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Case Report

Challenges in emergency peripartum hysterectomy in initial phase of obstetrics practice: series of 9 cases

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ABSTRACT

Emergency peripartum hysterectomy (EPH) is usually done to control bleeding of life threatening peripartum haemorrhage when all of all conservative measures fail. It is a technically demanding surgical procedure that carries high rate morbidity and mortality. From January 2016 to January 2019 data of all EPH done by our in different hospital of the city is collected. Total of 9 patients fulfil the definition of EPH. We tried with all sorts as bimanual uterine compression, administration of oxytocin or prostaglandins, uterine packing, compression sutures such as the B-Lynch brace suture before operation to controlled haemorrhage. On failure of the above mentioned measure we plan EPH. We took help of a surgeon in all of 9 cases. Bleeding is the greatest challenge in our series. Out of 9 patient 8 patient survived, one patient died of bleeding due to DIC. There is one urinary bladder injury and repaired intraoperatively. All patient has minor wound infection and that was managed with oral antibiotics and wound dressings. Postoperative average ICU stay was 3 days. Average PRBC transfusion is 4 units and two patient required FFP transfusion. In one patient we did subtotal hysterectomy and in rest all other patient we did total hysterectomy. With good team work EPH can be done with acceptable morbidity and mortality.

Keywords: Coagulopathy, Peripartum hysterectomy, Peripartum haemorrhage, Transfusion, Uterine rupture, Uterine atony

INTRODUCTION

Approximately 90% of hysterectomies are performed for benign diseases.[1] Hysterectomy for benign cause is a established procedure with acceptable rate of complication. Emergency peripartum hysterectomy (EPH) is a major surgical procedure usually performed in the setting of life threatening haemorrhage during or immediately after deliveries. Emergency hysterectomy in peripartum period carries high rate morbidity and mortality. It is been always desired to be done or supported by experience hand. Haemorrhage and damage to the urinary tract are the most common complications.[2] A multidisciplinary approach including surgeons, anesthetists, interventional radiologists and the blood blank services is expected for management of this situation.[3]

EPH is usually done on failure of all conservative measures to achieve haemostasis of life threatening peripartum haemorrhage. The surgery is emergency and unplanned in nature and hence acute blood loss renders the patient into life threatening condition. The most common indications for EPH are abnormal placentation

and uterine atony. Proper risk assessment with appropriate and timely intervention ensures a better outcome.

CASE REPORT

From January 2016 to January 2019 data of all EPH done by my team in different hospital of the city is collected. Total of 9 patients fulfil the definition of EPH. Out of 9 patients one patient died of DIC and haemorrhage. We took help of a surgeon in all cases. Bleeding is the greatest challenge in our series. We tried with all sorts as bimanual uterine compression, administration of oxytocin or prostaglandins, uterine packing, compression sutures such as the B-Lynch brace suture before operation to controlled haemorrhage. On failure of the above mentioned measure we plan EPH. Postoperative period all patient are given ICU care. PPH due to uterine atony is most common in our series followed by abnormal placentation and uterine laceration. Patients detail clinical history and treatment details mentioned in Table 1.

Table 1: Patient history and clinical details.

Patient no	Age	Obstretics status	Mode of primary delivery	Preoperative INR	Indication
1	29	G4P1+2	Vaginal	1.8	Placenta accreta
2	32	G5P4	Vaginal	1.66	Uterine atony
3	27	G2 P1	Vaginal	1.72	Placenta previa
4	24	G2P1	Caesarean section	1.98	Obstructed labour Rupture
5	21	G1P1	Caesarean section	1.2	Cervical tear
6	33	G1P1	Caesarean section	2.3	Prolong labour; Uterine atony
7	25	G2P1	Instrumented	1.77	Uterine rupture
8	30	G4P2+1	Vaginal	1.81	Uterine atony
9	27	G2P1	Vaginal	2.5	Retain product

Table 2: Operative and post operative details.

Patient no	Time of operation form primary delivery	Type of hysterectomy	Intraoperative Difficulty	No of blood transfusion	Expert help	ICU stay days
1	11 hours	Partial	Blood loss	4	Yes	3
2	18	Total	Blood loss	3	Yes	2
3	8	Total	Blood loss	4	Yes	4
4	6	Total	Bladder injury	6	Yes	4
5	7	Total	Blood loss	4	Yes	2
6	16	Total	Blood loss	5	Yes	3
7	8	Total	Blood loss	5	Yes	2
8	13	Total	Blood loss	3	Yes	2
9	19	Total	Blood loss	12	Yes	2

On failure of conservative management patient are taken for EPH. Most of the EPH are done within 12 hours of primary surgery. Out of 9 patient 8 patient survived, one patient died of bleeding due to DIC. In one patient we did subtotal hysterectomy and in rest all other patient we did total hysterectomy. Average PRBC transfusion is 4 units and two patient required FFP transfusions all detail mentioned in Table 2. Postoperative average ICU stay was 3 days. There is one urinary bladder injury and repaired intraoperatively. Except one patient all patient has coagulopathy. Most of the patient present with coagulopathy and indication and relation of coagulopathy shown in Table 3. All patients have minor wound infection and that was managed with oral antibiotics and wound dressings (Table 4).

Table 3: Primary indications for Emergency peripartum hysterectomy in our series.

Indication	No patient	Coagulopathy
Placenta previa/accreta	2	yes
Uterine atony	3	yes
Ruptured uterus	2	yes
Cervical laceration	1	No
Retained products of conception	1	yes

Table 4: Post-operative complications.

Complication	No patient	Remedy
Wound infection	8	Antibiotic wound dressing
Urinary bladder injury	1	Intraoperative repair
Bowel injury	0	
DIC and death	1	

DISCUSSION

Maternal mortality and morbidity is a major concern for women health in peripurtum period. Deaths during pregnancy for Postpartum hemorrhage (PPH) is 12% to 18%.[4] As the PPH cannot always be prevented but its magnitude and incidence can be reduced by proper assessment and timely intervention. Wide range of treatment available for PPH Emergency postpartum hysterectomy is increasingly performed to treat uncontrollable PPH once all conservative measure fails.

Table 5: Risk factors for PPH.

Cause	Conditions
Tone	Uterine distension (multiple gestation, polyhydramnion, foetal macrosomia) uterotonics quick or prolonged labour (long) oxytocin exposure chorioamnionitis uterus myomatosus
Tissue	Retained placenta abnormal placental implantation (placenta adhaerens, accreta / increta / percreta)
Trauma	Vulvovaginal injury episiotomy / perineal suture uterine rupture inversion of the uterus, previous myotomy or hysterectomy scar.
Thrombin	Gestational: thrombocytopenia with HELLP syndrome, DIC (i.e., with preeclampsia, intrauterine foetal death, placental abruption, amniotic fluid embolism) other: VWD, plasmatic coagulopathies, platelet function disorders, factor deficiencies (loss, consumption, dilution).

First unsuccessful attempt of caesarean subtotal hysterectomy (STH) was made Horatio Storer in 1868, the patient survived for only 78h after the surgical procedure. It was not until 1876 that the first successful operation was performed by Eduardo Porri.[5]

Definition of PPH and EPH

There is no common international definition of PPH. The World Health Organisation (WHO) defines PPH as a blood loss of 500 ml or more within 24 h of birth, independently of the mode of delivery. The new German guideline maintains the differentiation between blood loss ≥500 ml following vaginal and ≥1,000 ml following caesarean delivery.[6]

Emergency peripartum hysterectomy is defined as surgery that is performed at the time or within 24hours of a vaginal or abdominal delivery, for the treatment of peripartum haemorrhage unresponsive to conservative approaches. Emergency hysterectomy is only performed when medical or minor surgical procedures (bimanual uterine compression, administration of oxytocin or prostaglandins, uterine packing, compression sutures such as the B-Lynch brace suture, or other measures) has failed to control PPH and repair of uterus is not possible.[6,7]

The reported incidence of EPH varies from 0.24 to 8.9 per 1000 deliveries. According to the recent reports, 0.20 to 5.09 of every 1000 postnatal women across the globe have undergone an emergency hysterectomy.[8]

Vaginal delivery and cesarean section carry different rate of incidence of EPH.[9] Incidence of EPH after vaginal delivery varies from 0.1 to 0.3/1000 deliveries. Incidence of EPH following CS varies widely between 0.17 and 8.7/1000 deliveries.[9] This is attributed to the proportion of women with previous CS with the concomitant risk of placenta previa and accrete.[10] Patients with previous CS the frequency of EPH increases from 1.1 to 8.9 per 1000.[4] A higher the number of previous CS means higher abnormal placentation.[2] Actually, a previous CS increases the risk of abnormal placentation with pathological adherence.[10]

Risk factors

Common risk factors (Table 5) for post partum hemorrhage include coagulopathies, uterine atony, retained products of conception, precipitate or prolonged labor, fetal macrosomia or multiparity, maternal obesity and previous primary post partum hemorrhage.[6,11] Traditionally uterine atony was the most common indication for EPH. Recent studies however have indicated a change in the trend towards abnormal placentation.[11]

Prothrombin activity <50% is associated with the need for an additional interventional procedure to stop bleeding despite hysterectomy.[7] Postpartum prothrombin activity <50% was the greatest risk factor for hysterectomy in patients with life-threatening PPH.[7] Placenta accreta, previous uterine curettage, uterine atony, grand multiparity >6, and uterine rupture were also

risk factors for hysterectomy in patients with life-threatening PPH.[12]

Management of PPH other than EPH

On diagnosis of PPH the patient should be shifted to ICU care. Adequate venous access, at least one large bore venous access in case of bleeding. Keep the patient in flat position and warm. Administering uterotonics (oxytocin, prostaglandins) 'Emergency laboratory measurements' (complete blood count, blood gas analysis, prothrombin time (PT), activated partial thromboplastin time (aPTT), fibrinogen, antithrombin, if possible thrombelastography (TEG) rotational thromboelastometry (ROTEMTM).

Obstetrician and anaesthesiologist on site, experienced obstetrician, and experienced anaesthesiologist on call.[13] Cross-matching (or, where appropriate, type & screen), ordering of red blood cells (RBCs), fresh frozen plasma (FFP), and platelets haemostatic agents (TxA, fibrinogen, factor XIII, recombinant activated factor VII (rFVIIa)) the measures implemented to prevent hysterectomy including curettage, ligation of the hypogastric arteries, ligation of the uterine arteries, uterine tamponade, B-Lynch procedure, Bakri balloon and ligation of internal iliac artery.[13]

Complication and remedy

Most common complications are hemorrhage and damage to the urinary tract.[2] other less common complications are Pelvic hematoma, Wound infection, Disseminated intravascular coagulopathy (DIC), Acute renal insufficiency, pneumonia, re-exploration.[7]

Prevention of complications obstetrician should

- An early decision about performing the procedure before the patient exsanguinates
- To reduce operative time by clamping and cutting the uterine pedicles off first, until the uterine arteries are secured, then proceed with suturing and tying these pedicles (clamp, cut, drop technique)
- Knowledge of pelvic anatomy
- only cervix removal in cases where bleeding cannot be stopped due to implantation of the placenta on the lower uterine segment
- Not to hesitate to take help immediately

CONCLUSION

Doppler sonography is an indispensable tool in evaluating pregnancies complicated with uteroplacentral insufficiency. This study showed that of all the fetal Doppler parameters, umbilical artery-S/D ratio and umbilical artery-RI>2SD are significant predictors of adverse perinatal outcome like perinatal deaths and immediate resuscitation. Umbilical artery-PI >2SD was predictive of acute fetal distress in labour but on multivariate analysis failed to find any association. None of the Doppler parameters helped to predict neonatal nursery admission. Thus, Doppler parameters can help the obstetrician and neonatologist to plan delivery and minimize adverse perinatal outcomes.

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