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**Case Report**

# Conservatively managed spontaneous splenic rupture in pregnancy with severe preeclampsia: an interesting case report

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## ABSTRACT

Spontaneous splenic rupture during pregnancy can be catastrophic with most of the cases needing splenectomy. We presence an interesting case of conservatively managed spontaneous splenic rupture in pregnancy. A 24-year-old G2P1L1 with 35 weeks gestation with previous LSCS severe preeclampsia and severe anaemia was referred from a peripheral centre. On examination, she was vitally stable with marked pallor and pedal oedema. Abdominal wall oedema and ascites was present, uterus was 28 weeks with FHS localised by Doppler. After 2 hours, patient complained of continuous pain abdomen. It was tense, tender with FHS non-localised, uterine fundus could not be made out. USG revealed a retroplacental hematoma of 3.5×2.2 cm with free fluid in the abdomen. Differential diagnosis of rupture uterus and abruptio placenta were made. Emergency laparotomy was done. Intraoperatively, 800 cc fresh hemoperitoneum was present, previous scar was intact and a live baby delivered by LSCS. Uterus, bilateral tubes and ovaries were normal. After the uterus was closed, fresh intraabdominal bleeding was still present. With the help of general surgeon, exploration was done and two long superficial splenic tears (grade 2 splenic injury) with continuous oozing were identified. Contact pressure was applied by gauze. Bleeding stopped and omental wrapping around spleen was done. Abdomen was closed after putting drain and patient was shifted to ICU for monitoring. After 27 days, patient was discharged in a stable condition. Thus, spontaneous splenic rupture should be considered in the diagnostic differential of hemodynamic instability in a case of severe preeclampsia. Emergency laparotomy before the setting of collapse and DIC are vital steps to save the spleen and improve feto-maternal survival.

**Keywords:** Spontaneous splenic rupture, Severe preeclampsia, Pregnancy, Splenic laceration, Conservative management

## INTRODUCTION

Spontaneous splenic rupture (SSR) during pregnancy can be catastrophic with an incidence of around 0.1-0.5%.[1] SSR has been more commonly reported during the 3rd trimester or puerperium and in multiparous women like in our case.[2]

The reported maternal mortality ranges between 0 to 45% and fetal wastage of 47-82%.[3] ASR is often life threatening. Maternal death is commonly due to massive haemorrhage, and accompanying hemorrhagic shock and consumptive coagulopathy.

SSR during pregnancy is usually misdiagnosed as abruptio placentae or uterine rupture. Most of the cases need splenectomy. Here is an interesting case of SSR during pregnancy which was managed conservatively.

## CASE REPORT

A 24-year-old second gravida was referred to our tertiary care hospital with 35 weeks gestation with previous caesarean delivery three years ago with severe preeclampsia and anaemia from a peripheral centre. On referral, her BP was 160/100 mmHg and had received injection labetalol 20 mg followed by 40 mg. She had a

history of preeclampsia for 1 month in this pregnancy and was on oral labetalol 100 mg twice a day. There was history of transfusion in previous pregnancy. On admission, her vitals were: pulse 76 /min, BP- 138/94 mmHg. She had marked pallor and ana sarca, moderate ascites, uterine height of 28 weeks and FHS was localised by Doppler.

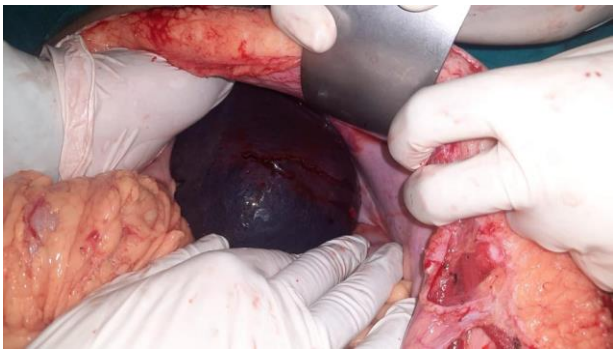

**Figure 1: Per-operative picture showing two superficial splenic lacerations.**

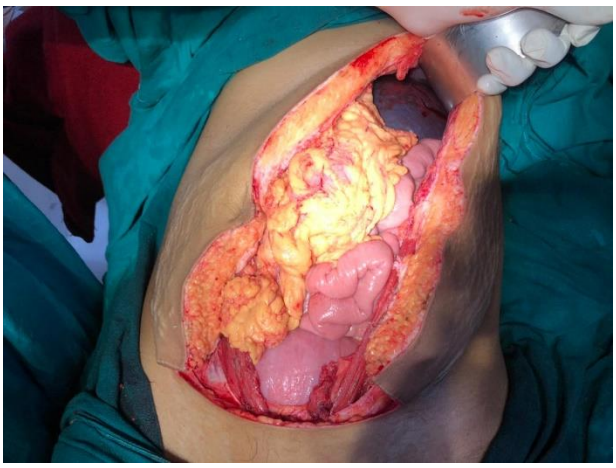

**Figure 2: Per-operative image after attainment of hemostasis.**

The patient was given oxygen inhalation, oral labetalol 100 mg twice a day, steroid cover for fetal lung maturity and injection $MgSO_4$ loading followed by maintenance was started. A complete blood count showed: Hb-6.5 g%, TLC-9000 /cumm, PMN-70%, lymphocytes-27%, monocytes-3%, platelet count-1.5 lakh/cumm. Her BT, CT, PT, INR, LFT, RFT were within normal limits.

After 2 hours, patient complained of sudden onset continuous pain abdomen. On examination, her pulse rate was 96 /min (increased), BP-120/70 mmHg (decreased), abdomen was tense, tender with FHS non-localised, uterine fundus could not be made out. On per vaginal examination, os 1 finger, cervix uneffaced. Amniotomy revealed meconium stained liquor with blood. A differential diagnosis of rupture uterus and abruptio placenta was made.

A decision for operative intervention under general anaesthesia was made. On opening the abdomen, about 800 cc fresh hemoperitoneum was present. Previous caesarean scar was intact. A LSCS was performed and a live baby girl weighing 1.5 kg was delivered. There was no retroplacental clot. Uterus, bilateral tubes and ovaries were normal. Uterine incision was closed, but fresh intraabdominal bleeding was still present. General surgeon was called and incision was extended till xiphisternum for complete exploration of the abdomen. Two long superficial splenic tears (grade 2 splenic injury) with continuous oozing were identified as shown in figure 1. Contact pressure was applied by gauze and bleeding stopped. Omental wrapping was done around spleen to prevent future perisplenic adhesions. The surgical picture after attainment of hemostasis is shown in Figure 2. Intraoperatively, 3PRBC, 4FFP, 4PRP were transfused. Abdomen was closed after putting drain and patient was shifted to ICU for monitoring. No history of recent trauma, forceful coughing or sneezing or usage of seat belt was elicited on careful direct questioning. Post-operatively, another 3PRBC, 8FFP and 2PRP were transfused. The duration of hospital stay was 27 days and the patient was discharged in stable condition.

## DISCUSSION

Orloff et al had defined the criteria for diagnosis of SSR according to their study as a patient with no anamnestic or clinical signs of any trauma or systemic illness affecting spleen, or signs of local illness or previous trauma on histopathology.[4]

Etiological factors are traumatic (most common) and atraumatic risk factors like preeclamptic toxaemia, infectious like malaria, infectious mononucleosis, kalazar, typhoid, hematologic like haemolytic anaemia, haemophilia, neoplastic like lymphoma, leukemia, metastatic cancer, hemangioma, aneurysm, iatrogenic due to drugs like heparin, warfarin, streptokinase, idiopathic and may be even found in a normal spleen.[5]

Different pathophysiological mechanisms may be responsible for this event like decreased peritoneal space with constantly increasing splenic and uterine size with advanced gestation and the spleen becomes more fragile due to vascular congestion with increasing plasma and RBC volume especially in twins and the third trimester. Circulating hormones such as estrogen and progesterone causes structural changes to spleen that may increase the risk of rupture. The probability of rupture is further increased due to compression by abdominal musculature during an increase in intra-abdominal pressure following minimal strain like sneezing, coughing.[6]

The most common symptom of atraumatic splenic rupture is left upper quadrant abdominal pain which is sharp and crampy in nature. Patients develop anaemia with decreasing haemoglobin level, elevated WBC counts, shoulder pain, mostly on the left side (Kehr's sign),

guarding and rebound tenderness, hypotension, tachycardia, weakness. Spleen may be enlarged in size. Patient may develop periumbilical ecchymosis known as Cullen sign. The symptoms of splenic artery rupture may mimic splenic capsular rupture, which are violent spontaneous pain in the left hypogastrium or epigastrium. SSR during pregnancy is usually misdiagnosed as abruptio placentae or uterine rupture.

Diagnostic procedures like ultrasonography may detect free intraperitoneal fluid, peritoneal lavage may reveal hemoperitoneum, but the final diagnosis of splenic rupture is made on laparotomy.

Treatment of splenic rupture involves primary surgical treatment like total splenectomy or organ preserving surgery or primary non-surgical treatment like splenic arterial embolization or conservative management.[7]

SSR has been more commonly reported during the 3rd trimester or puerperium and in multiparous patients like in our case.[2] Since our patient had conservative management histopathology could not be assessed.

## CONCLUSION

SSR should be considered as a differential diagnosis of hemodynamically unstable patient with severe preeclampsia. Early diagnosis and emergency laparotomy before the onset of maternal collapse and onset of DIC can conserve the spleen and improve feto-maternal outcome.

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