

Cesarean Hysterectomy with Cystotomy in Parturient having Placenta Percreta, Gestational Thrombocytopenia, and Portal Hypertension – A Case Report

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ABSTRACT

Introduction: There is rising incidence of placenta percreta due to increased rate of cesarean delivery. It is dreadful obstetric emergency associated with massive hemorrhage, leading to emergency obstetric hysterectomy. Thrombocytopenia (5–7%) complicates 7–10% of all pregnancies. Pregnancy with portal hypertension has high incidence of fetal wastage 10–66% and spontaneous abortion rate of 20–40%. Literature review is deficient for the management of cesarean hysterectomy with cystotomy of parturient having combined placenta percreta, gestational thrombocytopenia, and portal hypertension. We report successful management of such case. **Case Report:** A 32-year-old female, G2P1L1 36 weeks of gestation with placenta previa and percreta invading bladder, diagnosed case of portal hypertension, severe anemia, and gestational thrombocytopenia, was posted for emergency cesarean hysterectomy due to APH. Past history includes esophageal banding for esophageal varices at 12 weeks of current gestation. She had gestational thrombocytopenia and LSCS under spinal anesthesia for twin pregnancy 2 years back. **Conclusion:** Successful management can be achieved by participation of multidisciplinary team in tertiary care hospitals having facility for intensive care unit, endovascular procedures, prophylactic pelvic artery catheterization, and embolization.

Key words: Cesarean hysterectomy and cystotomy, gestational thrombocytopenia, massive hemorrhage, placenta percreta, portal hypertension

INTRODUCTION

In abnormal placentation, placenta invades past the decidua basalis layer: (1) Placenta accreta invades decidual surface of the myometrium, (2) placenta increta invades more deeply within myometrium, and (3) placenta percreta penetrates through uterine serosa and may invade surrounding organs, for example, bladder.^[1]

Placenta percreta is most severe form, with 7–10% of maternal mortality cases worldwide.^[2] It is most dreaded obstetric emergency associated with massive hemorrhage, leading to emergency obstetric hysterectomy. Incidence of placenta percreta in 1950 – 1 in 30,000 deliveries, this has

raised to 1 in 330. Incidence is rising with increased rate of cesarean delivery. More than 50% of all deliveries in the US are estimated to be performed by cesarean section by 2020.^[3] The previous cesarean section, intrauterine surgery, D and E, placenta previa, advanced maternal age, multiparity, fibroid, and Asherman's syndrome are the most common risk factors for developing placenta percreta.

Thrombocytopenia (incidence 5–7%) ranks second to anemia as most common hematologic abnormality during pregnancy complicates 7–10% of all pregnancies. Common causes for thrombocytopenia in pregnancy are gestational thrombocytopenia (in 80%), pre-eclampsia, and immune thrombocytopenic purpura.

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Pregnancy with portal hypertension is uncommon condition, having incidence of fetal wastage – 10–66% and spontaneous abortion rate of 20–40%.^[4] The prevalence of cirrhosis in reproductive age group is 0.45/1000, with maternal mortality rate 10–61%.^[4]

Literature review is deficient for the management of cesarean hysterectomy with cystotomy of parturient having combined placenta percreta, gestational thrombocytopenia, and portal hypertension. We report successful management of such case.

CASE REPORT

A 32-year-old female, G2P1L1 with 36 weeks of gestation was posted for emergency cesarean hysterectomy due to onset of per vaginal bleeding. Medical history – episodes of hematemesis 6 months back and diagnosed have portal hypertension with severe anemia (Hb–3 g%). Anemia treated with 3 units of packed cell volume (PCV). Esophageal banding was done for esophageal varices at the 12th week of current gestation and was started with Tab. Liv 52, Tab. Udiliv, and syp. Lactulose.

Obstetric history

Elective cesarean section was done at 37 weeks under spinal anesthesia for twins 2 years back at a rural hospital. Gestational thrombocytopenia was managed with platelet transfusion during that pregnancy. Gestational thrombocytopenia was managed with platelet transfusion during that pregnancy.

Clinical examination

The patient had a weight of 48 kg, height of 155 cm, was afebrile, with a regular pulse rate of 100/min, blood pressure (BP) of 110/80 mm Hg. Her systemic examination was within normal limits.

Laboratory investigations

The Platelet Count was 59000/ μ l on admission which decreased to 40000/ μ l over 8 days. Platelet Count was restored to 70000/ μ l after treatment- mild thrombocytopenia. Hemoglobin of 9 g%, BT, CT, PT/ INR all within normal range. ECG and 2Decho were normal too. USG showed Placenta previa and placenta percreta. Magnetic resonance imaging revealed placenta to be low lying, covering the internal os, thinning of endomyometrial junction and diagnosis was given as placenta percreta with serosal breach of uterus which was invading right lateral wall of urinary bladder, right hydronephrosis.

Preoperatively – gastroenterology and medicine reference done. Inj. Vitamin 30 mg IM and 4 units PCV, 4 units fresh frozen plasma (FFP), and 6 units platelets were transfused for anemia and thrombocytopenia.

Anesthesia management

Blood bank was instructed for adequate units of PCV, platelets, and FFP. The patient and relatives were counseled about the risks involved. Two peripheral intravenous lines with 18G intravenous catheter and triple lumen internal jugular vein central line were inserted. BP was 110/80 mmHg, PR was 10²/min. RR was 14/min, CVP was 10 cm of H₂O. Preloading was done with Ringer's lactate 10 ml/kg. Monitors for NIBP, ECG, and pulse oximeter were attached. Intravenous Premedication were done with Inj. Glycopyrrolate 0.2 mg, Inj. Ondansetron 4 mg, Inj. Ranitidine 50 mg, Inj. Hydrocortisone 100 mg Inj. Dexamethasone 8 mg. General anesthesia with rapid sequence induction was done with Inj. Thiopentone sodium 450 mg and Inj. Succinylcholine 100 mg. Anesthesia maintained on O₂:N₂O 50:50 and sevoflurane Inj. Atracurium as muscle relaxant.

Baby delivered in breech position by classical cesarean section with Apgar score of 8 at 1 min and 10 at 5 min and weight 2900 g. Inj. Oxytocin 20 IU slows infusion and Inj. Pentazocine 15 mg IV for analgesia. There was acute blood loss of 2000 ml in 10 min after baby delivery. Inj. Tranexamic acid 1 g IV was given. Episode of bradycardia was managed with Inj. Atropine 0.6 mg IV. Internal iliac artery ligation done by surgeon. Obstetric hysterectomy was done due to continued uncontrolled massive hemorrhage. Urosurgeon performed cystotomy for removing placenta which was invading right lateral wall of urinary bladder. Successful hemostasis was confirmed. Surgery duration was 90 min.

Intraoperatively, total blood loss 5500 ml precipitated into hypotension and tachycardia. Vasopressor support of dopamine and noradrenaline started. A massive transfusion protocol was initiated. Damage control resuscitation was done by infusing crystalloids, colloids, and transfusing red blood cells (RBCs), FFP, and platelets transfusion in ratio of 1:1:1. A total of 3 L crystalloids, 1 L colloid, 6 units PCV, 6 units FFP, and 6 units platelet were given as damage control resuscitation. Arterial blood gases (ABG) checked, acidosis corrected, and IV calcium gluconate 10 cc given slowly.

Postoperatively management was carried in intensive care unit (ICU) with controlled ventilation, vasopressor support and correction of massive blood loss. Femoral arterial line was in situ and Input/output was monitored. Dopamine, noradrenaline support was tapered off overnight. Postoperatively, 1 unit PCV, 4 units FFP, and 4 units cryoprecipitate given. Post-operative hemoglobin was 7.8 g%, Platelet Count was 70000, bilirubin was 4.1, and PT was 18 with INR of 1.43. Postoperative day 1 Arterial Blood Gas Analysis was within normal limits. Vitals were stable, SpO₂ was 99%. Urine output was adequate, clear. The patient is extubated in afternoon and discharged to ward after 1 day and home after 10 days.

DISCUSSION

Review of literature suggests that the incidence of placenta percreta is rising as stated above, currently the most common indication for peripartum hysterectomy. Our case had risk factors of placenta previa, previous cesarean section for twin pregnancy, done at rural hospital showing poor quality surgical scar and age 32 years. Lower uterine segment was found unsafe to approach due to heavy placental infiltration; hence, classical cesarean section was preferred and baby delivered in breech position. Emergency internal iliac artery ligation and obstetric hysterectomy were done due to acute massive hemorrhage. Pre-operative uterine artery embolization was not possible due to start of antepartum bleeding. Keeping the placenta *in situ* for autoabsorption or postpartum methotrexate can be options if obstetric hysterectomy is not performed.

Along with physiological hemodynamic changes, portal hypertension in pregnancy puts the mother at the risk of life-threatening complications, most common during the second trimester, like altered liver function due to cirrhosis, variceal bleed, subcapsular hematomas, and abruptio placenta. For the management of portal hypertension, beta-blockers are helpful to reduce portal venous pressure, also gluing, banding, sclerotherapy, and shunt surgery have been successful reported during pregnancy.

Gestational thrombocytopenia accounts for 80% of pregnancy-associated thrombocytopenia. The decreased platelet count may be related to hemodilution and/or accelerated platelet turnover with increased platelet production in the bone marrow and increased trapping/destruction at placenta.^[5] It becomes relative contraindication to regional anesthesia for risk of neuraxial hematoma. To avoid this and anticipated massive blood loss in a placenta percreta, we administered general anesthesia.

Govindswamy *et al.* reported case of placenta percreta, SA followed by GA given, blood loss was 4 L. The placenta was kept in uterus. On post-operative day 3, the patient underwent hysterectomy after bilateral internal iliac artery ligation, repair of the bladder wall and bilateral stenting of ureters. Bleeding was 2000 ml, and postoperatively the patient was in ICU for 3 days. In our case, both fetus delivery and internal iliac artery ligation, hysterectomy with cystotomy was done in single surgery under general anesthesia and postoperatively managed in ICU stay of 2 days.

Sivasankar^[3] reported case of placenta percreta under SA and GA. Intraoperative 4000 ml blood managed with massive transfusion protocol, vasopressors, blood products, and fluids, calcium chloride. In our case expecting massive blood loss due to gestational thrombocytopenia, we administered GA.

Khanna *et al.*^[4] reported primigravida with portal hypertension for emergency cesarean section. She underwent endoscopic esophageal varices banding during the second trimester. After correction of coagulopathy, subarachnoid block was given for cesarean delivery. The concerns in our patient were the presence of portal hypertension, esophageal varices, anemia, and gestational thrombocytopenia. In our patient, management included esophageal banding in the second trimester, blood and platelets transfusion, and medications. This contributed for good maternal and fetal outcome.

Misra *et al.* reported a case of gestational thrombocytopenia with platelet count of $93 \times 10^9/l$. The patient also had gestational thrombocytopenia in the previous pregnancy. They had administered regional anesthesia. Our patient had received spinal anesthesia for the previous cesarean section after platelet transfusion for gestational thrombocytopenia, but that time placenta was normal.

Literature is scarce with regard to anesthetic management of parturient with these coexisting comorbidities of placenta percreta, portal hypertension with gestational thrombocytopenia has not reported yet. At our institute, we successfully managed this case under general anesthesia with post-operative critical care management. Multidisciplinary team participated involving anesthesiologists, obstetricians, interventional radiologists, hematologist and urologists, and blood bank services. Consent for possibilities of blood transfusion and hysterectomy warranted. These cases should be managed in hospitals having facility for endovascular procedures. Prophylactic pelvic artery catheterization and embolization are performed in women with placenta percreta to decrease the perioperative blood loss with potential avoidance of hysterectomy. In our case, embolization was not possible due to emergency.

We had reserved 10 units of cross-matched RBCs, FFP, platelets, and 4 units of cryoprecipitate. Damage control resuscitation and meticulous use of vasopressor are the key of successful management. The previous studies have shown decreased mortality from multiorgan failure when the strategy of damage control resuscitation was used.

Appropriate use of cryoprecipitate and antifibrinolytic agents is also important. In our case, Inj. Tranexamic acid and cryoprecipitate to minimize blood loss and to maintain adequate hemostasis were given. The hemorrhage in these patients is very difficult to control; therefore, the anesthesiologist should realize that the whole blood volume can be lost within minutes, so all preparations to deal with it should be undertaken before starting the case.

Placenta percreta can lead to life-threatening hemorrhage, coagulopathy, amniotic fluid embolism, bowel/bladder/

ureter injury, peripartum hysterectomy, sepsis, multiorgan failure and post-operative wound gape. Postoperatively, these patients should be managed in ICU, elective post-operative ventilation in cases of massive hemorrhage and massive transfusion. It has been associated with a maternal morbidity rate of 9.5% and a perinatal mortality of 24%.^[3] In our patient, wound gape occurred postoperatively which was managed with dressings under local anesthesia thrice. The patient needed ICU care for 2 days and was discharged home after 10 days.

CONCLUSION

Incidence of placenta percreta is rising due to increased rate of cesarean delivery and contributes to massive hemorrhage precipitating emergency obstetric hysterectomy.

General anesthesia is of choice for placenta percreta with portal hypertension with gestational thrombocytopenia.

In conclusion, such patients should be exclusively managed at tertiary care center with multidisciplinary team approach. Pre-operative anticipatory preparation for the treatment of perioperative complications and ICU care will prevent any single maternal mortality.

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