CASE REPORT

RUPTURED SPLEEN IN PREGNANCY

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Abstract

Rupture of a normal spleen during pregnancy is very rare. We report a case of splenic rupture following an unclear history of falling in third trimester of pregnancy. Abruptio placentae was suspected preoperatively but, after caesarean section, exploration of the abdominal cavity revealed a ruptured spleen and splenectomy was performed. Disseminated intravascular coagulopathy (DIC), renal failure, adult respiratory distress, necrotizing enterocolitis and bilateral hydrothorax were complications which were managed successfully.

Key words: Rupture spleen, in pregnancy

Case Report

A 40 year old woman, sixth gravid and in the 31st week of pregnancy, was admitted to the Women's Hospital with a history of a short period of collapse. She reported abdominal pain with dizziness for three days after falling from a chair. The course of her current pregnancy had been uneventful until that moment. There was no past medical or surgical history. On admission the patient looked pale, uncomfortable and complained only of abdominal distention. There was no vaginal bleeding.

Physical examination revealed rigidity of the uterus and tenderness of the abdomen. The fetal heart rate was slow, about 80 beats per minute, maternal blood pressure was 150/65 mm Hg with a pulse of 85/minute. Vaginal examination revealed a parous os. A provisional diagnosis of placental abruption was made and the patient was admitted to the labour room. Over the next 20 minutes her blood pressure dropped from 150/65 to 95/75 mm of Hg and a cardiotocogram (CTG) showed persistent fetal bradycardia of about 80 bpm.

A decision was made to carry out an emergency caesarean section. Through a Pfannenstiel incision about two litres of old blood with clots was found in the abdominal cavity. The uterus and adnexia were intact. A lower segment caesarean section produced a baby girl weighing 1500 gms with an Apgar score of 1-6-7 at 1,5,10 minutes respectively. The placenta was delivered completely and no signs of abruption were seen. After closing the uterus, as there was no obstetrical cause of the hemoperitoneum, the surgical team was called in and found a large subcapsular central haematoma of the spleen with a central capsular tear. Splenectomy was performed. During the operation the blood did not clot and there no urine was produced. A provisional diagnosis was made of disseminated intravascular coagulopathy (DIC) with renal failure.

The patient was admitted to the Surgical Intensive Care Unit (SICU) in a very critical condition. She was haemodynamically unstable with poor peripheral perfusion and no urine output. Investigations revealed severe metabolic acidosis and severe disseminated intravascular coagulopathy (DIC). The patient was kept on ventilator, and transfusion of packed Red blood corpusles (RBC) and massive plasma derivatives was commenced. From admission, she was on massive inotropic support, dopamine 40 ug/kg/minute, dobutamine 30 ug/kg/minute, and adrenaline 0.5 mg/minute.

The post-operative course was complicated by adult respiratory distress syndrome on the 4th day of admission, which was managed with artificial ventilation with assisted controlled (AC) regimen and was followed by acute renal failure which was managed conservatively. On day 12 of admission two further complications devolped; necrotizing enterocolitis which was managed by starting new combination of antibiotics and total parenteral nutrition (TPN) and then bilateral hydrothorax which was treated by inserting two chest drains.

The patient was discharged on day 44 of admission and seen in the postnatal clinic after two months without any complications. The pathologist reported a ruptured spleen measuring 15 cm x 6.5 cm, weighing 590 grams, with a rupture line 9 cm long, and a cut surface that was grossly unremarkable.

Discussion

Rupture of the spleen in pregnancy is rare and is associated with appreciable maternal and fetal mortality which can reach 100% for maternal mortality in cases without proper diagnosis and treatment. Careful diagnosis and prompt surgical
intervention can improve the maternal and fetal salvage but in spite of this the maternal mortality is still over 70%\(^1\). Rupture of the spleen in pregnancy is common at late trimester.

About 80% of splenic ruptures in pregnancy occur during the last trimester\(^{2,3}\). Various explanations of rupture have been proposed for the predisposition of the spleen to rupture during pregnancy including changes in organ position caused by the growing uterus rendering the spleen and the vascular pedicle more vulnerable and also hypervolemia during pregnancy\(^4\). Since these changes are more pronounced during the last trimester, a high incidence of rupture is expected during late pregnancy. Rupture of spleen in pregnancy can be classified as traumatic or spontaneous. A spontaneous rupture may occur in a previously diseased spleen i.e. in associated disease such as mononucleosis infection, leukemia, sarcoidosis, amyloidosis, malaria, haemangioma or aneurysms and toxemia. However spontaneous rupture is reported rarely and many authorities believe that this may be because the patient is unable to recollect trivial trauma\(^5\).

The clinical picture may be immediate or delayed, as in our case who was admitted with a history of falling from a chair three days before. In case of delayed (biphasic) rupture there is a latent period for some days and during the first phase there is a short period of upper abdominal pain and/or backache across the subscapular region of the back or diffuse abdominal or lower quadrant pain. In case where there is continuous intraperitoneal bleeding, the patient enters in the second phase during which the abdominal tenderness becomes diffuse, the abdomen becomes rigid and the patient shows the clinical picture of shock. Our case had a latent phase of three days and during this phase she complained of upper abdominal pain. When she entered the second stage, signs of haemorrhagic shock started to appear and also there were signs of severe fetal distress as a result of uteroplacental insufficiency\(^6\). Therefore, surgical intervention was decided upon.

Preoperative diagnosis is rarely made and even less frequently carried out in case of spontaneous rupture of spleen. The clinical picture mimics a ruptured ectopic pregnancy during the first trimester of pregnancy and in the second and third trimester it may mimic abruptio placenta, uterine rupture or rupture of other intra-abdominal vessels such as aneurysms\(^7\). Treatment consists of blood replacement and splenectomy. The earlier surgical intervention the fewer complications are likely to develop.

In our case the clinical signs suggested an initial diagnosis of abruptio placenta. The surgical intervention was properly timed but, as the bleeding was so severe, complications of severe haemorrhagic shock occurred (DIC and renal failure).

Although rare, splenic rupture in pregnancy should be kept in mind when a pregnant patient presents with symptoms and signs of haemorrhagic shock. Correct diagnosis and early surgical intervention could reduce the morbidity and mortality of both the mother and the baby according to studies carried out by Sparkman\(^2\), Buchsbaum\(^5\), Handerson\(^8\) and Epstein\(^9\).

References