

## Case Report

### Splenic Pregnancy: A Diagnostic Dilemma

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#### Abstract:

*Pregnancy in spleen is an infrequent incidence. Hence its outcome is meant to be much more alarming when it ruptures than usual site tubal ectopic. A 29 years old woman presented at her 9 weeks of gestation with loose motion and repeated vomiting. She had a previous history of ectopic pregnancy. She confirmed her pregnancy by urinary strip test but no Ultrasonogram was done. She was received in a state of shock. Ultrasonography revealed abdominal collection and  $\beta$ HCG was raised. Laparotomy was done as a case of tubal ruptured ectopic. Surprisingly ectopic site was in the spleen and splenectomy was done. A number of case reports and literature review are discussed to explore how the splenic ectopic pregnancy present, how these cases are managed and what could be done to alleviate this misery.*

**Key words:** Splenic pregnancy, Ruptured ectopic pregnancy, Splenectomy.

#### Introduction:

Ectopic pregnancy (EP) denotes pregnancy in an ectopic or abnormal site. Normally fertilized ovum or zygote implants in anterior or posterior wall of uterus proper or body of uterus after fertilization in fallopian tube. When implantation occur other than this normal site it is called EP. Worldwide incidence of EP is 3-4% of all pregnancy and in USA it is 2%<sup>1</sup>. The incidence was 4.5 per 1000 in 1970 which increased to almost 20 per 1000 in 1992, the US centers for disease control and prevention reported

the last time data<sup>2</sup>. Most common ectopic site is the fallopian tube and it is about >95% of all ectopic pregnancies. Other sites can be ovary, cervix, within broad ligament or abdominal cavity harboring in different organ. EP is found in different abdominal organs such as liver, spleen, omentum and intestine in small amount (1.3%)<sup>3</sup>.

Abdominal pregnancy can be the primary site of implantation or it may be secondary when released or

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escaped from primary site in the fallopian tube following rupture. The ectopic sites are not anatomically or physiologically capable to retain or nourish the conceptus. As a result fatality develops.

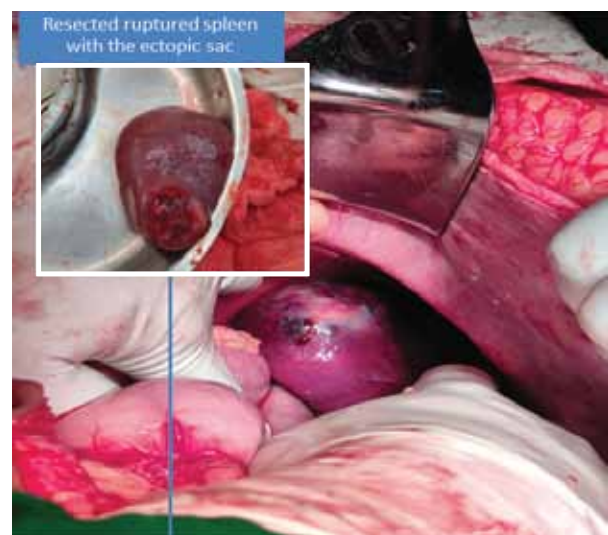
EP is an important and one of the few causes of early pregnancy bleeding that significantly contribute to maternal mortality. Usually in a case of ruptured ectopic, patient had h/o severe lancinating pain abdomen that in most of the cases follows low grade pain on the corresponding site where the pathology develops. Often she has h/o fainting attack and minimum per vaginal bleeding. Invariably shock with moderate to severe degree of anemia without any visible source of bleeding is the presenting feature in the ruptured ectopic cases. Early diagnosis and prompt management results in miraculous recovery. If not so, it may end in a tragedy.

Misdiagnosis or missed diagnosis can occur in rare ectopic sites like liver, spleen intestine or omentum due to unusual and sporadic presentation. Splenic ectopic can be easily overlooked as its clinical symptoms are skeptical<sup>4</sup>.

#### Case Report:

Mrs. Mou Bishwas, 29 years old lady G3<sup>rd</sup>, P1(LSCS)+1(EP) was admitted at her 9 weeks of gestation with the complaints of severe pain in the left hypochondriac & epigastric region for 12 hours, loose motion and vomiting for 10hours. According to her she was pregnant for 9 weeks'. Her pregnancy was confirmed at home by urinary strip test but no imaging test was done. She was a regularly menstruating woman. She received no antenatal checkup till her admission. The day before admission she suddenly developed mild pain in left hypochondriac region at around 5 pm which gradually become severe and extended to epigastric region. She also mentioned that she started loose motion and repeated vomiting 2 hours following the pain. Her pain was increasing in severity and extended to epigastric region. So she got admitted to a private clinic at around 8 pm but as her condition was not improving they referred her to our facility. We received the patient at 6AM. After receiving we found the patient in shock. Her blood pressure was 80/40, pulse was 156b/m, RR was 30 breath/min, skin was cold and clammy. The lady was conscious, distressed in pain with pale complexion but responding to our command. Her vomiting was intractable. Abdomen was moderately distended and extremely tender more on left upper quadrant. Percussion could not be done due to tenderness. Bowel sound was not audible. There was no per vaginal bleeding and cervical excitation test was negative. Our first clinical diagnosis was G3<sup>rd</sup> with 9 weeks pregnancy with acute gastroenteritis with shock. Measures were taken promptly to reverse the shock and alongside investigations were sent. Bed side USG revealed large

intra-abdominal collection. But the uterus was empty and adnexa were not identified clearly. At around 9am we got  $\beta$  HCG report which was 5000IU/ML and Hb was 5.1gm/dl. ECG tracing showed features of old MI. Diagnosis was confirmed as ruptured ectopic. So, emergency laparotomy was planned after consulting with cardiologist and anesthetist. With written informed consent surgery started at 11.30 AM. On entering into the abdominal cavity huge blood collection was found. Uterus and both adnexa were observed carefully after blood was sucked out. Uterus was empty with no fistula. Right sided tube was found operated. Both ovaries were completely normal with no evidence of injury or implantation. Left tube was also intact and in good condition. No mass or organized blood clot was seen in pouch of Douglas. Bleeding was continuous and enormous though source was not found. Keeping in mind about empty uterus and normal adnexa we decide to extend the incision up to xiphisternum to explore upper abdomen. Inter disciplinary assistance was approached. Surgery resident and senior most surgeon were present. Digital exploration identified a mass in the spleen which seemed to be ruptured. Spleen with a ruptured sac like structure was seen after retracting the abdominal wall. As bleeding was heavy total splenectomy was done. A drain was kept in situ. Specimen was sent for histopathology. Patient received 6 units of blood transfusion during operation & 3 units in early postoperative period. Surgery was completed in 3 hours.



After 8 hours her Hb raised to 10.1 gm/dl and  $\beta$  HCG decreased to 1945 mIU/ml. On second postoperative day beta HCG level decreased to 552.11 mIU/ml. Histopathology report confirmed splenic ectopic pregnancy with presence of trophoblastic villi.

### Discussion:

Incidence of ectopic pregnancy has risen as we see in our daily practice probably due to increase in the contributing factors like PID and previous H/O ectopic pregnancy. These two factors increase the risk to six fold and tenfold respectably<sup>1</sup>. Also diagnostic tools and technics contribute to rising incidence. We have treated total 163 ectopic pregnancies in 2023 and 40 patients till February 2024 in our facility.

Ectopic pregnancy still accounts for 4 to 10 percent of pregnancy related deaths, despite current advances in prenatal imaging and care<sup>5</sup>. Though incidence of abdominal pregnancy is low than tubal ectopic but fatality and worst consequences are more in previous one. Among the other abdominal ectopic splenic ectopic is a rare but lethal entity because if it ruptures, rapidly progressing hemo-peritoneum develops which is life threatening and difficult to manage<sup>4</sup>. Here we are reporting a primary splenic ectopic as it fulfills the studdiford criteria which are 1) grossly normal fallopian tube & ovaries with no evidence of recent injury. 2) no evidence of utero-placental fistula and 3) a pregnancy of no more than 12 weeks' gestation with trophoblastic elements related exclusively to a peritoneal surface<sup>6</sup>. How the fertilized egg travels so far is a mystery. May be due to strong peristalsis of intestine the egg in the abdominal cavity gravitate to the smooth & highly vascular spleen and implant<sup>7</sup>. But splenic tissue is not expansible and so it cannot retain the placenta and growing embryo. This explains its tendency to present earlier than other abdominal pregnancy. Most of the splenic ectopic cases present with acute haemo-peritoneum occurring at 6-8 weeks of gestation<sup>8</sup>.

In our case patient had two risk factors which may favor the ectopic implantation. Firstly she has had right sided tubal resection due to ectopic pregnancy and she had a caesarian operation. This lady who was 9 weeks gravid, had an unusual presentation with shock. She gave history of mild left upper quadrant pain which become severe within few hours with diarrhea and intractable vomiting. Clinical diagnosis was 9 weeks pregnancy with acute gastroenteritis with shock and treatment was started accordingly. But raised  $\beta$ HCG and USG findings of intra-abdominal collection confirmed it as a case of ruptured ectopic pregnancy. Laparotomy was started as quickly as possible. There was no evidence of tubal or ovarian ectopic or any abnormality in uterus. Bleeding source was also not recognized. Pouch of Douglas was clean with no retained mass or old clot. Duration of surgery was prolonged, also multidisciplinary approach was provided to unveil the source of bleeding in spleen.

The way this patient presented that is with diarrhea and severe vomiting is exceptional. It may be due to irritation of the GIT by intra peritoneal collection or the substances released from the injured spleen, as these symptoms were absent in immediate postoperative period.

Abdominal EP may present differently than tubal ectopic except the early pregnancy symptoms. If the site is spleen presentation varies from asymptomatic to mild upper abdominal pain which do not get importance either by the patient or the doctor. A report shows presentation with vaginal spotting and mild right upper quadrant pain<sup>9</sup>. Also left upper quadrant pain was reported in a number of cases. As tubal ectopic usually present with lower abdominal pain and spleen is the rarest site early recognition and diagnosis is very difficult with such vague symptoms. So most of the splenic ectopic appear in the hospital after it ruptures.

Spleen is a highly vascular fragile organ. Rupture of this organ results catastrophe. Death due to significant hemorrhage may rise upto 3% in abdominal pregnancy<sup>10</sup>. Early diagnosis can save not only the life of the mother but also this important organ. To achieve this we have to emphasize on thorough history taking and physical examination to find out the possible site of the pathology. Above all knowledge and full understanding of abdominal pregnancy should be attained by the physicians. Any unusual or atypical finding should consider rare variety of ectopic pregnancy<sup>9</sup>. When raised beta HCG with empty uterus and normal adnexa are the findings whole abdominal USG should be done remembering the rarest sites. In some cases of positive findings for splenic ectopic USG was followed by exploratory laparoscopy for confirmation as well as treatment<sup>9</sup>. CT scan is also mentioned as the most reliable investigation in such rare cases and used in several cases with 100% diagnostic accuracy in stable patients where USG fails to point out the ectopic site<sup>8</sup>.

An extensive review of literatures proclaim thirty one case reports on primary splenic ectopic were identified of which 4 have been excluded because they were not in English. Among them 73% presented as an emergency and 81% had been managed with splenectomy. The author mentioned a case which was managed with resection of gestational sac and splenorrhaphy<sup>8</sup>. Another report was found where preoperative embolization of splenic artery was done prior to splenectomy to reduce the intraoperative bleeding<sup>11</sup>.

Methotrexate injection into the embryonic sac was also mentioned<sup>12</sup>. Embolization of only the feeding vessels of spleen was done in a single case<sup>13</sup>. Interestingly no mortality has been reported yet. Misdiagnosis to spontaneous splenic rupture could be the reason. Also publication bias in not reporting fatal outcomes, in patients who succeeded to reach a healthcare facility is a factor<sup>8</sup>.

### Conclusion:

Splenic ectopic pregnancy is an extremely rare condition that has every possibility of turning into a jeopardous or deadly situation if rupture. Early diagnosis with accuracy prior to rupture can prevent the casualties. The clinicians should be vigilant with high index of suspicion of the rarest sites if tubal pregnancy is ruled out in spite of empty uterus and should investigate using whole abdomen USG or CT scan. Splenectomy appeared to be the most appropriate treatment in case of ruptured splenic ectopic associated with intra peritoneal hemorrhage but early diagnosis can save the spleen by conservative surgery which is a vital organ to combat infection and provide immunity.

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