

# SPONTANEOUS RUPTURE OF THE UTERUS DUE TO PLACENTA PERCRETA: A CASE REPORT\*

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Rupture of the uterus has not been too rare an occurrence in the past, and the obstetrician is constantly aware of the possibility. In modern obstetrics most of the causes are avoidable due to improved facilities such as more hospital beds, better antenatal attendance and the flying-squad service. There are, however, a number of unavoidable factors, one of which is erosion of the uterine muscle by the placenta. An example of this condition recently occurred in this unit.

## CASE REPORT

Mrs. J.W., aged 30 years, gravida 10, was admitted with severe intra-abdominal haemorrhage. She had 8 previous pregnancies, all the children being alive and well, and she had had one miscarriage. All these confinements were attended by a lay midwife. The weights of the babies were average. She gave no history of retained placenta.

Her last menstrual period, 4 months previously, had been normal and there had been no further bleeding until admission to hospital. She had never undergone an endometrial curettage. She had received no medical attention during the present pregnancy and had not attended an antenatal clinic. As with all her previous confinements, she did not intend attending a clinic and was going to have the baby at home.

Six days before admission she developed a colicky pain in the abdomen. She could not point out where the pain started or the area of maximum intensity. On the fifth night she called in a practitioner who sent her to hospital with a diagnosis of ectopic pregnancy. His findings were: Temperature 99.2°F; blood pressure 110/70 mm.Hg; pulse rate 100/min.; and haemoglobin 11.5 G/100 ml.

She was admitted 4 hours after being seen by the general practitioner and was found to be a pale, restless, extremely sick patient, obviously in pain. She was poorly nourished. Her tongue was dry and furred, and her breath was foul. Her body was cold and sweaty. She had a temperature of 99.5°F and a pulse rate of 130/min., and her blood pressure was 90/50 mm.Hg.

The cardiovascular system was normal, except for the low blood pressure and rapid pulse. There was no clinical evidence of active tuberculosis.

The abdomen was generally distended, appearing like a

24-weeks pregnancy, with a distinct swelling to the right of the umbilicus. This swelling could not be well defined on account of pain. Tenderness and rebound tenderness were present all over the abdomen, more so in an area from the symphysis on the right side up to the level of the umbilicus, which area displayed rigidity. Evidence of free fluid in the abdomen was present. No foetal heart sounds could be heard. The vulva and vagina were normal. There was no purulent or bloody discharge. The cervix was bluish on inspection and soft on palpation. Bimanual examination was impossible due to extreme pain and excitation-tenderness. Rectal examination did not elucidate the problem.

White blood cell count was 25,000 cells/cu.mm. The sedimentation rate was 80 mm. in the first hour. The haemoglobin was 5.5 G/100 ml. The Gravindex was positive. Albumin, sugar and pus cells were not present in the urine.

The patient was approximately 16 weeks pregnant, according to the dates given. She had a massive intraperitoneal haemorrhage, possibly due to ruptured ectopic pregnancy. Resuscitation and laparotomy were indicated.

## Treatment and Operation

Blood transfusion was started, two pints of Rh-positive blood being given through a vein in each arm. Six more pints of blood were cross-matched. Atropine, gr. 1/100, and Omnopon, gr. 1/6, were given as premedication. The patient's condition was somewhat improved when she entered the theatre. Her blood pressure was 100/60 mm.Hg and her pulse rate 100/min., and she was on her third and fourth pints of blood.

She was anaesthetized and the abdomen was entered through a right paramedian incision. A large quantity of fresh blood gushed through the wound on opening the abdomen. A rounded swelling, the size of a grapefruit, presented in the wound. It was bluish in nature with strands of muscle fibre running over it. This was found to be the foetal membranes covered with a few strands of muscle. On passing the hand over the swelling, it was confirmed that it was continuous with the uterus. It was thus a pregnancy in the fundus of the uterus, the membranes protruding through the muscle. At the upper pole clotted blood and pieces of placenta were present outside the uterus.

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The membranes ruptured spontaneously. A foetus about 16 weeks in size was expelled from the cavity, still attached by its cord to the placenta (Fig. 1). The membranes

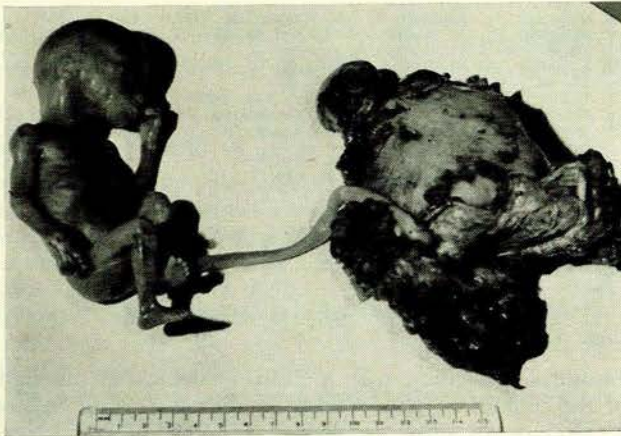


Fig. 1. Photograph of the specimen.

could be clearly seen dipping into the uterine cavity. Microscopically, a diagnosis of placenta percreta with rupture of the uterus was made.

Total hysterectomy was performed, both ovaries, which were normal, being left undisturbed. All blood and blood clots were removed from the abdomen, and the abdominal wound was sutured in layers. Two pints of blood were given during the operation.

On leaving the theatre, her blood pressure was 130/60 mm.Hg and the pulse rate was 90/min. Two doses of 10 ml. 10% calcium gluconate were given during the operation.

The patient had an uneventful postoperative recovery.

#### Pathologist's Report

'The specimen consists of a uterus comparable in size to that of a 4-month pregnancy. The fundal end has ruptured, and, extruding from its opening, there is obvious placental tissue, an umbilical cord and a foetus measuring about 10 cm. crown-rump length. Where the placenta is still adherent to the uterine wall, the latter is clearly greatly thinned and the cut surface here shows apparent penetration of placental villi very close to the serosal surface.

'Histology shows penetration of placental villi virtually to the serosal surface. This probably confirms the clinical diagnosis of placenta percreta.'

#### DISCUSSION

There are very few reported cases of rupture of the uterus due to placenta percreta. Kaltreider<sup>1</sup> reviewed 74 reported cases of placenta percreta and found 11 cases of rupture. Lloyd Jones and Winterton<sup>2</sup> reported one such case of rupture of the uterus which occurred in labour at term. They found 19 cases of placenta percreta reported in the literature where an otherwise normal uterus had ruptured, 2 where the uterus showed congenital abnormality and 2 where the placenta had perforated the scar of a caesarean section. In the 2 cases reported by Fitzgerald and colleagues<sup>3</sup> and Svangberg<sup>4</sup> it is difficult to

say whether they were in fact cases of percreta. They state that the uterus was paper-thin in one case; in the other 2, manipulations preceded rupture.

#### Aetiology

Lloyd Jones and Winterton<sup>2</sup> claim that the basic lesion is absence of the basal layer of the decidua. Novak<sup>5</sup> states that by placenta percreta is meant a condition in which the chorionic villi have penetrated the whole thickness of the uterine wall and reach its serosal covering, sometimes rupturing into the peritoneal cavity. Hamilton and Boyd<sup>6</sup> explain the normal decidual reaction as an exaggeration and intensification of the changes that occur in the post-ovulatory phase of the non-pregnant uterine cycle. The stromal cells become polyhedral in shape and are filled with glycogen and lipid material.

Metachromasia due to mucopolysaccharides has also been noted in the decidual cells and in the ground substance of the endometrium. It has been suggested that these substances may set up a viscous barrier which retards and arrests the invasive activity of the trophoblast.

If the decidua is absent over a certain area, this protective mechanism is not present and trophoblast invades the muscle. In tubal pregnancy this protection is not present. The villi thus invade the muscle wall of the tube.<sup>5</sup> It is disputed whether the tube has a decidual reaction. Novak feels this is incorrect microscopic interpretation, and that the unfavourable environment of the implanted egg is responsible for the departure from the normal process of pregnancy, and the egg dies, but the invasive action of the villi may, for a short time, continue. The tubal muscle is invaded and eventually ruptures.

Moir<sup>7</sup> feels that accreta, increta and percreta are only different degrees of the same condition. In an interesting article Millar<sup>8</sup> states that the incidence of creta placenta is about 1 in 8,000 booked cases, and of these 7% are percreta. He went into detailed investigations of the histology and summarized it as follows:

A primary decidual deficiency, possibly hormonal, is considered to be the underlying cause. The salient features are absent decidua, a dense fibrous layer representing fusion of Nitabuch's and Rohr's striae and hyalinization of uterine muscle. In 14 cases reported, there were 13 who had had normal pregnancies and one with no pregnancy. His case of percreta had had 3 normal pregnancies and a manual removal of the placenta with the birth of the fourth infant.

Phaneuf and Belson<sup>9</sup> give a summary of 82 cases reported, and give the following causes for the creta placenta:

1. Manual removal of placenta at previous birth.
2. Vigorous and repeated curettages.
3. Intra-uterine medications and contraceptive devices.
4. Submucous myomata resulting in an underlying atrophy of mucosa.
5. The old practice of steaming the uterus.
6. Sepsis.
7. Placenta praevia.
8. Pregnancy in a uterine diverticulum.

Munro Kerr<sup>7</sup> added to this list caesarean section scar and radium therapy. However, patients who have had radium treatment seldom become pregnant.

The patient reported here is one of the rare cases who had had no uterine operation or treatment for any gynae-

cological condition. The aetiology in this case could thus only be sepsis, a hormonal abnormality or fibrosis due to multiparity.

#### Clinical Features

Most cases reviewed in the literature present as an acute emergency with intra-abdominal haemorrhage at almost any time during pregnancy.

Our patient's uterus ruptured at about 16 weeks of gestation, as did the case of Taylor *et al.*<sup>10</sup> The patient gave no history of pain or discomfort before her first attack on 3 May, when she experienced a pain apparently developing slowly, which was so bad on the second day that she had to consult a doctor. These pains must have been due to imminent rupture. Her first massive bleed took place after her doctor had seen her and before admission, when her haemoglobin level dropped from 11 G/100 ml. to 5.5 G/100 ml.

If this patient had been seen earlier, the differential diagnosis would have been:

- (i) ectopic pregnancy,
- (ii) degeneration of a fibroid,
- (iii) haemorrhage into a fibroid, or
- (iv) a massive abdominal wall haemorrhage of other origin.

In the second and third trimester it would be very suggestive of concealed accidental haemorrhage, and if the patient were then treated conservatively, especially in the absence of a foetal heart beat, there would certainly be unnecessary delay in treatment.

Of all the cases reported, the commonest site of rupture was in the fundus.

#### Treatment

There are three forms of treatment: hysterectomy, repair of the uterus, or repair and sterilization. In the case reported here, with 8 live children, there was no difficulty in deciding to perform hysterectomy. However, in a childless woman, an attempt should be made to repair the uterus, if at all possible. Should she conceive later,

she would have to be under constant medical attention and the last half of her pregnancy should be spent in hospital, in case of unsuspected rupture. A caesarean section should be performed at the 36th - 37th week, as the dangers of uterine rupture probably outweigh those of prematurity. Two cases have been reported, by Schumann<sup>11</sup> and Muir,<sup>12</sup> of patients who had live babies after placenta percreta.

If the patient is young and has had children, repair and sterilization can be done, but conservation of menstrual function will be purely for psychological reasons.

Hysterectomy is the treatment of choice for women with children. In childless patients a repair with strict antenatal care is desirable. Future pregnancy should be decided upon after delivery by caesarean section.

#### SUMMARY

A case of rupture of the uterus at 16 - 20 weeks due to placenta percreta is presented. The aetiology has been discussed and the methods of treatment are outlined.

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