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SPONTANEOUS RUPTURE OF UTERINE VARICOSE VEIN AT 38 WEEKS OF PREGNANCY: A RARE CASE REPORT

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ABSTRACT: Uterine and ovarian vessels supply the uterus & ovaries respectively. In pregnancy especially after 20weeks, uterus greatly enlarges as the fetus grows. To fulfill the demand, blood flow through these vessels much increases. As a result these vessels dilate, become tortuous (called varicose). Their wall may become thinned out in some places, where rupture may occur. The rupture is more common in varicose veins as their wall is thinner than arteries. Generally the rupture is spontaneous; but may be due to trauma, which may be direct abdominal trauma or trauma due to coughing, defecation, coitus or pushing phase of second stage of labour. Rupture is generally before onset of labour, but may be intrapartum or postpartum. It is a very dangerous life threatening condition, as massive amount of blood is collected either intraperitoneally or retroperitoneally. Diagnosis is very difficult even with the help of USG. In suspicious cases, urgent laparotomy is to be done, which may save the lives of the mother and fetus. Ligation of the offending vessel may be required.

KEYWORDS: uterine artery, uterine vein, varicose vein, hemoperitoneum, laparotomy.

INTRODUCTION: Uterine artery, a branch of anterior division of internal iliac artery, traverses through the base of the broad ligament (two layers fold of peritoneum) to come to isthmus (the junction of body and cervix of uterus). Then it ascends at the lateral border of the uterus, gives several branches to uterus and ultimately ends by anastomosing with branches of ovarian artery near the cornu of the uterus. Ovarian artery, a branch of abdominal aorta, traverses through infundibulopelvic ligament (suspensory ligament of ovary), gives branches to ovary and ends by anastomosing with branches of uterine artery near uterine cornu. Uterine vein follows the uterine artery and drains into internal iliac vein. Ovarian vein also follows the ovarian artery; right vein drains into inferior vena cava but the left drains into left renal vein (can be explained embryologically). Uterine and ovarian veins also make anastomosis near uterine cornu.¹

These anastomoses (both arterial and venous) have negligible effect on non-pregnant uterus, so that ovarian vessels have least supply to non-pregnant uterus.² But in pregnancy, especially after 20weeks, ovarian arteries carry as much blood as uterine arteries.² The increased blood flow through the uterine vessels is elicited by Doppler ultrasonography. This is due to the fact that the vessels dilate (their lumina double) and become tortuous. The vasodilatation is mainly due to combined effect estrogen and progesterone. The uterine and the ovarian veins also dilate and become tortuous (varicose) to cope up the impedance of venous return.

As the veins dilate they become valveless.² So more amount of blood becomes stagnant in these varicose veins, leading to increased venous pressure, and a time may come when these varicose veins will rupture. This is a very rare, life threatening complication of pregnancy and puerperium.³ As the veins rupture blood generally collects intraperitoneally, when the ruptured vein is situated on the

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uterus; or may collect retroperitoneally, when situated within broad ligament, as loose tissue is present within two leaves of broad ligament. Massive amount of blood may collect intraperitoneally (hemoperitoneum) so that patient presents with acute pain abdomen, shock and collapse, mimicking uterine rupture or placental abruption. Both maternal and fetal mortality is high, maternal 49%.³ But the mortality is reduced to 4.7% due to improved surgical and anesthetic equipments. This type of venous rupture generally occurs before onset of labour (61%), but rupture may be intrapartum (18%) or in puerperium (21%).^{4,5}

Regarding etiological factors, the vascular rupture is spontaneous. Second etiological factor suggested is the trauma which may be direct abdominal trauma or trauma due to coughing, defecation, coitus or pushing phase of second stage of labour; this trauma may injure the varicose uterine veins which leads to haemorrhage.⁶ The diagnosis is very difficult. Sudden onset of abdominal pain, hypovolumic shock and decreased hemoglobin level may give clue to intra-abdominal bleeding, either due ruptured uterus or ruptured varicose uterine veins.⁷⁻¹¹

Definite diagnosis is made at laparotomy. Hemodynamically patient may be stable in early stage and the case is only diagnosed at laparotomy, as O'Connell¹² performed emergency caesarian section of a case of fetal distress and found hemoperitoneum due to rupture of uterine artery. So it may so happen that laparotomy is performed for a certain reason but the cause is found to hemoperitoneum due to rupture of uterine vessels. Abdominal ultrasound may not detect hemoperitoneum, as Brosens et al reviewed 25 cases of spontaneous cases of hemoperitoneum, but in all cases ultrasound failed to detect intraperitoneal bleeding.¹³ Sometimes postmortem diagnosis is the only possible way.¹⁴

Treatment is based on correction of hypovolumic shock and immediate surgery. As laparotomy is performed (usually caesarian section) the bleeding vessels is tied with delayed absorbable suture. If the culprit vessel is not found hysterectomy may be needed.⁸

REVIEW OF LITERATURE: Spontaneous rupture of uterine vein is very rare: the incidence is only 1 in 10000 births. In English literature only 150 cases are reported till now.

In 1950, Hodgkinson et al³ collected 72 cases of ruptured varicose uterine vein from literature and noted 49% mortality. Harding et al reported traumatic origin of rupture of vein in 1943.

In 1952 Hodgkinson describe another case; he suspected and performed Caesarian section and found the utero-ovarian varix which he sutured and thus he saved the life.

In 1955 Jurishica et al⁷ reported two cases of postpartum ruptured of varicose veins; they did laparotomy and hysterectomy and saved the lives. They concluded that bleeding may stop spontaneously as the uterus contracts without any operative interference.

In 2009, Brosen et al¹⁴ stated in their article that rupture of the dilated uterine vessels is mostly of venous (80%).

THE CASE: A 22 years old primigravida at 38 weeks of pregnancy presented with moderate pain abdomen. She neither gave a history of abdominal trauma or vaginal bleeding throughout her pregnancy period nor recent sexual intercourse. No abdominal surgery was done previously. Pain was in epigastric region and toward flanks. On examination, her vital signs were normal: BP 124/80mm Hg, Pulse rate 88/minute, no edema, CVS & Respiratory system were normal, Hb 11.5g%, Bleeding time & Clotting time was within normal limit. Per abdomen: termed sized mildly contracted

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uterus with cephalic presentation, FHS 130/minute, regular; per vaginal examination(p/v): os closed, cervix firm tubular posteriorly directed, USG: single viable foetus in cephalic presentation with maturity 38.2 weeks with adequate liquor with fundal grade III placenta, no retroplacental or intrauterine blood clot: placental abruption was excluded by this way.

The patient was admitted and treated symptomatically with IV fluid, inj. Drotin, inj. Tramadol, Ritordine. 24 hours passed, but pain gradually increased to an intolerable level. Pulse slightly increased to 96/minute, BP 120/78mm Hg, general condition within normal limit, Hb 10g%, uterine contraction slightly increased, FHS +R, p/v findings remains same as before. Another obstetrician's review done, but the diagnosis was inconclusive. Emergency laparotomy was performed under spinal anesthesia. Surprisingly, when parietal peritoneum was incised open slightly altered coloured blood was found to fill up the peritoneal cavity that looks like acute ruptured ectopic pregnancy.

The baby was quickly delivered by lower segment caesarian section, and after exenterating the uterus from abdomen (to repair the uterine incision wound) a continuous slow oozing point was found from a ruptured superficial varicose vein situated on posterior wall of upper part body of the uterus near its left lateral border. The oozing point was gently compressed with mob. The uterine wound was first sutured and then oozing point secured by vicryl. No uterine rupture or placental abruption was noted. Thorough peritoneal toileting done, other abdominal organs (liver, spleen etc.) were palpated carefully whether they are injured. Blood volume in the peritoneum was calculated to be approximately 850ml. Abdomen was closed as usual. Post-operative treatment was as usual. Blood was not transfused. Patient recovered uneventfully.

DISCUSSION: After 20 weeks of pregnancy, uterine blood flow much increases (to fulfill demand), as uterine arteries profoundly dilate. Obviously uterine veins also dilate (become varicose) to cope up increased venous return. Very rarely these dilated uterine vessels especially veins (venous wall is thinner than that of artery) may rupture. Mostly rupture occurs in third trimester of pregnancy, and generally spontaneously, but may be precipitated by abdominal trauma, forceful coitus, contraction of uterus in labour and so on. As the vessels rupture blood will collect intraperitoneally or retroperitoneally (hemoperitoneum).

This is a very dangerous and acute emergency condition with high maternal and fetal mortality and morbidity. Other causes of hemoperitoneum in pregnancy are rupture of uterus, spleen or liver. So rupture of varicose uterine vein should be kept in differential diagnosis of hemoperitoneum in pregnancy. Sudden onset of moderate to severe abdominal pain, signs of hypovolemic shock with no external bleeding and fall in hemoglobin level may indicate intra-abdominal bleeding. Ultrasonography may be helpful to differentiate placental abruption. Initially patient's vital sign may be normal. So if hemoperitoneum is suspected immediate laparotomy should be considered. Early surgical intervention may save the lives of the mother and the baby.

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Picture: uterus is exenterated from abdominal cavity. Oozing point is seen from the posterior surface of the uterus near its left cornu. The point is secured by transection suture with vicryl.

Fig. 1

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