CASE REPORT

Rupture of pregnancy in the communicating rudimentary uterine horn at 34 weeks

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Pregnancy in the rudimentary horn is rare and represents a form of ectopic gestation. Despite advances in ultrasound, prenatal diagnosis remains elusive, with confirmatory diagnosis being made at laparotomy. Because of variable muscular constitution of the wall of the rudimentary horn, pregnancy can be accommodated until late in pregnancy, when rupture occurs manifesting commonly as acute abdomen with high risk of maternal mortality. The rudimentary horn may or may not communicate with the uterine cavity with majority of cases being non-communicating. We present a case of pregnancy in the communicating horn that was difficult to diagnose which ruptured at 34 weeks and a review of literature.

Key words: bicornuate/communicating/fibrotic tissue/rudimentary horn/rupture

Introduction

Pregnancy in the rudimentary horn is rare and represents a form of ectopic gestation. Reported incidence varies from 1:100 000 to 1:140 000 pregnancies (Johansen, 1983). Despite recent advances in ultrasound, the diagnosis of pregnancy in the rudimentary horn remains elusive with confirmatory diagnosis being made at laparotomy. Due to the variable muscular constitution of the wall of the rudimentary horn, pregnancy can be accommodated until late in pregnancy (usually in the second trimester) when rupture occurs, manifesting commonly as acute abdominal pain with high risk of maternal mortality. The rudimentary horn may or may not communicate with the uterine cavity. Most reported cases of pregnancy in the rudimentary horn have been in the non-communicating horn. We present a case of pregnancy in the communicating horn of the uterus which ruptured in the third trimester. Diagnosis of a bicornuate had been made antenatally with ultrasound but laparotomy following collapse of the patient revealed a ruptured communicating rudimentary horn with haemoperitoneum, emphasizing the difficulty of antenatal diagnoses.

Case history

A 24 year old para 0 + 1 with no significant past history booked for hospital care at 14 weeks gestation. The booking scan showed a viable single intrauterine pregnancy consistent with gestation. The uterus appeared bicornuate in appearance and the placenta was low lying. All booking investigations were normal, including serum biochemistry (serum alpha fetoprotein = 62 µg/l, human chorionic gonadotrophin 34.7) with a low risk for Down’s syndrome of 1:11 030. Detailed anomaly scan at 19 weeks confirmed normal fetal biometry.

She was admitted at 20 weeks gestation with threatened abortion and discharged after 48 h. Readmission occurred after 2 weeks because of further vaginal bleeding and associated abdominal pain. She was haemodynamically stable, with the uterus being soft and consistent with gestation. The fetal heart rate was satisfactory. There was no evidence of bleeding on vaginal examination and urine microscopy was negative. The haematology (haemoglobin 11.5 g/dl, WBC 20.6×10, platelet count 334) and C-reactive protein (17 IU) results were normal. Ultrasound showed a viable fetus. She was discharged after 48 h.

Further admissions occurred at 24, 28 and 32 weeks gestation because of recurring abdominal pain but no further bleeding. The duration of stay in hospital during admissions ranged from 2 to 7 days. Clinical assessment and investigations were all normal. Pain relief was achieved with a combination of antispasmodics and narcotics. Surgical opinion was requested on two occasions in the course of admissions, but no firm diagnosis was made. Haematological investigation at 32 weeks showed anaemia with a haemoglobin of 8.9 g/dl and a mean corpuscular volume (MCV) of 78 fl. She was commenced on oral iron. Intramuscular steroids were given to improve fetal lung maturity. Ultrasound assessment showed satisfactory fetal growth with low lying placenta persisting and a bicornuate uterine appearance. She absconded from the hospital after the ultrasound scan and was readmitted as an emergency 2 weeks later at 34 weeks gestation with vaginal bleeding and abdominal pain. She was haemodynamically stable and the cardiotocographic (CTG) tracing of the fetal heart rate was normal. The placenta was still low lying, with no evidence of abruption seen. Fetal growth was satisfactory. Kleihauer investigation to assess feto-maternal transfusion was normal (fewer than four fetal cells per low power field).

Four days after admission at 34 weeks and 4 days gestation, she suddenly collapsed. She was pale with cold, clammy extremities, a rapid feeble pulse and the blood pressure could not be measured. The abdomen was tense on palpation and the fetal heart was not heard. Emergency laparotomy following resuscitation revealed 3000 ml of blood in the peritoneal cavity.
with the fetus lying free in the abdomen cavity. Anterior to the uterus was a ruptured rudimentary horn which was connected to it by a short fibrous stalk. The right tube and ovary appeared healthy and normally attached to the uterus. The left tube was attached to the rudimentary horn, but the left ovary was attached to the uterus. In this left ovary was a corpus luteum. Inside the ruptured horn was the placenta and part of the umbilical cord.

The fibrous stalk was found to be connected to the main uterine cavity by a 2 cm tunnel. Continuity with the main uterine cavity was confirmed by the use of a blunt probe. The ruptured uterine horn and left tube were excised from the anterior uterine wall, which was then repaired in two layers with absorbable sutures. Both kidneys appeared and felt normal. The postoperative period was uneventful. She was transfused 4 units of blood and discharged after her haemoglobin concentration had reached 9.4 g/dl on the seventh postoperative day.

The pathology specimen was lost on route to the pathology laboratory because of the excitement it unfortunately generated. Sonography of the kidneys and intravenous pyelogram showed no abnormalities in the urinary system.

The patient conceived spontaneously within 3 months of surgery and was delivered of a healthy female infant (3200 g) on 22 December 1997 at 38 weeks gestation by elective Caesarean section. The uterus was noted at operation to be unremarkable, apart from a scar on the anterior wall of the uterus indicating previous surgery.

Discussion
Several cases of ruptured pregnancy in the rudimentary horn of the uterus have been reported (Holden and Hart, 1983; Johansen, 1983; Muran et al., 1987; Seoud et al., 1989) since the first case was described by Mauriceau in 1669. The majority of reported cases in the literature have occurred in the non-communicating rudimentary horn of the uterus. To the best of our knowledge, this is the second case of pregnancy in the communicating horn of the uterus in literature. The first reported case was in an infertile patient in whom diagnosis of communicating rudimentary horn had been made prior to pregnancy (Gerris et al., 1993).

A rudimentary horn results from an arrest in the development of one of the Mullerian ducts with inappropriate fusion with the contralateral side. The connection between the horn and the uterus may be fibrous or fibromuscular, with 80–85% of cases (O’Leary and O’Leary, 1963) having no direct communicating channel between the two cavities, unlike this case where continuity was demonstrated. Pregnancies occurring in the non-communicating rudimentary horn are thought to result from transperitoneal migration of spermatozoa or the fertilized ovum. This suggestion is based on the finding of corpus luteum in the contralateral ovary in 10% of cases (Rolen et al., 1966; Johansen, 1983). This is in contrast to the finding of corpus luteum in the ipsilateral ovary in this case, suggesting normal migrational mechanism of spermatozoa or the fertilized egg. In most cases of pregnancy in the rudimentary horn, the pregnancy lasts longer than tubal pregnancy because of the variable musculature of the horn, with 80–90% of cases rupturing by mid-trimester and 10% going to term with a 2% fetal salvage rate (Rolen et al., 1966).

Abdominal pain is the commonest presenting symptom associated with the rudimentary horn (Hamai et al., 1977; Seoud et al., 1989; Falcone et al., 1997). The non-communicating cavitated rudimentary horns are clinically more significant because of pain likely to be associated with endometriosis due to retrograde menstruation (Falcone et al., 1997). Communicating rudimentary horns are less likely to be symptomatic before and during early pregnancy. The pain associated with rudimentary horns in pregnancy commences from the end of the first and beginning of the second trimester (Seoud et al., 1989). Vaginal bleeding is rare, but when it occurs it is more likely to be associated with pregnancy in the communicating horn. Sudden collapse due to rupture of the pregnant horn with haemoperitoneum may be the only sign which is common to both types of uterine horn pregnancy as gestation advances.

Ultrasound scan (especially transvaginal) is increasingly providing an excellent opportunity for the detection of asymptomatic extrauterine pregnancies in clinical practice before rupture (Liang et al., 1985; Chang and Lin, 1992). An extrauterine gestation accompanied by a well defined placenta has been suggested to be the criterion for differentiating rudimentary horn pregnancies from abdominal pregnancy (Chang and Lin, 1992). The confines of a rudimentary horn, although very thin, tend to delineate the placenta, making it more identifiable. However, difficulty in diagnosis during early pregnancy is quite common as there are no definite signs to distinguish this abnormal implantation from normal intrauterine pregnancy, especially if it is anterior to the normal horn (Chang and Lin, 1992; Hamai et al., 1997). Accurate diagnosis is nevertheless possible and important early in pregnancy (Mais et al., 1994), to allow planning of surgical management (Kriplani et al., 1995). The presence of a low anterior rudimentary horn in pregnancy may be difficult to distinguish from placenta previa (Naegle et al., 1995).

Confirmation of diagnosis is usually surgical at laparoscopy or laparotomy, when it can be mistaken as an ectopic pregnancy prior to excision (Hamai et al., 1997). Treatment is the excision of the rudimentary horn, although hemi- or total hysterectomy may be necessary to save the life of the woman. Excision is usually carried out at laparotomy, but has been increasingly successfully carried out laparoscopically in unruptured cases (Kriplani et al., 1995). Excision does not appear to interfere with future reproduction as demonstrated by this case but the risk of ectopic pregnancy occurring in the retained portion of the oviduct must be borne in mind. Conservative management should therefore be reserved for women with no surviving children, as in this case.

We have reported this case to highlight the difficulties encountered in making the diagnosis and to reiterate the need to include the possibility of uterine horn pregnancy in the differential diagnosis of recurrent abdominal pain in pregnancy.

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References


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