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Placenta percreta with colon involvement in a twin pregnancy: case report and literature review

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Summary

A case of a woman with twin pregnancy having placenta percreta involving the colon, showed hematochezia symptoms, experienced bleeding which caused the patient's mortality. Placenta percreta with bowel involvement is a very serious complication of pregnancy. Symptoms are very atypical and it is very difficult to diagnose.

Key words: Placenta percreta; Pregnancy; Hematochezia.

Introduction

Bowel invasion of placenta percreta is very rare. However it is often associated with severe bleeding and high perinatal and maternal mortality. This case report describes first Chinese case of placenta percreta invading colon in a twin pregnancy.

Case Report

A 37-year-old woman was transferred to this hospital, with 27 weeks of pregnancy, having blood in stool for two days. She previously had three artificial abortions. She had laparoscopic myomectomy in 2008 at a local hospital due to myoma in the posterior wall of the uterus (the diameter was approximately five cm). Her current pregnancy was a natural pregnancy. Antenatal ultrasound in the first trimester prompted that it was a twin pregnancy. The patient suddenly had bloody stools three times a day, and the total bloody stools was about 400 ml per day. The day after, the bloody stool increased to six times a day and the total was 600 ml per day. The blood count examination showed hemoglobin 104 g/L. Emergency colonoscopy examination failed to find the cause of the bleeding. So she was transferred to this hospital. The patient had no dizziness, vertigo, blurred vision, palpitations, chest tightness, abdominal pain, and vaginal bleeding.

On physical examination, blood pressure was 128/76 mmHg. Skin and mucous membranes were pale. There was no abdominal or rebound tenderness. The uterine base height was 32 cm and abdominal circumference was 95 cm; fetal heart beat was 148/156 beats per min (bpm) with no contractions. Vaginal speculum examination showed no blood in vagina and cervix. Fetal color Doppler ultrasonography examination showed twin pregnancy with fetal development equivalent to 27 weeks. The placenta was attached to the posterior wall of the uterine. Abdominal ultrasound showed no fluid in the abdominal cavity.

After multidisciplinary discussion, it was decided to perform colonoscopy after bowel cleansing. The colonoscopy physician considered the symptom potentially caused by descending colon ulcer bleeding and used titanium clips to stanch the bleeding. The symptom was persistent after repeated colonoscopy. The patient felt weak and slightly disoriented. The fasting and blood transfusion was continued.

After subsequent multidisciplinary discussion, it was decided that the patient would have second bowel colonoscopy. Stenosis at the junction of the sigmoid colon and descending colon was discovered during this colonoscopy; some reached deep muscular layer (near serosa) and multiple blood clots were visible on the surface with some fresh blood clots. When the blood clot was poked, a partial opening fistula which had blood gushing from the fistula was found. It was thought there was abdominal bleeding. During the colonoscopy, she had chest tightness, convulsions, and suddenly opisthotonos. Her oxygen saturation dropped to 30%, heart rate as low as 30 bpm, and the fetal heart rate was 75/68 bpm. The examination was immediately stopped and the patient was prepared for emergency laparotomy. The infusion rate was immediately accelerated with intravenous injection of five mg diazepam, 0.5 mg atropine, and one mg epinephrine. At the same time, a team including anesthetist, surgeon, gynecologist, obstetrician, pediatrician, and nurses were called to join the emergency rescue. Emergency laparotomy and cesarean section were performed considering the abdominal bleeding and fetal distress. The patient was transferred to the operating room. The abdominal cavity was opened, however there was no intra-abdominal hemorrhage and no fluid.

Both fetuses were dead and a lower uterine segment cesarean section was performed. After fetuses were delivered, the placenta was unable to be delivered. Prostaglandin PGF2-α and oxytocin were used to promote uterine contractions, but the uterus was very soft and the bleeding was profuse. The uterine was pulled out from the abdominal. Some colon was adhered knot tight to the posterior wall of the uterine. The uterine muscular wall thickness was only 0.4 cm and the thickness of the colon adhesion around the wall of the uterus was only 0.1cm. the uterine serosa was purple-blue (Figure 1). Total hysterectomy was performed immediately. A protrusion occurred when the adhesions were separated. The surgeons repaired the intestinal perforation; however the bleeding was still fierce. The patient suddenly had a cardiac arrest dur-

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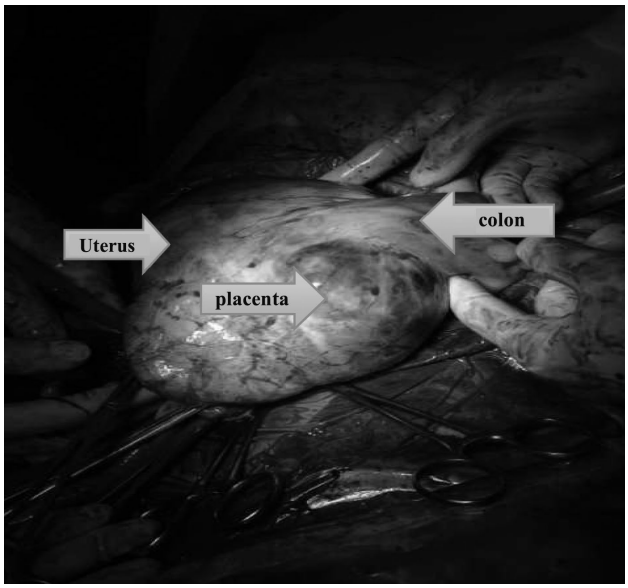

Figure 1. — Abdominal laparotomy: the posterior uterine wall is very weak, colon adhesion is knot-tight to the uterus, and uterine serosa is purple-blue in color.

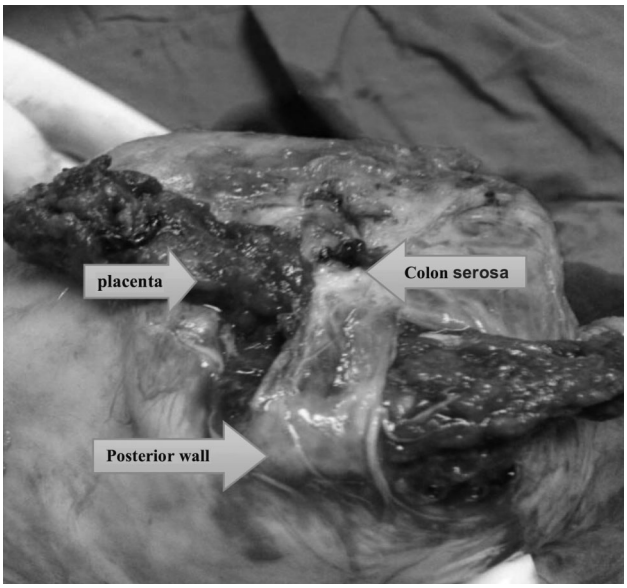

Figure 2. — Gross abdominal image: the placenta penetrates the myometrium of the posterior uterine wall.

ing the operation. Immediate cardiopulmonary resuscitation was performed while administering rapid infusion, blood transfusion, adrenaline, and sodium bicarbonate. The patient continued having extensive bleeding after the uterus removal, and failed to recover. The total bleeding was 8,200 ml, rehydration was 9,250 ml, blood transfusion included 20 units of concentrated red blood cells, and the same type of plasma transfusion was 1,000 ml, but urine was only 100 ml. The posterior wall of uterus was extremely thin. It had a hole (4×3 cm), some placental tissue protruding and caused the hole to break (Figure 2).

Discussion

Placenta accreta is a very severe obstetric complication. According to the degree of placenta villi invasion in myometrium, placenta accreta is divided into three different types: placenta accreta, placenta increta, and placenta percreta [1, 2]. Placenta percreta invasion of intestine is very rare; so far only two cases are reported in English literature, thus it is difficult to estimate its morbidity and mortality.

Studies have suggested that the risk factors associated with placenta accreta, including uterine surgery (including artificial abortion, curettage, cesarean section, myomectomy), are placenta previa, age, multiple pregnancy, and pelvic radiotherapy history [3, 4]. In addition, other factors include any uterine muscle tissue damage and subsequent repair of collagen, submucosal uterine fibroids, thermal ablation, and uterine artery embolization [5]. The present patient also had multiple risk factors for placenta accreta, artificial abortion, and a history of laparoscopic myomectomy. Evidence of placenta percreta through prenatal examination before delivery was not found.

Because placenta percreta does not have typical clinical manifestations, they usually present intestinal symptoms without obvious obstetrics symptoms which often leads to misdiagnosis. A report from Pearl *et al.* suggested tenesmus during fetal movement may be a warning symptom of placenta percreta with rectal involvement [6]; however, not every case showed tenesmus. The symptom of the present case was repeated hematochezia. The different clinical symptoms may be associated with placenta percreta with involvement of different parts of the intestine.

Also, it is difficult to diagnosis placenta percreta prenatally. Placenta percreta often leads to profuse bleeding which is extremely dangerous, often life-threatening. Sumigama *et al.* reported the average blood of placenta accreta to be 3,630 ml, and the blood of placenta percreta reached 12,140 ml [7]. Therefore, controlling the bleeding in placenta percreta is mandatory. The total bleeding of the present case was 8,200 ml. When the bleeding became uncontrollable, resuscitation of cardiac arrest failed.

Treatment methods of placenta percreta include conservative treatment or hysterectomy. This should be individualized based on patient's condition. Uterine vascular ligation, uterine suture, uterine artery embolization, methotrexate, and mifepristone are effective [5]. Rath *et al.* reported the hysterectomy rates were as high as 90% in placenta percreta [8]. A study from Palacios-Jaraquemada suggested there are two treatment options: caesarean hysterectomy or conservative approach. With the latter, there is a choice between leaving the placenta in situ and waiting for its later resolution, and a one-step surgery that addresses the problems of invasion, vascular control, and

myometrial damage in a single surgical act [9]. Therefore, in critical conditions, including limited emergency support or excessive bleeding, hysterectomy, or subtotal hysterectomy, to save the life of the mother immediately is essential.

In short, placenta percreta with bowel involvement is very rare, but it is a very serious pregnancy complication. Symptoms of placenta percreta penetrating intestine are very atypical, therefore it is very difficult to diagnose. Blood in the stool may be a symptom of placenta percreta penetrating intestinal mucosa. Multidisciplinary treatment is necessary. Assistance was sought immediately once the diagnosis of placenta percreta with involvement of intestinal tube was confirmed. Serious uncontrolled bleeding often occurs and causes both maternal and fetal death.

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