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A RETROSPECTIVE STUDY ON EMERGENCY OBSTETRIC HYSTERECTOMY: INCIDENCE, RISK FACTORS, INDICATIONS, FETO-MATERNAL OUTCOMES AT A TERTIARY CARE CENTRE IN CENTRAL INDIA.

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ABSTRACT

Objective: The aim of this study is to evaluate the demographic characteristics, indications, feto-maternal outcomes associated with emergency peripartum hysterectomy in a tertiary care centre in central India. **Materials And Methods:** We conducted a retrospective, observational study over a period of three years, from January 2020 to January 2023. A total of 28 cases of emergency obstetric hysterectomy were studied in the Department of Obstetrics and Gynaecology, MGMMC and associated hospitals, Indore. **Results:** Intractable Postpartum Haemorrhage (46.4%) was the most common indication followed by Atonic Postpartum Haemorrhage (35.7%), Uterine Rupture (28.6%) and Placenta Accreta Spectrum (25%). Anaemia (96.4%) and Sepsis (60.7%) were among most common Morbidities. Maternal mortality was 17.9% whereas perinatal mortality was 25%. **Conclusion:** A balanced approach to EOH can be lifesaving when medical management and conservative surgical modalities fail. 94 per 1 lac EOH occurred in the department in last three years. Majority of women were generally less than 30 years old. Risk factors such as multiparity, intractable PPH, anaemia, history of uterine curettage significantly impacted maternal outcome. Anaemia, Sepsis, Acute Kidney Injury due to haemorrhagic shock significantly impacted Caesarean and Postpartum Hysterectomy. Routine antenatal care and timely referral is need of the hour. Impact of making a woman infertile should be clearly looked out due to its social and psychological factors on a young female. Preventable risk factors should be treated.

KEYWORDS : Caesarean Hysterectomy, Rupture uterus, Placenta Accreta Spectrum, Emergency Obstetric Hysterectomy

INTRODUCTION

Emergency obstetric hysterectomy (EOH) is, removal of the uterus either at the time of caesarean section, the operation is Caesarean Hysterectomy or following vaginal delivery, it is Peripartum Hysterectomy or within the puerperium period, it is Postpartum Hysterectomy. 1 It is usually performed in the face of life-threatening obstetric haemorrhage. EOH can be classified as a near miss event.

A near miss event is defined as a woman who nearly died but survived a complication that occurred during pregnancy, childbirth, or within 42 days of termination of pregnancy. 2 Such incidences provide an insight into the standard of care provided and help to reduce maternal morbidity and mortality.

In cases of postpartum haemorrhage, medical methods such as use of misoprostol, intravenous oxytocin, Bakri balloon catheter, and non-inflatable anti-shock garments for the management of hypovolemic shock have all been suggested to effectively manage obstetric haemorrhage in low resource settings. 3 Interventional radiology have also provided the option of uterine artery embolization in vitally stable patients.4

Even after all these advanced and time-tested modalities, haemorrhage continues to be the leading individual cause of maternal death worldwide accounting for 27.1% of deaths. 5 Even though EOH renders the woman infertile, it is the bridge between life threatening postpartum haemorrhage and death. EOH complicates almost 1 per 1000 deliveries world-wide ranging from 0.2–10.1 per 1000 births, with the incidence and prevalence higher in low income, than high-income settings: 2.8 compared with 0.7 per 1000 deliveries respectively. 6 Despite the lifesaving intervention of the EOH, these patients must be monitored closely to prevent further maternal complications such as Wound Infection, AKI, DIC, Shock, Sepsis and Maternal Mortality.7

We aimed to evaluate the demographic characteristic, incidence, indication, and feto-maternal complication associated with EOH in a Tertiary Care Hospital in Central India.

METHODS

This was a retrospective, observational study of women requiring EOH- Caesarean Hysterectomy and Postpartum Hysterectomy. We perused at the data of three years period, from January 2020 to January 2023 from the Department of Obstetrics and Gynaecology, in MGMMC and associated hospitals, Indore, located in Central India.

Hysterectomy performed for haemorrhage unresponsive to medical or conservative surgical interventions, at the time of caesarean section or vaginal delivery, or within puerperium was defined as EOH.

Inclusion Criteria

All women who delivered in the hospital, after 28 weeks of gestation, and who underwent hysterectomy for obstetric indications at the time of delivery or subsequently within the defined period of puerperium (42 days).

All women who delivered outside the hospital and were referred for obstetric complications meriting a hysterectomy and fulfilling all the above conditions were also included in the study.

Exclusion Criteria

Women who delivered before 28 weeks of gestation, undergoing hysterectomy for indications other than obstetric, or outside the stipulated time of 42 days post-delivery were excluded from the study.

After collecting relevant data from admission registers of the department, operation theatre registers and files from medical record department, using a pre-designed data collection form. Collected data included, demographic characteristics (age), obstetric history (parity, previous uterine scar, curettage), type of delivery (vaginal/ caesarean), clinical indicators (uterine rupture, intractable post-partum haemorrhage, uterine atony) and possible outcomes (sepsis, DIC, wound infection, acute kidney injury) of emergency obstetric hysterectomy (Caesarean/ Postpartum). Institutional ethical committee approval was obtained for the study. For ensuring confidentiality, all patient information was coded.

RESULTS

Of overall 29,799 deliveries, the incidence of EOH in our study was 11 hysterectomies per lac deliveries (0.011%) following vaginal delivery, and 228 hysterectomies per lac deliveries (0.228%) following caesarean section. In general, 94 hysterectomies per lac deliveries (0.094%) happened in the department over a span of three years.

Table 1 shows the association of caesarean section with EOH. The caesarean section rate during the study period was 38.2%. Women who underwent postpartum hysterectomy were due to rupture uterus with vaginal birth after caesarean, retained placenta with placenta accreta spectrum and intractable PPH referred from periphery.

Table 1 Incidence of emergency obstetric hysterectomies (EOH) following vaginal delivery and caesarean section.

Mode of Delivery	Number of Patients	EOH (Incidence %)	Caesarean Hysterectomy	Postpartum Hysterectomy
Vaginal Delivery	18402	2 (0.011)	0	2
Caesarean Section	11397	26 (0.228)	25	1
Total	29799	28 (0.094)	25	3

The median age was 27.43 years, ranging from the youngest 20 years old to the oldest 38 years old. EOH in Primiparity accounted for 3.8% (1/28), whereas Multiparity (2 to 4 births) and Grand Multiparity (more than 5) accounted for 85.7% (24/25) and 10.7% (3/25) respectively. **[Table 2].**

Table 2 Demographic characteristics of patients undergoing EOH.

Age (years)	Parity					
	P1	P2	P3	P4	≥P5	Total (%)
20–25	1	2	3	1	0	7(25%)
25–30	0	2	10	1	2	15 (53.6%)
30–35	0	1	1	2	1	5(17.9%)
35–40	0	0	1	0	0	1(3.6%)
Total	1	5	15	4	3	28

Out of 28 cases, 1 patient (3.6%) delivered outside the hospital and was referred for specialized management in our department. Among the various risk factors Multiparity, Previous Caesarean section and Atonic uterus were most common. **[Table 3]**

Table 3 Risk Factors leading to Caesarean or Postpartum EOH.

Risk factors	Number of EOH (%)	Caesarean Hysterectomy (%)	Postpartum hysterectomy (%)
Atonic Uterus	10 (35.7)	8 (28.6)	2 (7.1)
Multiparty	27 (96.4)	24 (85.7)	3 (10.7)
Placenta Accreta Spectrum (2 Percreta, 3 Increta, 2 Acreta)	7 (25.0)	6 (21.4)	1 (3.6)
Previous caesarean Section	18 (64.3)	17 (60.7)	1 (3.6)
Rupture Uterus	7 (25.0)	6 (21.4)	1 (3.6)
History of uterine curettage	8 (28.6)	7 (27.0)	1 (3.6)
Complete Placenta Previa	4 (14.3)	4 (14.3)	0 (0)
Extensive Uterine Scar	1 (3.6)	1 (3.6)	0 (0)
Multiple Fibroid Uterus	1 (3.6)	1 (3.6)	0 (0)

Indications for EOH were Atonic PPH, Intractable Postpartum Haemorrhage, Rupture Uterus, Placenta Accreta Spectrum. **[Table 4].**

Table 4 Indications leading to Caesarean versus Postpartum emergency obstetric hysterectomies (EOH).

Indications	Number of EOH (%)	Caesarean Hysterectomy (%)	Postpartum hysterectomy (%)
Atonic PPH	10 (35.7)	8 (28.6)	2 (7.1)
Rupture Uterus	8 (28.6)	7 (25.0)	1 (3.6)
Placenta Accreta Spectrum	7 (25.0)	6 (21.4)	1 (3.6)
Intractable PPH	13 (46.4)	11 (39.3)	2 (7.1)

Most common maternal morbidity seen with EOH was Anaemia with incidence being 96.4%. 17.9% Maternal Mortalities were followed even after EOH. **[Table 5].**

Table 5 Maternal Morbidities associated with EOH.

Maternal Complications	Number of EOH (%)	Caesarean Hysterectomy (%)	Postpartum hysterectomy (%)
Maternal Mortality	5 (17.9)	3 (10.7)	2 (7.1)
Anaemia	27 (96.4)	24 (85.7)	3 (10.7)
Sepsis	17 (60.7)	15 (53.6)	2 (7.1)
Wound Infection	7 (25.0)	6 (21.4)	1 (3.6)
AKI	8 (28.6)	6 (21.4)	2 (7.1)
ICU Admission	20 (71.4)	17 (60.7)	3 (10.7)

28.6% of cases (8/28) underwent Total Hysterectomy whereas the remaining 71.4% (20/28) underwent Subtotal Hysterectomy. Total hysterectomy was performed for cases of Complete placenta previa, Colporhexis in rupture uterus, Placenta Accreta where removal of the cervix was considered mandatory for complete haemostasis. 25% reported neonatal morbidity in association with EOH.

DISCUSSION

Caesarean Hysterectomy have increased considerably in past years due to an increase in Postpartum Haemorrhage and Placenta Accreta Syndrome. 8 It is also called as Porro operation in honour of Porro of Milan, who first described Caesarean Hysterectomy in which both infant and mother had survived. 9 Consistent increases in caesarean section rates have been observed, these may be due to cautious approach as to avoid medicolegal implications, precious pregnancy with ART or elective caesarean as per patient preference. All this leads to increase in incidence of placenta accreta spectrum, uterine rupture and atonic uterus. Thus, thorough knowledge about EOH has become relevant.

Incidence of EOH in this study was 0.09% which is similar to other studies reported values in North India (0.08%) 10, US (0.06%)11, considerably lower than earlier reported in India (0.52%)12, Pakistan (0.27%) 13. Our incidence is within global range might be because it's a tertiary care hospital located in urban region. Most common risk factor for EOH was multiparity 96.4% which was also seen in Cameroon (83.33%) and previous caesarean section 64.3%.

Most common indication for EOH was Intractable PPH (46.4%) and Atonic PPH (35.7%), followed by Rupture Uterus (28.6%) and Placenta Accreta Spectrum (25%). It was somewhat similar to North India 12 where Atony 25%, Morbidly adherent placenta 21% and Uterine Rupture 17%. There was no significant between indications of Caesarean Hysterectomy and Postpartum Hysterectomy, similar to Forna et al 14.

Almost every woman undergoing EOH suffered from maternal complication one or another. Most common being Anaemia (96.4%) requiring multiple blood transfusions. 5 women out of 28 had mortality due to various direct or indirect reasons, which were massive haemorrhage due to intractable PPH leading to hypovolemic shock, AKI and MODS associated with massive blood loss in Placenta Percreta, Abruption with Coagulopathy, Multiple fibroids leading to intractable haemorrhage and Uterine Rupture with Hypovolemic shock. 4 out of 5 mortalities were associated with previous caesarean section and multiparity. Various reasons can be quoted as delay in acquiring blood, sepsis in case of postpartum hysterectomy as no prophylactic antibiotic is given prior to vaginal delivery, multiple vaginal examinations, delay in acquiring hospital services. Increased incidences of Placenta Accreta Spectrum due to previous caesarean sections, multiparity, previous uterine curettage. Juneja SK et al in India 12 also reported 17.9% maternal mortalities associated with EOH with complications being ICU admissions 35.7%, wound sepsis 10.7%, fever 25%. Mbakwa, M.R et al 15 in Cameroon with EOH, reported 3.33% mortality, 90% anaemia,6.67% wound infection and sepsis.

Strengths of the study

This study comments on Caesarean Hysterectomy and Postpartum Hysterectomy, incidence, risk factors, indications and feto-maternal complications following EOH at a Tertiary Care Hospital in Central India.

Limitations of the study

Sample size was small thus appropriate hypothesis suggesting risk factors, feto-maternal complications cannot be made.

In Retrospective observational analysis, some records may be missed or insufficient.

CONCLUSION

94 per 1 lac EOH occurred in the department in last three years. Majority of women were generally less than 30 years old. Risk factors such as multiparity, intractable PPH, anaemia, history of uterine curettage significantly impacted maternal outcome. Anaemia, sepsis, acute kidney injury due to haemorrhagic shock significantly impacted Caesarean and postpartum Hysterectomy. Routine antenatal care and timely referral is need of the hour. Impact of making a woman infertile should be clearly looked out due to its social and psychological factors on a young female. Preventable risk factors should be treated.

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