CASE REPORT

Diagnosis and management of a ruptured rudimentary horn pregnancy in a low-resource setting

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SUMMARY

A 22-year-old woman presented with amenorrhoea, lower abdominal pain and brown vaginal discharge. She was noted to be in hypovolaemic shock with a distended and peritonitic abdomen. On bimanual examination, the uterus was not palpated, the posterior fornix was full and cervical excitation was present. A clinical diagnosis of a ruptured ectopic pregnancy was made. She was resuscitated and an emergency laparotomy was performed. Intraoperatively, a ruptured rudimentary horn with an ex utero pregnancy was discovered. The right horn and tube were removed, as was the non-viable fetus. There were no postoperative complications and the patient was discharged after 5 days of observation.

BACKGROUND

Pregnancy in a rudimentary horn is extremely rare, occurring in 1/70 000–1/1 40 000 pregnancies.¹ It is associated with significant maternal morbidity and mortality, usually terminating with rupture in the first or second trimester. A poor outcome can be prevented through early prerule diagnosis through ultrasound and excision of the rudimentary horn.²

In a low-resource setting, obtaining an early diagnosis of a rudimentary horn pregnancy can be difficult as ultrasound services may be unavailable. Often scans may be interpreted by inexperienced healthcare workers who are not trained to identify rare uterine malformations. Thus, patients typically present with features of a uterine rupture, and are usually severely compromised.

We present a case of a ruptured rudimentary horn pregnancy that was diagnosed when the patient underwent an emergency laparotomy for a suspected ruptured ectopic pregnancy. She was exposed to significant risks that may have been prevented through earlier detection. It highlights the challenges faced by healthcare workers in rural or low-resource settings when dealing with such a complex anatomical anomaly, and suggests ways in which the safety of the patient can be optimised.

CASE PRESENTATION

A 22-year-old woman presented to the outpatient department complaining of a 1-day history of severe lower abdominal pain with associated dark brown vaginal discharge. She had also been amenorrhoeic for 15 weeks. She had no medical, surgical or gynaecological history that was remarkable, and she took no regular medications. She had a regular sexual partner and did not use contraception.

On examination, she had a blood pressure of 87/54, regular pulse rate of 110 bpm, respiratory rate of 18 breaths/min and a temperature of 36.6 °C. Glasgow Coma Scale was 15/15. Chest and cardiovascular examinations were unremarkable. The abdomen was distended, rigid and generally tender. On bimanual examination, the uterus was not palpated, the posterior fornix was full, the cervical os was closed and cervical excitation was present.

INVESTIGATIONS

Blood results showed a haemoglobin level of 5.4 g/dL. All other blood tests were unremarkable.

Urinary β -human chorionic gonadotrophin (β -hCG) was positive (unfortunately our laboratory does not offer β -hCG levels).

A chest radiograph was normal.

Ultrasound was not functional at the time.

DIFFERENTIAL DIAGNOSIS

- ▶ *Ruptured ectopic pregnancy*—history of amenorrhoea, lower abdominal pain and vaginal bleeding, haemodynamic instability, peritonism, cervical excitation and anaemia.
- ▶ *Miscarriage*—history of amenorrhoea, lower abdominal pain and vaginal bleeding. Against this is the presence of peritonism, cervical excitation and anaemia.
- ▶ *Septic abortion*—history of amenorrhoea, lower abdominal pain and vaginal bleeding, haemodynamic instability and peritonism. However, the normal temperature and lack of foul smelling vaginal discharge goes against this.
- ▶ *Pelvic inflammatory disease*—lower abdominal pain and vaginal bleeding, with haemodynamic instability, tender abdomen and cervical excitation. Against this is a normal temperature, positive β -hCG and severe anaemia.
- ▶ *Round ligament pain*—lower abdominal pain. Against this is the history of vaginal bleeding, haemodynamic instability, peritonism, cervical excitation and anaemia. Round ligament pain also usually presents from second trimester until delivery.

TREATMENT

The patient was resuscitated with intravenous fluids and an emergency blood transfusion. Given the clinical findings of the patient, an emergency laparotomy was performed.

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Figure 1 Ruptured rudimentary horn pregnancy visualised at laparotomy.

Intraoperative findings revealed a haemoperitoneum containing 3 L of blood. A unicornuate uterus with a ruptured right rudimentary horn pregnancy was discovered (figure 1). The fetus was estimated to be of 15 weeks gestation, and non-viable. The placenta was partially attached to the cavity of the rudimentary horn. No communication from the horn to the contralateral uterine cavity was observed. The right horn and tube were removed together, as was the fetus. Both ovaries and fallopian tubes were normal, as were the kidneys and urinary tracts. She required a total of five units perioperatively.

OUTCOME AND FOLLOW-UP

Postoperatively, the patient was transferred to the ward for observation. This period was uneventful. She was given contraceptive advice and discharged 5 days later.

DISCUSSION

During embryogenesis, the uterus is normally formed by the fusion of the two Müllerian ducts. Defective fusion or absorption of these ducts leads to congenital uterine abnormalities. Rudimentary horn is the rarest of these. Identification of these anomalies is almost always an incidental finding, as it is usually asymptomatic until pregnancy. Although the incidence of rudimentary horn pregnancy is small, the risk of serious maternal morbidity and mortality is high. Initial presentation often takes place with recurrent first trimester miscarriage (5–10%), a second trimester loss (25%) or uterine rupture (5%), threatening the patient's life.³

Diagnosis of a rudimentary horn can be difficult. A mass extending outside the uterine angle can sometimes be felt on bimanual examination (Baart de la Faille's sign) or displacement of the fundus to the contralateral side with rotation of the uterus and elevation of the affected horn (Ruge Simon syndrome).⁴

The majority of rudimentary horn pregnancies occur in non-communicating form, that is, there is no direct channel between the two cavities. In these cases, it is thought that pregnancy occurs through transperitoneal migration of spermatozoa or the fertilised ovum. In general, the pregnancy lasts longer than tubal pregnancy because of the variable musculature of the horn. 70–80% of cases rupture before 20 weeks gestation, while 10% go to term with a 2% fetal salvage rate.³ It is usually a life-threatening condition owing to a much thinner myometrium

compared to a normal pregnancy. Thus, urgent excision of the pregnancy and horn should be carried out, either by laparoscopy or laparotomy, to prevent associated complications.

In this case, a diagnosis of a ruptured ectopic pregnancy was made based on clinical suspicion, and without the use of ultrasound. Despite advances in ultrasound techniques, prenatal diagnosis has a sensitivity of only 30% as there are no clearly defined signs to distinguish rudimentary horn implantation from the normal intrauterine pregnancy. It has been suggested that an extrauterine gestation accompanied by a well-defined placenta is a criterion for differentiating rudimentary horn pregnancies from abdominal pregnancies on ultrasound.⁵

Diagnosis commonly takes place at laparotomy. In the case presented here, the removal of the rudimentary horn and ipsilateral fallopian tube was carried out to reduce the risk of subsequent ectopic pregnancy in the future. Excision of the rudimentary horn does not appear to interfere with future reproduction. As 31% of patients with Mullerian anomalies will also have renal system anomalies with congenital absence of a kidney,² it is advised for these women to have further assessment before attempting any future pregnancy.

Learning points

- ▶ Rudimentary horn pregnancies, although rare, have a much higher risk of rupture than normal pregnancies.
- ▶ In a low-resource or rural health setting, the diagnosis is often made postrupture, owing to a lack of ultrasound capabilities.
- ▶ Early diagnosis of rudimentary horn pregnancies can prevent rupture, which is associated with a significant morbidity and mortality.
- ▶ Ultrasound is a highly effective and safe investigation tool and should be made widely available.
- ▶ An understanding of the anatomy of uterine anomalies may help ultrasound technicians identify the pathology early in the pregnancy.

Contributors HN was personally involved in management of the case, and wrote the summary, clinical details and management parts. AS researched into the case for the discussion and derived the learning points. No other authors were involved in this article.

Competing interests None.

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REFERENCES

- 1 Ural SH, Artal R. Third-trimester rudimentary horn pregnancy: a case report. *J Reprod Med* 1998;37:919–21.
- 2 Grimbizis GF, Camus M, Tarlatzis BC, *et al.* Clinical implications of uterine malformations and hysteroscopic treatment results. *Hum Reprod Update* 2001;7:161–74.
- 3 Park JK, Dominguez CE. Combined medical and surgical management of rudimentary uterine horn pregnancy. *J Soc Laparosc Surg* 2007;11:119–22.
- 4 Kawthalkar AS, Gawande MS, Jain SH, *et al.* Rare case of live birth in a ruptured rudimentary horn pregnancy. *J Obstet Gynaecol Res* 2011;37:1169–72.
- 5 Chang JC, Ling YC. Rupture of rudimentary horn pregnancy. *Obstet Gynaecol Scand* 1992;71:235–8.

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