INTRODUCTION

EOH is a lifesaving procedure performed when all other intervention to save mothers life have failed. According to the World Health Organization (WHO) obstetric causes accounts for 73% of all maternal deaths. Most of the causes of maternal death are preventable; so as to decrease the MMR it is important to manage the obstetric cases effectively. Maternal mortality is still among the worst performing health indicators in resource-poor Settings. Postpartum hemorrhage is the primary direct cause of maternal mortality globally. Refractory hemorrhage needs to be treated with surgical hysterectomy as a life saving measure. Emergency obstetric hysterectomy (EOH) is defined as extirpation of the uterus either at the time of cesarean section or following vaginal delivery, or within the puerperium period. EOH is classified as "maternal near miss" event by WHO: the mother barely survives the pregnancy and its complications & loses her uterus. EOH also carries a high risk of maternal morbidity and mortality. Percentage of EOH in India is 17.7%.
Case Report 1
A 32 years old third gravida with previous 2 normal vaginal delivery and 39 weeks of gestation was admitted in labour. She delivered vaginally without any complications. Mother was clinically stable for 2 days after delivery. On 3rd post-natal day patient had abdominal distension which progressed. Ultrasound abdomen revealed fluid collection? Hemoperitoneum. Needle aspiration revealed blood-stained serous fluid. Patient was taken for emergency laparotomy which revealed posterior fornical perforation of size 1*0.5cm with pus collection within the abdominal cavity. Subtotal hysterectomy was performed along with blood transfusion. Post operatively patient was started on higher antibiotics. Patient was stable and discharged on 12 days.

Case Report 2
A 32 years old third gravidawith one abortion, previous caesarean section was admitted for management of Complete placenta previa.MRI pelvis was done which revealed placenta accreta.Patient was electively taken for caesarean section in the presence of Urologist, chief Anaesthetist, Paediatrician. Intraoperatively placenta was densely adherent to the uterus. Placenta could not be separated, hence subtotal hysterectomy was done and 3 units of packed red blood cells were transfused. Patient was stable postoperatively and discharged on POD 14 along with baby.

Case Report 3
A 23 years old primigravida with 35 weeks of gestation & single intrauterine pregnancy was admitted for placenta previa. After admission patient had spontaneous onset of preterm labour pain and bleeding per vaginum. Hence she was taken for emergency caesarean section. Intraoperatively placenta was occupying lower uterine segment and bled profusely after removal. Stepwise management of PPH was done. Inspite of all measures bleeding did not stop and patient in for hypotensive shock. Hence subtotal hysterectomy was done with massive blood transfusion on ventilatory support. Patient was stable post operatively and discharge along with the baby.

Case Report 4
A 34 years old primigravida with 35 weeks of gestation & dichorionic diamniotic pregnancy was admitted for preterm labour pains. First twin was in breek presentation and second was cephalic. On 2nd day of admission patient became dyspneic,tachypneic and echo done revealed Peripartum Cardiomyopathy. Patient was kept in HDU under observation.On 3rd day of admission patient had true labour pain. She was taken for emergency caesarean section.Intraoperatively patient was stable without any complications. After shifting the patient to post operative ward patient developed hypotension with feeble pulse volume and tachycardia. Pervaginal examination revealed excessive bleeding. Atonic PPH was diagnosed and managed as per protocol. Patient detoriated hence shewas to OT for emergency laparotomy and devascularisation procedure was done. Inspite of that patient bled profusely so subtotal hysterectomy was proceeded. Patient was treated postoperatively with almost cardiac care and discharged on 42nd postoperative day in stable condition.

Case Report 5
A 37 years old second gravida with 37 weeks of gestation, previous caesarean section was admitted for placenta previa. She was posted for elective repeat LSCS in the presence of chief Obstetrician, Anaesthetist and Urologist. After delivering the baby placenta wasdensely adherent and could not be separated. It led to profuse bleeding. Hencetotal hysterectomy was proceeded with massive blood transfusion. Patient was stable postoperatively and discharged in good health.

Case Report 6
A 32 years old third gravidawith Previous oneAbortion, one caesarean section with 32 weeks of gestation and single intauterinepregnancy was admitted for central placenta previa with compliants of bleeding per vaginum. Patient started on steroids and tocolytics. MRI pelvis done revealed placenta accreta. On 3rd day patient had labour pain and she was taken for emergency caesaren section. Intraoperatively placenta was densely adherent to uterus and could not be separated. Hence subtotal hysterectomy was done. Patient was stable postoperatively.Due to LBW and preterm ,baby was admitted in NICU. Mother was dischargedalong with baby on 16th post Operative dayin stable condition.

Case Report 7
A 33 years old fourth gravida with previous two abortionand 31 weeks of gestation with previous caesarean was admitted for posterior low lyingplacenta with complaints of abdominal pain, bleeding per vaginum. She was started on steroids and tocolytics. She is known case of GDM on MNT. Inspite of initial measures patient was bleeding profusely, hence taken for emergency caesarean
section. Intraoperatively placenta was found to be invading the bladder serosa. Subtotal hysterectomy was performed along with the help of urologist and massive blood transfusion was done on ventilatory support. Postoperatively patient was weaned of Ventilator support and discharged along with baby on 22nd POD.

**Case Report 8**
A 25 years old primigravida with 32 weeks of gestation and dichorionic diamniotic twins was admitted for preterm premature rupture of membranes. Patient delivered on the day of admission vaginally. Immediately after delivery patient had atomic PPH. Inspite of adequate medical management patient had profuse bleeding per vaginum and hypotension. Patient was shifted to OT and subtotal hysterectomy was performed on ventilatory support. patient was uneventful post operatively and discharged on POD 38 with her twin babies.

**Case Report 9**
A 30 years old female with obstetric score Gravida 2 para 1 live 1 and 39 weeks of gestation with single intrauterine pregnancy, previous normal vaginal delivery was admitted in view of labour pains. During second stage with full cervical dialiation labour did not progress hence vacuum cup and then forceps assisted delivery attempted but failed. So patient was shifted to OT for emergency LSCS. Patient had no intraoperative complications, episiotomy wound sutured, vaginal pack kept and patient was shifted to post op ward. On 1st POD after removing vaginal pack, patient had excessive bleeding per vaginum. Hence patient was shifted to OT and emergency subtotal hysterectomy was proceeded. Postoperatively patient was stable without any complaints.

**Table 1: Clinical Presentation and outcome**

<table>
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<th>Parameters</th>
<th>Case 1</th>
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<th>Case 3</th>
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**DISCUSSION**

In our case series placenta accreta spectrum was the most common cause leading to EOH. Post partum haemorrhage occupies the second place. Similar observation was made by Agarwal et al.\(^ {[10]} \) in their study placenta accrete was the most common indication of peripartum hysterectomy in their study, accounted for 38.88%. Dobroslawa et al.\(^ {[11]} \) also found placental pathology as the main indication accounted for 44.4%. Placenta accrete has been the most common indication for peripartum hysterectomy in study done by Razia et al.\(^ {[7]} \)

Table of Incidence rates of EOH have been reported worldwide. Incidence reported from India is 8.3/10,000, Nigeria 20/10,000, Europe, China 6.3/10,000, New Zealand 4/10,000 and from the USA is 7.7/10,000 deliveries. Globally placental abnormalities have been reported as the leading cause of postpartum haemorrhage (PPH) and hysterectomy in 53.1% of obstetric hysterectomies in a study from China, 70% from the study from New Zealand and in 44% from Poland. The most common indication for obstetric hysterectomy in the past was uterine inertia, which has now been replaced by placenta accreta spectrum.\(^ {[12]} \) The reason for a decrease in the incidence of uterine inertia is the availability of newer uterotonic drugs and techniques like arterial embolization. The increasing world-wide incidence of cesarean section (CS) is now being considered to be responsible for the rising rate of placenta accreta spectrum.\(^ {[13]} \) Caesarean scar in the uterus is regarded.
as the most important cause as embryo preferentially implants at the scar site as it requires low oxygen tension for its growth, leading to accreta and previa.[14]

Atonic PPH was the second most common indication for peripartum hysterectomy in our study accounting for 32% of all cases. Due to the increased success of treatment with uterotonic agents, embolization and better surgical procedures, the incidence of PPH has declined relatively over the decades. However, this largely preventable indication for peripartum hysterectomy continues to predominate in developing countries due to lack of proper facilities and delayed patient admission from distant areas. PPH is unpredictable in onset, duration and etiology and it remains a major life-threatening complication of any delivery.[15] Agarwal et al.[10] also found atomic PPH as the second most frequent indication for hysterectomy in their study, accounted for 36.11% of cases. In studies done by Michelet D et al.[16] and Marshall AL et al.[17] the most common cause of peripartum hysterectomy was uterine atony, which complicates 1 in 40 births in the United States and is responsible for at least 75% of cases of peripartum hysterectomy. Chawla J et al.[4] and Rathod et al.[18] also found atomic PPH common indication for peripartum hysterectomy.

In our case series also placenta accreta Spectrum was the most common cause leading to EOH and all these mothers had previous delivery by cesarean section. A cross-sectional study done at Department of Pathology, Dow Medical College underscores that placenta accreta spectrum is the leading histopathological diagnosis in emergency obstetric hysterectomies.[9] Another study done at Kasturba Hospital, New Delhi, India concludes that there is greater association of EOH with cesarean delivery compared to normal vaginal delivery.[4] A retrospective study conducted in Italy concluded that the incidence of placenta accreta had increased from 0.12% in 1970s to 0.31% in 2000 at the same time the incidence of CS increased from 17% to 64%. This study concludes that reducing cesarean section rate might decrease the incidence of placenta accretasystems thereby reducing EOH and its morbidity and mortality. Placenta accreta spectrum can be diagnosed early in pregnancy using ultrasound. MRI may be used for difficult cases and for detection of depth of invasion in placenta percreta. These cases should be planned for early CS at 34–36 weeks of gestation under an expert multi-disciplinary team. In present study, 62% of the patients stayed in hospital for < 10 days, prolonged stay in hospital were mainly due to wound sepsis, febrile illness. 6 patients had stayed in hospital for more than 20 days because of bladder repair. In study by Varalakshmi et al.[19] about half of the patients stayed in hospital for < 10 days and 6 patients had stayed for more than 20 days because of bladder repair.

There was one maternal death in the present study giving a mortality rate of 8%. Agarwal et al.[10] observed maternal mortality rate of 19.44% and Varalakshmi et al.[19] reported 14.28%. All the maternal deaths were in unbooked or referred patients who were brought in a haemodynamically unstable condition with varying degrees of shock. There is a relationship between the decisions to perform the hysterectomy, the amount of blood loss and the likelihood that the hysterectomy will be complicated by coagulopathy, severe hypovolemia, tissue hypoxia, hypothermia and acidosis which further compromises the patient status. Proper timing and meticulous care may reduce or prevent maternal complications. Moreover family welfare services need to be strengthened. Family planning services need to be extended to eligible couples who have completed family and also to women with previous two caesarean section, to reduce the PAS disorder and the morbidity & mortality associated with it.

CONCLUSION

Peripartum hysterectomy is a lifesaving obstetric emergency that has potentially devastating consequences. The worldwide increase in caesarean section rates may lead to a rise in the number of peripartum hysterectomies required in the future because of morbidly adherent placenta. Thus, there is a need for institutions to monitor and reassess the indication of caesarean section to reduce the caesarean section rates. We conclude that reducing primary caesarean section rate might decrease the incidence of placenta accreta spectrum thereby reducing EOH and its morbidity and mortality.

REFERENCES


