

MANUSCRIPT TITLE PAGE

EMERGENCY OBSTETRIC HYSTERECTOMY : A REVIEW FROM A TERTIARY LEVEL HOSPITAL IN CENTRAL INDIA

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CONFLICT OF INTEREST: none

ABSTRACT

Background : Obstetric hysterectomy is indicated when patient's life is at risk, and it is a procedure that requires a highly experienced and skilled medical team to solve any complication. **Aims&Objectives**To determine the frequency, demographic characteristics, indications, and fetomaternal outcomes associated with emergency peripartum hysterectomy in this institution. **Material & Methods.**a Retrospective, observational, and analytical

study over a period of one year 4 months, from november 2021 to February 2023. A total of 25 cases of emergency obstetric hysterectomy (EOH) were studied in the Department of Obstetrics and Gynecology, BMGMCSahdolM.P. **Results:** The overall incidence of EOH was 25 out of 5584 deliveries. Uterine rupture (36%) was the most common indication followed by Atonic postpartum hemorrhage (16%). The most frequent sequelae were febrile morbidity (56%) and Acute Kidney Injury (13.5%). Maternal mortality was 12% whereas perinatal mortality was 68%. **Conclusion:** Skill in emergency obstetric hysterectomy remains a necessary tool for consultant obstetricians. In spite of intra operative risks and post-operative complications, it remains a potentially life saving procedure. The maternal outcome greatly depends on timely decis

ion and good clinical judgment because unnecessary delay can cost life and undue haste can cause morbidity.

KEYWORDS: Near miss event, peripartum hysterectomy, placenta accreta, postpartum hemorrhage

INTRODUCTION

Emergency obstetric hysterectomy (EOH) is defined as removal of the uterus either at the time of cesarean section or following vaginal delivery, or within the puerperium period. Most commonly performed within the confront of unflinching life threatening obstetrical hemorrhage. EOH is classified as “maternal near miss” event by WHO; the mother barely survives the pregnancy and its complications, but loses her uterus⁶. It also results in the loss of fertility. It is thus an unequivocal marker of severe maternal morbidity and mortality.¹¹

Studying such events is important as they provide an insight into the standard of care given and help to diminish maternal morbidity and mortality. Conservative methods such as community-based use of misoprostol, oxytocin in the prefilled auto-disable drug delivery systems, condom catheter balloon, and non-inflatable anti-shock garments for the management of hypovolemic shock have all been advocated to effectively manage obstetric hemorrhage in low resource settings.² Propels in interventional radiology have too given the option of uterine artery embolization.^{3,4}

One meta-analysis detailed an yearly increment of 8% in the incidence of EOH around the world.⁷ While this does appear encouraging, with regard to clinical implications, hemorrhage continues to be the driving cause of maternal death worldwide accounting for 27.1% of deaths as recently as 2014.⁵ In this analysis, India and Nigeria together accounted for a third of global maternal deaths.⁵ More alarming is the fact that some studies from developed nations are pointing towards an increase in the rate of postpartum hemorrhage.⁶

In this study we aimed to evaluate the incidence, indications, and fetomaternal complications associated with EOH.

METHODS

Inclusion criteria included all women who delivered in the hospital between november 2021 to february 2023 after 24 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.

Those who delivered before 24 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.

Institutional ethical committee approval was obtained for the study.

RESULTS

After collecting relevant data from the operation theatre records, each patients case record was scrutinized with regard to incidence, age, parity, antenatal high risk factors, indications, hysterectomy type, and complications, along with the ultimate feto-maternal outcome. Institutional ethical committee approval was obtained for the study.

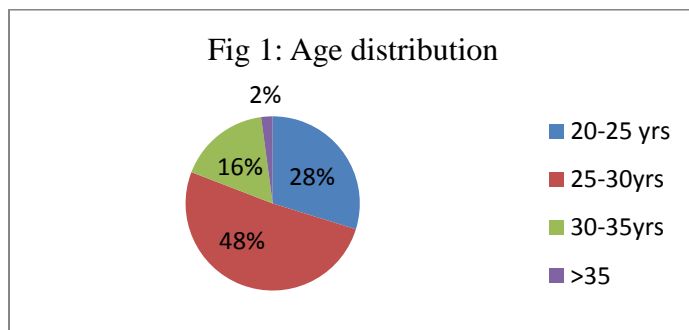
The overall incidence was 25 (5 hysterectomies per 1000 deliveries)out of total 5584 deliveries. The incidence of obstetric hysterectomy in our study was .following vaginal delivery, and following cesarean section. The cesarean section rate during the study period was 58.4%.

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

	Number of patients	EOH	Incidence (%)
Normal vaginal delivery	2324	08	0.34%
Cesarean section	3260	17	0.52%
Total	5584	25	0.45%

AGE DISTRIBUTION

The youngest woman to undergo hysterectomy was 21 years old and the oldest was aged 38 years. Women in the 20 to 30 year-old age group constituted over 76% of cases, and 88% of cases were multiparous [Table 2]



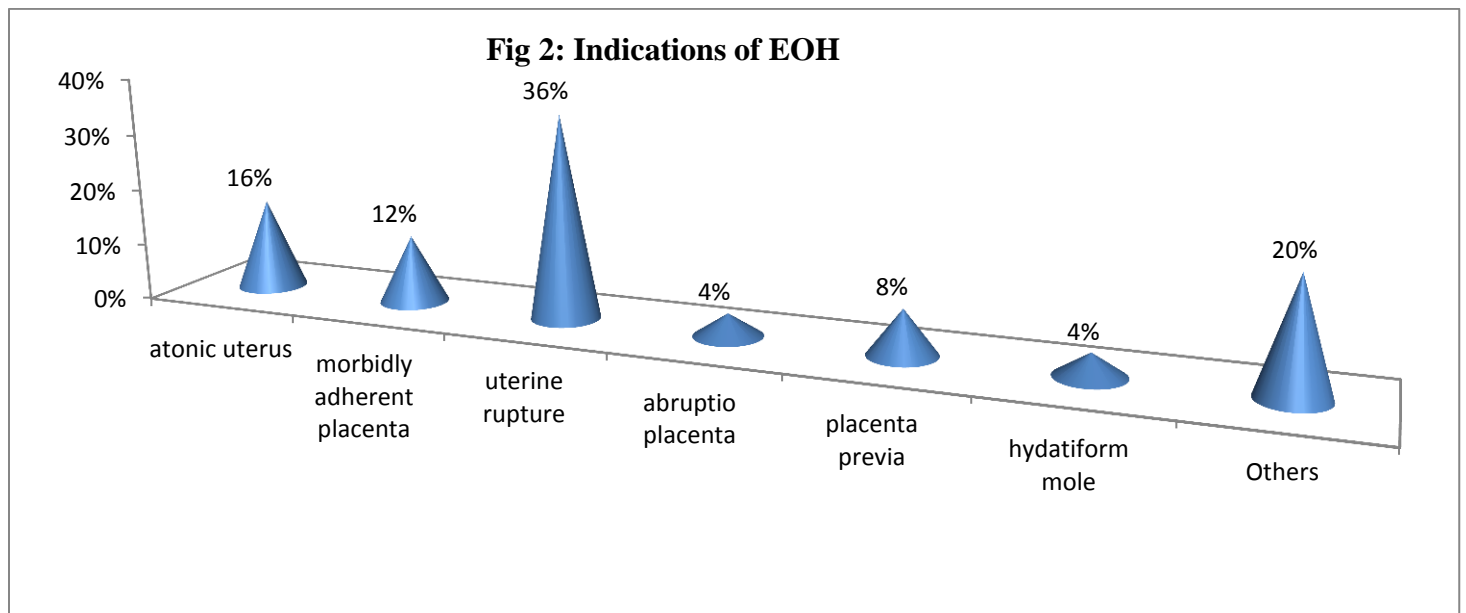
PARITY WISE DISTRIBUTION

TABLE 2

parity	No. of Patients (%)
P1	03(12%)
P2	13(49%)
P3	06(24%)
>/=P4	03(12%)

INDICATIONS OF EOH

Of the 25 cases of EOH studied, 94% of deliveries were institutional where as 6% of patients delivered outside the hospital and were later referred for further management. Uterine rupture , morbidly adherent placenta, and were the three chief indications for the procedure[Table 4].

**Table 3**

Indications of EOH	No. of Patients (%)
Atonic uterus	04(16%)
Morbidly adherent placenta	03(12%)
Uterine rupture	09(36%)
Abruptio placenta	01(4%)

Placenta previa	02(8%)
Hydatiform mole	01(4%)
Others	05(20%)

Other category includes two cases of broad ligament hematoma; two cases of extensive extension of uterine scar; one case of fibroid uterus.

Morbidly adherent placenta was the indication for EOH in 03 cases and was associated with one or more cesarean sections previously, previous curettage in 1 case. More than one factor was associated in many cases, for example, one woman had history of one prior cesarean and one prior curettage. In the index pregnancy, she had placenta previa and morbidly adherent placenta. Two other women had a history of one prior cesarean and one prior curettage. One of our subjects had one earlier cesarean birth and had undergone curettage twice. A fourth woman had a history of one previous cesarean and had multiple fibroids (submucous and subserous) during her present pregnancy.

Uterine rupture led to hysterectomy in 09 instances. It was associated with previous cesarean in six cases and with grand multiparity, prolonged labor, and multifetal gestation in one case each.

Three cases were performed following manual removal of the placenta. Bilateral uterine and ovarian artery ligation was performed in eight cases B-Lynch sutures were applied in 10 cases . Uterine packing or tamponade was employed in eight cases .Cervical, vaginal, or paraurethral tears were stitched in three cases

CLINICAL CHARACTERISTICS OF CASES

Table 4

Clinical Characteristics	Mean
Pre op hb(g/dl)	7.02±1.32
Duration of surgery (min)	180.20±88.41
Blood loss (ml)	5436±807
Intraop blood transfusions(U)	12.2±3.8
Post op hb(g/dl)	8.45+/-2.02
ICU Stay (days)	2.04±1.42
Duration of stay in hospitals (days)	10.6±3.2

FETO MATERNAL COMPLICATIONS

Nineteen cases experienced resistant hypotension and were managed with single or multiple agent vasopressor drugs as per intensive care unit (ICU) protocols.

Maternal Complications	No. of Patients (%)
Fever	14(56%)
Disseminated intravascular coagulations	02(8%)
Acute kidney injury	09(36%)
Shock	11(44%)
Relaparotomy	01(4%)
ICU Admission for ventilator support	04(16%)
Mortality	03(12%)
Fetal complications	
NICU Stay	08(32%)
Still Birth	13(52%)
Early neonatal mortality	04(16%)

Dopamine was utilized as the first-line agent to manage shock. Adrenaline or noradrenaline infusion was added at the caution of the anesthetist whenever required. Patients received transfusion of blood and blood products, as per requirement, ranging from one to 18 units, with an average of ten units [table 4]. Hospital stay ranged from six hours to 18 days. ICU stay ranged from 1.5 hours to six days. Nearly 24% of neonates were admitted to the neonatal intensive care unit (NICU). Neonatal mortality in this study was about 16%.

DISCUSSION

The first cesarean hysterectomy was performed by Storer in the United States in 1869.⁸ Thereafter, Porro of Milan described the first cesarean hysterectomy in which the infant and mother survived. As a mark of honor, the procedure is mostly referred to as the Porro operation.⁸

Cesarean hysterectomy traditionally considered as elective for the management of incidental diseases like cervical intraepithelial neoplasia (CIN), or for the purpose of sterilization, and in cases of emergency to control intractable hemorrhage. In the light of modern practice, the former two indications seem to have lost relevance. Be that as it may, there has been an upsurge in cases of postpartum hemorrhage requiring hysterectomy⁹ fundamentally due to the changed settings in which postpartum hemorrhage presents itself in modern obstetrics. In spite of extensive availability of contraceptives and abortion services, and decreased family size the world over, there has been a consistent rise in the rates of cesarean section attributable, in portion, to patient preferences and medico-legal implications on medical fraternity. Moreover, advances in anesthesia, blood bank facilities, and intensive care back-up have made it a safer and painless alternative to labor. This has not only given rise to a surge in complications like abnormal placentation and uterine rupture, but also in the incidence of atonic postpartum hemorrhage. This can be why EOH has become increasingly relevant in advanced obstetric home. There has been revealed a rise in the rate of postpartum hemorrhage requiring hysterectomy from an analysis of discharged patients in Canada.⁹

CONCLUSIONS

Most of morbidity associated with EOH is attributable to its indications and underlying disorders rather than to the procedure itself. Therefore it has become a necessary evil in obstetrics. In spite of the fact that it abridges long run child bearing potential of the woman, in many cases it saves the life of the mother. Training postgraduate trainees in this rare skill can prove lifesaving in circumstances where expertise or facilities for newer modalities of management, such as uterine artery embolization, do not exist, or fall flat. Increasing rates of cesarean section and multiple pregnancies are bound to rise the incidence of EOH in the future

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