British Journal of Healthcare and Medical Research - Vol. 12, No. 03
Publication Date: May 22, 2025
DOI:10.14738/bjhr.1203.18814.
Islam, S. R., Biswas, B., & Noor, T. (2025). Spontaneous Rupture of Spleen in Pregnancy: Three Different Case Reports. *British Journal of Healthcare and Medical Research*, Vol - 12(03). 133-137.

Spontaneous Rupture of Spleen in Pregnancy: Three Different Case Reports

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ABSTRACT

We are reporting 3 cases of spontaneous rupture of spleen in pregnancy with different presentation. The first patient was a 25 years old primigravida with twine pregnancy. She was admitted with fetal and maternal distress at 34 weeks of gestation. During C-section hemoperitoneum and persistent hemorrhage was noted in the peritoneal cavity. On surgical consultation exploratory laparotomy was done. Splenic rupture was detected and splenectomy was performed. The second patient was a 32 years old woman with twine pregnancy in her 2nd gravida presented at 33 weeks of pregnancy with fetal distress and had undergone C-section. She developed intraperitoneal hemorrhage within 6 hours after C-section. Relaparotomy discovered rupture of spleen and again splenectomy was done. Her rupture spleen was missed during C-section. All these two patients required admission in intensive care unit (ICU) post operatively and received multiple transfusions. They recovered fully with their live babies. Third patient was an overweight young primi-gravida presented with a large pseudocyst of the spleen at third trimester. This cyst possibly developed due to a trivial rupture of spleen, but bleeding stopped spontaneously resulting in a pseudocyst. Her splenectomy was done 2 months after delivery. She recovered uneventfully.

Keywords: Spontaneous rupture of spleen, Pregnancy, Splenectomy.

INTRODUCTION

Splenic rupture during pregnancy is a rare occurrence. This diagnosis is often missed as it is a non-obstetric cause of shock in ante-natal period. Spontaneous rupture of spleen in pregnancy is associated with a high maternal and fetal mortality. Spleen is a friable and vascular organ. If the spleen is diseased or enlarged, minor trauma may result in significant bleeding. Estrogen and especially progesterone level rise during pregnancy. Progesterone causes changes in parenchyma of the spleen and make it more friable. Reduction of space in the abdominal cavity due to gravid uterus make spleen susceptible to rupture due to minor trauma.[1] For this reason spontaneous rupture of spleen is more seen in multiple pregnancy and in third trimester or in puereperium.[2,3]. Prompt diagnosis and appropriate surgical intervention may save maternal and fetal lives.

CASE NO 1

A 25 year old female, Gravida 1 and Para 0 was admitted with 34 weeks of pregnancy with pain abdomen for 1 day. It was a twine pregnancy. Obvious feto-maternal distress was detected. Emergency cesarian section was carried out. During cesarian section about 500 ml of blood was noted in the peritoneal cavity. Persistent accumulation of blood was noted in the peritoneal cavity. Surgical consultation was done on the operating table. Abdomen was explored with extended lower midline incision. A tear was noted in the lower pole of the spleen, which was having active bleeding.(fig-1) Splenectomy was performed. Both the mother and the baby required admission in intensive care unit. Mother required multiple transfusion as well. Mother and baby were discharged on 8th post operative day.

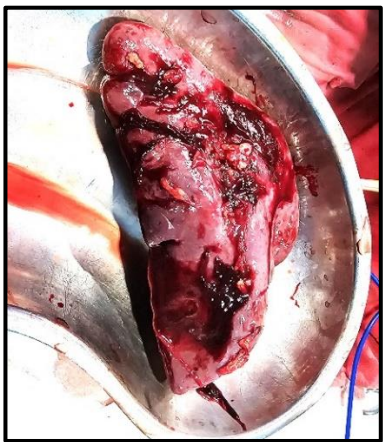

Fig 1

CASE NO 2

A 32 years old female was admitted with twine pregnancy at 33 weeks of gestation with abdominal pain. There was fetal distress on cardio-toco-graphy. Twine baby was delivered by emergency c-section. Post operatively patient developed hemorrhagic shock 6 hours after c-section. USG showed intraperitoneal collection. Emergency re-laparotomy was done by extended lower midline incision. There were 500 ml of blood in the peritoneal cavity. A tear on the superior pole of the spleen was found with active bleeding. Splenectomy was done. This patient also required intensive care and multiple transfusion post operatively for 5 days. Mother and babies were discharged from hospital on 10th post-operative day.

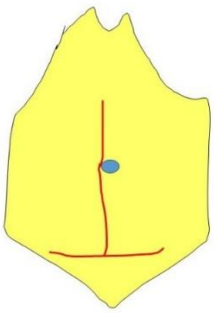

Fig 1: Exploratory laparotomy incision after C-section

CASE NO 3

A 20 years old woman noticed upper abdominal pain on 34 weeks of of pregnancy. Abdominal ultrasonography revealed a fairly large cyst in her spleen. She was managed conservatively during pregnancy with analgesics and antibiotic. She delivered a live fetus at term by normal vaginal delivery. CT scan was done in the post-partem period, which revealed a huge cyst occupying lower pole of the spleen (Fig-2). The dimension of the cyst was 22 cm ×24 cm. Laparotomy was done with upper midline incision considering huge size of the cyst. Splenectomy was performed successfully (Fig-3). She had recovered uneventfully. The histology shows a pseudocyst of the spleen. Color of the cyst fluid was hemorrhagic. Histological diagnosis was pseudocyst of spleen. Possibly, this pseudocyst developed as a result trivial rupture of lower pole of the spleen during pregnancy. Bleeding eventually stopped resulting a hemorrhagic cyst.

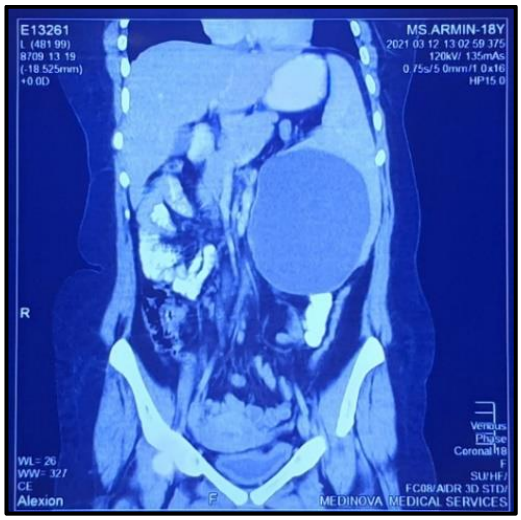

Fig 2: CT picture of huge splenic cyst

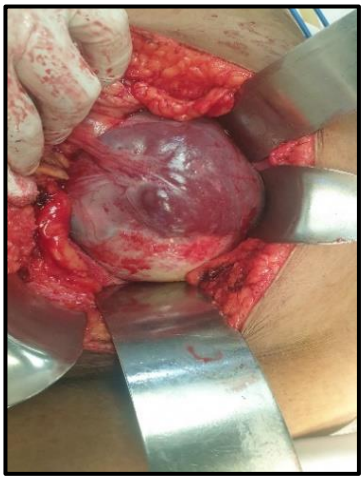

Fig 3: Per-operative picture of the splenic cyst

DISCUSSION

Spontaneous rupture of spleen without trauma is a rare condition. Aetiology of splenic rupture in pregnancy remains unknown. A number of mechanisms were postulated as its cause. Minimal trauma, such as straining for a bowel movement or coughing and sneezing, acts as the

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inciting event through an increase in intra-abdominal pressure and its transmission to a number of abdominal organs including the spleen. The increase in the circulating blood volume in pregnancy and the reduced space in the peritoneal cavity as a result of the expansion of the gravid uterus may make the spleen more fragile, and therefore more susceptible to rupture.[4-6] Circulating hormones such as estrogen and progesterone causes structural changes to spleen and make it more friable and vulnerable to minor trauma.

Splenic rupture is more common in the third trimester, but some cases of rupture occurred in the post partem period [7,8]. The splenic rupture during pregnancy is difficult to diagnose because it shares signs and symptoms with other conditions such as uterine rupture and abruption of the placentae. The standard of care for patient with spontaneous splenic rupture remains splenectomy. Maternal death is commonly due to massive hemorrhage and accompanying hemorrhagic shock and consumption coagulopathy. Maternal hemodynamic decompensation will lead to an acute decrease in uteroplacental perfusion, resulting in "fetal distress" and, ultimately, fetal death [6]

Our first two patients were carrying twine pregnancy. They both presented with feto-maternal distress in their third trimester of pregnancy. Emergency C-section was performed. These are the factors which are suggested in various literature as predisposing factor of rupture spleen in pregnancy. There were all having features of hemorrhagic shock and feto-maternal distress before decisions of emergency C- section were made. In case-1 intraperitoneal hemorrhage was detected per-operatively, during C-section even after closure of her uterine wound. As a result, surgical consultation was made on the operating table. In case-2 the abnormal bleeding was not noticed during C-section possibly due to its minor nature. But patient continued to deteriorate with persistent abdominal pain and hemorrhage in the first 6 hours after C-section. Hemoperitoneum was confirmed on USG. Then decision to do re-laparotomy was done. This patient was also explored by extended lower midline incision, which revealed rupture spleen at the lower pole with active bleeding. And splenectomy was performed. All these two patients post operative intensive care and multiple transfusion. Both of the stayed more than a week after surgery.

Our third patient was a young obese primigravida of 20 years old. Primigravida, obesity and young age all may have contributed to reduced cavity in the abdomen. All these factors which may have caused minor rupture of spleen due trivial trauma. Fortunately, bleeding stopped but resulted in a hemorrhagic pseudocyst. The cystic swelling was detected in the third trimester also. She continued her pregnancy with the cyst in the spleen. Splenectomy was performed 2 months after delivery.

CONCLUSION

Spontaneous rupture of spleen does occur in pregnancy. Primigravida with multiple pregnancy are vulnerable. A very high grade of suspicion must be there during assessment of such patient incase they present with abdominal pain and hemorrhagic shock. Prompt exploratory laparotomy and splenectomy are required to prevent catastrophe.

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