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Case Report

Rectus Sheath Hematoma and Intra-peritoneal bleeding following per abdominal uterine massage to control Atonic Postpartum Haemorrhage

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Abstract

Atonic postpartum haemorrhage (PPH) following caesarean section is serious complication. It is usually managed by administration of different oxytocic drugs in combination. Per abdominal intermittent gentle massage of the uterus is known to improve uterine tone. A case of rectus sheath hematoma trickling down to peritoneal cavity following vigorous per abdominal uterine massage for long duration to control atonic postpartum haemorrhage in a case of pregnancy induced hypertension, which had undergone caesarean section after failed induction is reported. Patient underwent laparotomy for control of bleeding from traumatized vessels of the abdominal wall. She required multiple units of blood transfusion and intensive care monitoring for short duration. She had rapid post operative recovery.
Keywords: Atonic Postpartum haemorrhage, Intraperitoneal bleeding following caesarean section, Complications of caesarean section, Uterine massage, Rectus sheath hematoma, Inferior epigastric vessels

1. Introduction

Inferior epigastric vessel injury (IEVI) following blunt trauma is a rare but potentially life-threatening condition. It most commonly occurs as an iatrogenic injury (paracentesis, percutaneous drain, and laparoscopy)[1-4]. Not surprisingly there is an increased incidence of inferior epigastric vessel injury in patients with end-stage liver disease and coagulopathy[5-7]. Non-iatrogenic injury is generally associated with penetrating or high-velocity blunt trauma e.g. complicating seatbelt injuries[8-10]. We present a case of rectus sheath hematoma and intraperitoneal bleeding due to an injury to the branches of the inferior epigastic vessels following vigorous per-abdominal uterine massage for control of atonic postpartum haemorrhage following caesarean section for pre eclampsia,

2. Case Report

Twenty three year old, second para, unbooked case was referred from gynaecologist as a case of postpartum haemorrhage and intra-peritoneal bleeding following caesarean section with severe anaemia. She was referred from a distance of 25 km .Before transfer, she was transfused with three units of blood and 3 units of fresh frozen plasma after caesarean section in a private hospital for atonic post partum haemorrhage. Referring gynaecologist had diagnosed the presence of intra-peritoneal bleeding by abdominal ultra-sonography and paracentesis. Her blood haemoglobin level following caesarean section was 4gms%.

Obstetrical history revealed that her married life was three years. She was second para with history of one premature delivery two years back in which the baby was stillborn. In the second pregnancy she had mild pre eclampsia for which she was induced with intracervical prostaglandin gel at 38 weeks of gestation by gynaecologist. Emergency caesarean section was performed under spinal anaesthesia for fetal distress six hours after induction. She delivered a full term male baby with birth weight of 3.2Kg and normal Apgar score. There was no intra operative complication. Uterus had well retracted after removal of placenta. Prophylactic 10 units pitocin drip was given after delivery of placenta.

Gynaecologist had noticed atonic postpartum haemorrhage two hours after caesarean section. It was treated with 20 units of intravenous oxytocin drip, two doses of intramuscular injections of prostaglandin f2 alpha (250 micrograms each), intravenous fluids and blood and fresh frozen plasma. Per abdominal massage to the uterus was given for few hours till complete control of atonic postpartum haemorrhage. Per vaginal bleeding was controlled after administration of above treatment. Patient started complaining of increased pain in abdomen eight hours after caesarean section. Patient developed distension of abdomen, tachycardia and tachypnoea. Her general condition further deteriorated. Ultrasonography of abdomen revealed collection in general peritoneal cavity and in Morrisons pouch. Sonography guided paracentesis revealed frank blood in the peritoneal cavity. In view of these findings, gynaecologist decided to shift the patient to tertiary care hospital for further management. She did not have any other significant past medical or surgical illness.

At the time of admission, patient's general condition was un-satisfactory. She was in agony due to pain in abdomen and distension. She was conscious but not well oriented. She was afebrile with pulse rate of 146 /minute, which was low in volume. Her blood pressure was 140/100 mmHg. She had tachypnoea with respiratory rate of 52 cycles/ minute. Her oxygen saturation was 90%. There was presence of gross pallor. There was no icterus, cyanosis or signs of heart failure. Cardio-vascular system revealed tachycardia. There was no evidence of pulmonary oedema on auscultation. Per abdominal examination showed distension, tenderness, guarding and rigidity. There was no per vaginal bleeding.

The blood investigations revealed that her Haemoglobin level was 8.7 grams% Packed cell volume of 24.4%, Total leucocyte count was 18,000/cumm, platelet count was 59,000/ul and her prothrombin time was abnormal. (Test-23 seconds as against control of 12.3 seconds)Her PTTK values were 36.5 for test as against control of 29.9 sec). Her Serum Lactic Dehydrogenase (LDH) values were 1433IU/L. Peripheral blood

picture showed anisocytosis, poikilocytosis, normocytic hypochromia and neutrophilic leucocytosis with shift to left. Her liver and renal functions were within normal limits.

In view of the ultrasonography and paracentesis findings, decision of abdominal exploration was taken. Informed high risk consent was obtained from the relatives and she was posted for laparotomy under general anaesthesia. While opening the previous caesarean section sutures, a large collection of blood (volume -200ml) was noticed underneath the rectus sheath. **(Fig.1)** It was continuing into the peritoneal cavity. Hematoma was removed and the abdomen was opened. There was approximately one and half litre of blood collection in the lower and upper abdomen. Blood was sucked out and lower uterine segment was exposed. The caesarean site sutures were intact. There was no active bleeding from the lower segment. There was no evidence of broad ligament or pelvic retro peritoneal hematoma. Uterus was not well contracted and was becoming flabby in between. Twenty units of oxytocin drip were started and intra-myometrial prostaglandin (250 microgram) was injected. Uterus continued to remain flabby. One injection of 0.2 mg methyl ergometrine was administered slowly intravenously. The tone of the uterus improved. The caesarean section incision was re enforced with vicryl-1 suture. Haemoperitoneum was drained. Intraperitoneal lavage was given with warm normal saline Abdomen was explored for evidence of any other source of bleeding. After putting intraperitoneal closed drain, peritoneal cavity was closed. Rectus muscles and the sheath was inspected for evidence of any bleeding vessel. There was a bleeder underneath the belly of rectus muscle on the right side. The vessels were looking torn and bruised in this region. Complete hemostasis was achieved in the rectus muscles. Rectus sheath and abdominal incision was closed. She was transfused with 2 units of whole blood, 1 unit of packed cell volume and 4 units of fresh frozen plasma. She was kept in intensive care unit for 24 hours following re exploration. Her vital parameters returned to normal after 48 hours of surgery. She had smooth post operative recovery. The stitches were removed on 7th post-operative day and was discharged from hospital on tenth post operative day. She was advised to take iron and calcium tablets for three months and to come for follow up visit after one month.

Fig.1-Showing rectus sheath hematoma in a Caesarean section wound

3. Discussion

The inferior epigastric artery originates from the external iliac artery, running between the abdominal peritoneum and the rectus muscles, medial to the deep inguinal ring. It terminates in to numerous branches, which anastomose with the superior epigastric and lower intercostal arteries above the level of the umbilicus. The pubic branch of the inferior epigastric artery arises proximally and courses along the inguinal ligament and descends to the internal surface of the pubis, where it sometimes anastomoses with branches from the obturator artery. If this connection between the external iliac system and the obturator system exists, it is termed the corona mortis, which translated means "connection of death". This is due to the severe bleeding that can develop if these vessels are cut and the difficulty that can exist in achieving hemostasis.

Management of active inferior epigastric artery hemorrhage is broadly divided between surgery and interventional radiology. In the case of intra-operative iatrogenic injury, surgical management (balloon tamponade, electrocoagulation, transabdominal sutures) may be the approach of choice as the quickest method of controlling hemorrhage. Outside of the operating theatre, however, interventional radiology provides a rapid, proven approach to regaining hemostasis in such patients, with a success rate of up to 90%.[5]

In the present case, there was avulsion/traumatic rupture of the branches of inferior epigastric vessels, most probably veins. The treating gynaecologist had continued massage of the uterus for long time through abdominal wall for the control of atonic post partum haemorrhage. As the woman was thin built, the vessels in the abdominal wall got traumatized and resulted in bleeding within the closed space of rectus sheath. The rising pressure within the closed space resulted in seeping of the blood into the peritoneal cavity. Subsequently, patient developed distension of abdomen, gross pallor in spite of multiple units of blood transfusion, tachycardia and tachypnoea.

There are certain issues related to the management of high risk cases in a private set ups having limited manpower and facilities. This case had pre-eclampsia and had negative blood group, had bad obstetric history and must had been anaemic from the beginning. These cases should ideally be referred to tertiary care hospital for delivery, where there is round the clock availability of anaesthetist, blood bank and paediatrician under one roof. These cases are prone for the development of postpartum haemorrhage or other third stage complications. Private practitioners many a times do not understand the limitations of their units and keep high risk cases with them for delivery.

The uterine massage is known to improve uterine tone and reduce the incidence of atonic post-partum haemorrhage and thus have been included as an important component of active management of third stage of labour (AMTSL). The vigorous per abdominal massage to improve uterine tone is likely to injure the vessels in the abdominal wall in the infra-umbilical region as happened in this case.

4. Conclusion

Rectus sheath hematoma is an uncommon but serious complication seen in obstetric practice. Faulty surgical technique, imperfect hemostasis, disturbed coagulation function are some of the reasons behind occurrence of this complication. Vigorous per-abdominal uterine massage to improve uterine tone following delivery or caesarean section can result into injury to the vessels in the abdominal wall in infra-umbilical region. Obstetrician must think of this entity while dealing with cases of intra-peritoneal bleeding following caesarean section.

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