Idiopathic spontaneous hemoperitoneum in pregnancy: A case report with review of literature

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ABSTRACT
Spontaneous hemoperitoneum in pregnancy is a rare cause of acute abdomen. Often in these cases the diagnosis made is obstetric emergencies like abruption, placentae or the commoner surgical emergencies in pregnancy. The causes of spontaneous hemoperitoneum include obstetric emergencies like ovarian cyst rupture, ectopic pregnancies which present in early pregnancy and uterine rupture and hepatic rupture in cases of HELLP syndrome which present in late pregnancy. Pregnancy may also predispose rarely to splenic rupture, rupture of visceral arteries like splenic and uterine and rupture of utero-ovarian veins.

However in certain cases of spontaneous hemoperitoneum the site of bleeding may not be identified at surgical exploration. Even with recent advances in angiography there are cases where the site of bleeding is not identified. These cases of idiopathic spontaneous hemoperitoneum were historically termed as abdominal apoplexy. The first case of idiopathic spontaneous hemoperitoneum was reported in 1909. We report a case of idiopathic spontaneous hemoperitoneum at 32 weeks of pregnancy. Early operative intervention was done in the case which led to good maternal outcome. The fetal prognosis usually depends on the degree of prematurity. In our case the baby was premature and was discharged well after a 17-day NICU stay.

Key words: spontaneous hemoperitoneum, abdomen, pregnancy

INTRODUCTION
Spontaneous intraperitoneal bleeding is a rare occurrence in pregnancy. These cases are often diagnosed as obstetric emergencies or other common surgical emergencies such as acute appendicitis. In the absence of trauma there is a low index of suspicion for diagnosis of spontaneous hemoperitoneum among obstetricians. The causes of spontaneous hemoperitoneum in pregnancy are bleeding from a viscera (uterus, spleen, liver) or blood vessels (splenic artery, uterine artery, utero-ovarian veins). However in some cases the source of bleeding remains unidentified even after the surgical exploration. These are the cases of idiopathic spontaneous hemoperitoneum. Historically these cases have been referred to as abdominal apoplexy. This condition was first described by Barber in 1909.

We report a case of a young woman with idiopathic spontaneous hemoperitoneum in third trimester of pregnancy.

CASE REPORT
A 35 year old Indian woman, second gravida in her 32nd week of pregnancy presented to our hospital on 15th April 2012 with complaints of acute abdominal pain. The pain had started an hour before her hospital visit. There was no history of trauma. There were no symptoms of vomiting, epigastric pain, fever or vaginal bleeding. She was seen in the Outpatient Department of Obstetrics and Gynecology. She was hemodynamically stable and her cervical findings did not reveal possibility of preterm labor. She had developed mild pregnancy induced hypertension 2 days before admission to the hospital with acute abdomen and was advised admission suspecting a possibility of abruptio placentae. She refused admission, but returned four hours later with severe abdominal pain and had difficulty lying
on the bed. Her present pregnancy had been uneventful. She had no proteinuria. Her first pregnancy was uneventful and she had a normal delivery three years ago. Her past history was significant for Henoch-Schonleinpurpura (HSP) which was diagnosed in 2007. She had no recurrence of HSP after 2007. On examination, she was hemodynamically stable. The abdominal examination revealed palpable uterine contractions at regular intervals and diffuse tenderness all over the abdomen. Cervical examination was suggestive of preterm labor. At admission her Hb was 10.4gm/dl. Platelet count, coagulation profile and renal and liver function tests were normal. Admission cardiotocograph showed persistent fetal bradycardia. Hence the decision for emergency caesarean section was made. Lower segment caesarean section was performed under spinal anesthesia. On opening the abdomen, approximately 750ml of fresh blood was found in the peritoneal cavity. There were no blood clots. A live baby of weight 1.4kg was delivered and the uterus was closed in layers. The inspection of the fallopian tubes, ovaries, broad ligament, and anterior and posterior surfaces of the uterus did not show any sites of bleeding. The general surgeon was called in and under general anesthesia a midline incision extending above the umbilicus was made. The abdomen was systematically explored. The examination of the liver, spleen, the lesser sac, the splanchnic vessels and the major abdominal vessels did not reveal any site of bleeding. There was hemostasis and the abdomen was closed with two drains. The patient recovered well in the post operative period. Her baby was discharged well from the NICU on the 17th day of life.

**DISCUSSION**
Spontaneous intraperitoneal bleeding in pregnancy is a rare event. The commonest symptom in these cases is pain in the abdomen. However in some cases there may be symptoms of hypovolemic shock at presentation. The acute abdomen that results is often diagnosed as obstetric emergencies like abruptio placentae, uterine scar rupture or as some commoner surgical emergency in pregnancy. In the absence of trauma to the abdomen spontaneous bleeding into the peritoneum in pregnancy results from bleeding arteries, veins or a blood filled viscus.

The obstetric catastrophies that could result in spontaneous hemoperitoneum in the third trimester are uterine rupture, placental abruption, HELLP syndrome with hepatic rupture, abnormal placentation or invasion and bleeding from ectopic deciduas.

**Uterine rupture**
Spontaneous rupture of uterus in third trimester without labor or trauma could result in patients with previous caesarean deliveries or other scars on the uterus. Our patient had a normal delivery in the past and had an intact normal uterus at caesarean section.

HELLP Syndrome with hepatic rupture occurs in cases with severe preeclampsia. The clotting abnormalities lead to microvascular thrombi which in turn result in a subcapsular hepatic hematoma which can rupture causing massive hemoperitoneum. In some patients hypertensive complications such as these may occur even when symptoms of preeclampsia may be subtle or atypical. Our patient had mild pregnancy induced hypertension with no proteinuria. The platelet counts and liver enzymes were normal with no evidence of hemolysis. Intraoperative findings also showed the liver was normal with no subcapsular hemorrhage.

**Placental invasion**
Placental growth into and through the myometrium can cause intraperitoneal hemorrhage such as in placenta percreta. Our patient had a normally situated placenta with no gross abnormality in the placenta.
**Bleeding ectopic decidua**

In pregnancy there may be ectopic deciduas on the surfaces of the uterine serosa or on the adjacent peritoneal surfaces. These sites can bleed spontaneously into the abdomen. Our patient had no evidence of ectopic deciduas in the pelvic cavity.

**Conditions aggravated by pregnancy**

The endocrine, hemodynamic and the effects caused by mechanical changes in the abdomen by the pregnancy may predispose to rupture of visceral arteries, veins or viscus like spleen. The visceral artery commonly involved is the splenic artery. The presence of aneurysm in the splenic artery predisposes to rupture. These aneurysms are more common in young patients. The rising levels of estrogen, progesterone and relaxin, the hemodynamic changes and the mechanical changes increase the likelihood of aneurysm formation. Spontaneous rupture of the spleen is known to occur in pregnancy and this along with rupture of splenic artery aneurysm is called splenic emergency syndrome.

Spontaneous rupture of uterine artery is known in pregnancy. Pregnancy may predispose to aneurysm in the uterine artery which may rupture. Conditions of defective collagen synthesis like Marfan’s and Ehler-Danlos syndrome can predispose to aneurysmal rupture in pregnancy. Rupture from utero-ovarian veins is also a cause of spontaneous intraperitoneal bleeding in pregnancy. The increased blood flow in pregnancy causes the dilatation of these venous plexuses which weakens the walls of the veins. Any increase in abdominal pressure or coitus can cause rupture of these veins. Uterine arterio-venous malformations or fistulas are rare. The spontaneous rupture of these malformations in pregnancy was first reported by Simpson et al. Our patient had normal fallopian tubes, ovaries, broad ligament, and anterior and posterior surfaces of the uterus. The splenic bed, liver, lesser sac, splanchnic vessels, and major abdominopelvic vessels were found to be normal at exploration. No bleeding site could be identified after systematic exploration. This is a case of idiopathic spontaneous hemoperitoneum. Such cases have been reported in literature. These cases have been historically known as abdominal apoplexy. In many of these cases the initial presentation had been subtle until a large volume of bleeding in the abdomen led to hypovolemic shock. Our patient had acute pain in the abdomen for four hours before her admission to the hospital. The intraperitoneal bleeding must have led to premature uterine contractions. She had no signs of hypovolemic shock. The fetal distress which resulted led to an early operative intervention in the case. The diagnosis of spontaneous hemoperitoneum was made at caesarean section. The patient had a good recovery in the post operative period. The baby was discharged well after a 17 day NICU stay.

**CONCLUSION**

This case reminds obstetricians that spontaneous intraperitoneal bleeding, although rare, should be considered in the differential diagnosis for acute abdomen in pregnancy. Early operative intervention reduces morbidity and mortality in the mother. The fetal prognosis would depend on the degree of prematurity. Pregnancy predisposes to rupture from utero-ovarian veins, visceral arteries (uterines, splenic) due to the endocrine, hemodynamic and the mechanical changes that occur. Conditions like connective tissue disorders predispose to rupture of the vessels in pregnancy. Our patient had a past history of Henoch-Schonlein purpura. The spontaneous hemoperitoneum was idiopathic wherein the bleeding site could not be identified at exploration. Further research may reveal any risk factors that predispose these pregnant women to idiopathic spontaneous hemoperitoneum.

In the present context the
obstetricians need to realize that although rare, spontaneous hemoperitoneum is a cause of acute abdomen in pregnancy. Early operative intervention in these cases usually leads to a good maternal outcome.

REFERENCES