis underlines the importance of a complete evaluation of the adnexae when performing a first trimester pregnancy ultrasound. We need to stress the fact that higher number heterotopic pregnancies are common with ART. The incidence of monozygotic twinning is increased after IVF and can be estimated at 1.33% (6) so the identification of two intrauterine pregnancies after transfer of two embryos does not outrule HP.

The ultrasound diagnosis of a cornual pregnancy is made on three sonographic criteria (Table 1)(6).

In case of ART, it is important to differentiate between ruptured heterotopic pregnancy and ovarian hyperstimulation syndrome (OHSS) as they both can present with hypotension, tachycardia, abdominal pain, intrauterine pregnancy and free fluid in the abdominal cavity. Women with OHSS usually have normal haemoglobin and high haematocrit and enlarged ovaries, with polycystic appearance (7).

Serum β -HCG evaluation is not useful in the diagnosis of a non complicated heterotopic pregnancy because the suboptimal raising of β -HCG from the ectopic pregnancy is masked by the normal secretion of this hormone from the intrauterine pregnancy (8).

In case of ruptured heterotopic pregnancy, surgical intervention is necessary, aiming to remove the ectopic pregnancy, achieve haemostasis and preserve the intrauterine pregnancy.

Both laparotomy and laparoscopy appear to be safe and with equal results regarding the intrauterine pregnancy (8). In our case a laparotomy was preferred because of the haemodynamical instability of the patient. When intraoperative preservation of the intrauterine pregnancy was achieved, in over 50% of cases a healthy baby was delivered at the end of the pregnancy, others terminating in miscarriage (8,9). Ezzati (10) reported a case of ischemic stroke in the intrauterine foetus secondary to a maternal haemorrhagic shock that resulted from a ruptured heterotopic pregnancy at 14 weeks of gestation. There have been reported cases of cornual heterotopic pregnancies for which excision of the uterine cornu was performed and the intrauterine pregnancy has reached term, and in these cases the cornual uterine scar was observed as normal during caesarean section (1,11).

In our case, the intrauterine pregnancy couldn't be preserved because it was very close to the cornual pregnancy, and in order to remove the ectopic pregnancy and achieve haemostasis, the intrauterine sac was ruptured.

In cases of non-ruptured cornual heterotopic pregnancies, the ectopic pregnancy can be treated by surgical excision (9) or ultrasound guided aspiration and injection of feticide drugs (hypertonic solution of sodium chloride (12) or potassium chloride solution (13,14)).

Abbreviations

HP = Heterotopic Pregnancy;
ART = Assisted Reproductive Techniques;
BP = Blood Pressure;
HR = Heart Rate;
BPM = Beats Per Minute;
IV = Intravenous;
WBC = White Blood Cells;
Hb = Haemoglobin;
Ht = Haematocrit;
OHSS = Ovarian Hyperstimulation Syndrome.

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Ultrasound criteria for the diagnosis of cornual pregnancy

1. The presence of an eccentric gestational sac
2. Thinning of surrounding superficial myometrium
3. The "interstitial line sign," representing either the interstitial portion of the tube or the endometrial canal extending from the cornu to the midportion of the interstitial mass

TABLE 1. Ultrasound criteria for the diagnosis of cornual pregnancy (6).

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