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Original Research Article

Obstetric hysterectomy in a tertiary centre: a 3-year retrospective study

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ABSTRACT

Background: Obstetric hysterectomy (OH) is a life-saving procedure and involves removal of uterus in cases of intractable hemorrhage. This study includes 21 cases of OH in a period of 3 years at a tertiary centre. We sought to understand the prevalence, indications and outcomes of emergency obstetric hysterectomy.

Methods: This is a retrospective, observational study, conducted with the means of hospital delivery records in a tertiary care centre in Navi Mumbai. We included all patients who underwent obstetric hysterectomy in a span of 3 years between 1st April 2020 to 31st March 2023, in Dr. D.Y. Patil Hospital, Navi Mumbai, India.

Results: Twenty- one OH were done in the period of study. The incidence of obstetric hysterectomy was 0.45% (452 OH per 100,000 deliveries). It was more prevalent in patients with caesarean section compared to vaginal delivery. Women between the age 25-35 years group comprised of 57.15% cases. Out of the 21 women in the study 7 women were primigravida (33.33%). Most common cause for OH was observed to be uterine atony (42.85%) followed by adherent placenta (28.57%). Maternal morbidity like admission to intensive care unit and need for blood and blood product transfusion was noted in most patients, mortality was observed in only 1 case. Neonatal mortality was nil in this study but, admission to neonatal intensive care unit was required in 7 patients.

Conclusions: Although, obstetric hysterectomy kills the future reproductive prospect for a woman, it is life saving for her. Timely decision for OH can not only prevent mortality but, also morbidity for the woman. Previous caesarean section and multigravida have higher incidence of OH. Atonicity is the predominant cause for obstetric hysterectomy in this study.

Keywords: Caesarean hysterectomy, Adherent placenta, Atonic uterus, Obstetric hysterectomy, Obstetric emergencies

INTRODUCTION

Obstetric hysterectomy (OH) is defined as the removal of uterus either at the time of caesarean section or following vaginal delivery or within the puerperium period.¹

Emergency hysterectomy in obstetric practice was first suggested in 1869, with no desirable benefits. After seven years, the first successful subtotal hysterectomy was conducted in which both mother and child survived.² Hysterectomy should be considered as a last resort to save

the life of the mother, when all other measures and interventions, medical and surgical, to control the blood loss and secure maternal life have failed, in the face of inevitable maternal life loss.^{3,4}

According to World Health Organization (WHO), about 73% of all maternal deaths were due to direct obstetric causes and hemorrhage accounted for 27.5% of all deaths.⁵ WHO in its sustainable development goals 3.1 aims to reduce the maternal mortality ratio (MMR) to less than 70/100,000 live births by 2030.⁶ Causes of most maternal

deaths are preventable, hence it is important to manage obstetric cases effectively in order to bring down the MMR.⁷

OH is classified as “maternal near miss” event by WHO where the mother barely survives the pregnancy and its complications but in turn loses her uterus.⁸ Although, OH is a lifesaving procedure it comes with risk of maternal and fetal morbidity as well as surgical complications. It also comes with the burden of permanent infertility, along with the psychological impact of premature, unanticipated removal of one’s uterus as a lifesaving procedure, including post-traumatic stress disorder and depression.⁹

Emergency hysterectomy is significant in modern obstetric practice, as this procedure can improve the outcomes of inevitable maternal mortality. There are many causes of intrapartum and postpartum hemorrhage that lead to OH. These include placenta accrete syndrome and its spectrum, placental abruption, uterine rupture and uterine inertia and placental site subinvolution.¹⁰

Prior to taking the decision of emergency obstetric hysterectomy, other measures attempted to control postpartum hemorrhage included use of uterotonic medications, oxytocin, prostaglandins, interventional radiological approach by uterine artery embolization and surgical approaches, such as ligation of uterine and uterine-ovarian arteries, use of intra uterine balloon tamponade, clamping of uterine-ovarian ligaments and uterine compression sutures such as the B-lynch sutures.¹¹

This study includes 21 obstetric hysterectomies done over a period of 3 years with maternal mortality in only 1 case. Objective of this study was to understand the prevalence, indications and outcomes of emergency obstetric hysterectomy.

METHODS

This is a retrospective, observational study, conducted with the means of hospital delivery records in a tertiary care centre in Navi Mumbai.

We included all patients who underwent obstetric hysterectomy in a span of 3 years between 1st April 2020 to 31st March 2023, in Dr. D.Y. Patil Hospital, Navi Mumbai, India. Obstetric hysterectomy was defined as hysterectomy performed for hemorrhage unresponsive to other modes of intervention at the time of caesarean section or vaginal delivery or within the puerperium.

Inclusion criteria

Inclusion criteria were the all women who delivered in the hospital between April 2020 to March 2023 after 20 weeks of gestation and who underwent hysterectomy for obstetric indications at the time of delivery or subsequently within the defined puerperium (42 days). All women delivered in outside hospital and referred for obstetric complications meriting a hysterectomy and fulfilling all the above conditions were also included in the study.

Exclusion criteria

Exclusion criteria were women who delivered before 20 weeks of gestation and/or outside stipulated period of 42 days post-delivery were excluded from the study.

Details from the records included the age, parity, high risk factors, diagnosis of the patient, mode of delivery (vaginal or caesarean) and the cause of obstetric hysterectomy. Additional data collected included morbidity associated such as admission of the patient in the intensive care unit, need for blood transfusion and maternal or fetal mortality.

A total of 21 eligible women who fulfilled the selection criteria were included in the study and retrospective data collection from registers and files were obtained.

RESULTS

Twenty-one OH were done in the period of study. Total number of deliveries conducted were 4636 deliveries. The incidence of obstetric hysterectomy was 0.45% (452 OH per 100,000 deliveries) (Table 1).

Table 1: Association of caesarean section with EOH.

Criteria	Number of patients	OH	Incidence %
Normal delivery	1861	3	0.16
Caesarean section	2775	18	0.65
Total	4636	21	0.45

Three OH were following vaginal delivery (0.16%) and 21 were following a caesarean section (0.65%). Rate of caesarean section during the study was 59%.

The youngest woman to undergo OH was 23 years and the oldest was 38 years. Women between the age 25-35 years group comprised of 57.15% cases. Out of the 21 women in the study 7 women were primigravida (33.33%) (Table 2).

Table 2: Association of age and parity in the study.

Age	Primigravida	Multigravida	Total	%
18-25	2	2	4	19.05
25-35	3	9	12	57.15
>35	2	3	5	23.8
Total	7	14	21	100

Out of 21 cases, 95.23% were registered at our hospital, 1% patients were referred for further management (Table 3).

Table 3: Number of registered and referred patients in the study.

Criteria	Number of cases	Percentage
Registered	20	95.23
Referred	1	4.77
Total	21	100

The most common cause of obstetric hysterectomy amongst the patients was noted to be uterine atonicity or atonic post-partum hemorrhage, which amounted to 42.85% of total obstetric hysterectomies, closely followed by adherent placenta, which contributed to about 28.57% of the cases. Other contributing causative factors included placenta previa (19.04%), uterine scar rupture (4.77%) and cervical tear (4.77%) (Table 4).

Table 4: Indication of obstetric hysterectomy in this study.

Indication	Number	Percentage
Atonic PPH	9	42.85
Morbidly adherent placenta	6	28.57
Placenta previa	4	19.04
Uterine rupture	1	4.77
Cervical tear	1	4.77
Total	21	100

Morbidity among the mothers included need for multiple transfusions of blood and blood products due to post-partum hemorrhage, seen in 100% of the women who underwent obstetric hysterectomy, closely followed by admission to intensive care unit (90%) for stabilization of the patients, 23.8% required pressors to stabilize them in the intensive care unit. Wound sepsis was noted in 2 patients (9.52%) and fever in the post operative period was noted in 9 patients (42.85%) (Table 5).

Table 5: Incidence of feto-maternal complications.

Complications	Number	Percentage
Maternal		
ICU admission	19	90.04
Blood and blood product transfusion	21	100
Need for pressors	5	23.8
Wound sepsis	2	9.52
Fever	9	42.85
Mortality	1	4.77
Fetal		
NICU admission	7	33.33
Mortality	0	0

Maternal mortality following obstetric hysterectomy, in this study period, was observed in 1 out of the 21 cases of obstetric hysterectomy, in which the patient had deranged liver enzymes and ended up with disseminated intravascular coagulation (DIC), along with multiple organ dysfunction syndrome and sepsis. There were no cases of neonatal mortality although, neonatal intensive care unit admission was required in 7 babies (33.33%) for preterm and low birth weight.

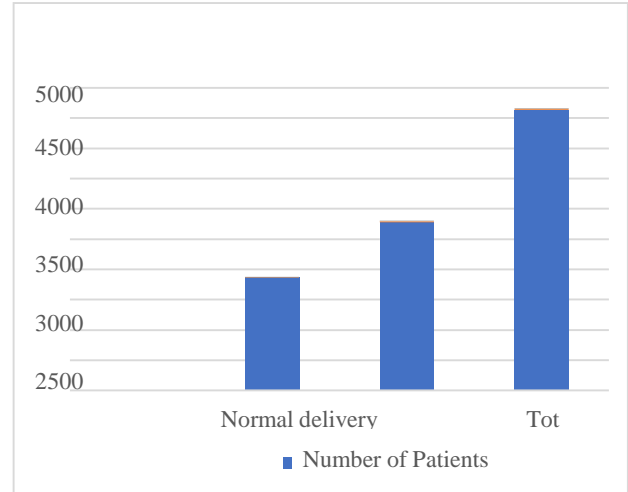


Figure 1: Association of caesarean section with EOH.

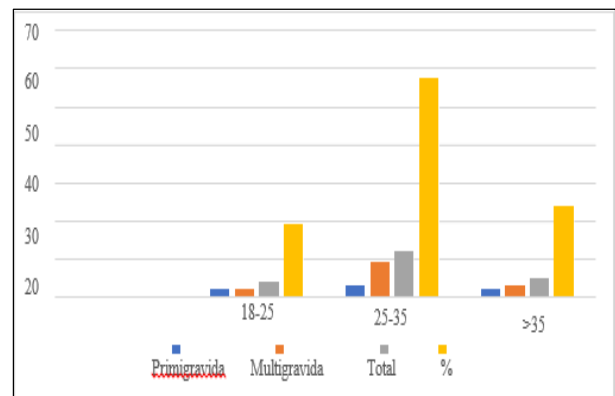


Figure 2: Association of age and parity in the study.

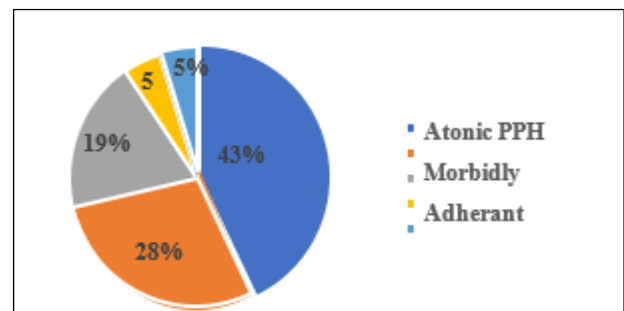


Figure 3: Indication of obstetric hysterectomy in this study.

DISCUSSION

Emergency obstetric hysterectomy has always been one of the worst scenarios for an obstetrician. This decision of obstetric hysterectomy is the end of the road measure, hence the call for OH should be made only if the obstetrician is absolutely certain that this is the last resort to prevent maternal morbidity and mortality. The decision to perform obstetric hysterectomy was far more easier in multigravida compared to primiparous woman, where this difficult decision had to be taken in order to save the woman's life. Mortality is prevented in these cases at the cost of reproductive capacity of the woman.

In cases where we are forced to decide upon hysterectomy it would be wise to perform it sooner, rather than later when the patient's condition has deteriorated further.

Traditionally, obstetric hysterectomy was done electively in cases for incidental disease like cervical intraepithelial neoplasia (CIN), sterilization and in cases of intractable hemorrhage. With development in modern obstetric practices and availability of various other treatment measures, the first two indications are obsolete. However, it is still noted to have a higher rate of caesarean hysterectomy in current practice owing to how postpartum hemorrhage presents itself in modern obstetric practices.¹² Although there is reduced family size, availability of contraception and abortion, the rates of caesarean section are constantly on the rise. This can be mainly attributed to patient preference, advances in anesthesia, blood bank and intensive care unit facilities. This has not only given rise to increased complications like abnormal placentation, uterine rupture but, also atonic postpartum hemorrhage.¹²

Incidence of obstetric hysterectomy in this study is 0.45%. Most of our patients were between the age groups of 23 years to 38 years of age. The list comprised of both primigravidas and multiparous women. High association with multiparity was also noted in EOH, as compared to primigravidas. There were 7 primigravida patients from a total of 21 cases of OH.

More number of obstetric hysterectomies were noted in multiparous women with a history of caesarean sections in the previous pregnancies. Eighteen patients in the study have delivered via caesarean sections.

There were no medical comorbidities frequently noted that seemed to be associated with the cause of postpartum hemorrhage, although there were 2 cases in which patients who had deranged liver profiles who underwent OH. A notable case also included a patient with a history of Factor V Leiden deficiency.

Most common indication in our study was uterine atonicity resulting in post-partum hemorrhage, followed by placental adherence. Uterine inertia is a result of failure in the contraction of the uterine muscles during the third stage

of delivery, which causes torrential blood loss, which has been noted commonly in previous CS, anemia, sepsis and multiparity.¹⁰

Incidence reported in India is 8.3/10,000 deliveries, in Nigeria 20/10,000 deliveries, China 6.3/10,000, the USA is 7.7/10,000 Europe 3.5/10,000, etc. This disparity noted amongst different countries could be indicative of the quality of antenatal and natal care in different countries.³

Amongst the morbidities that had taken place, transfusion of blood products was most commonly noted, including packed cells fresh frozen plasma, single donor platelets, followed by admission in the intensive care unit.

This study observed mortality rate of 4.76%, which is less than 6.01% reported by Sinha and Mishra, 14% reported by Mantri et al and 32% reported by Allahabadia et al.¹³⁻¹⁵ Although, Sturdee and Ruston from Birmingham Maternity Hospital reported no mortality in their study.²

CONCLUSION

Obstetric hysterectomy is a necessary evil in the field of obstetrics. Though it prevents future reproductive prospects for the woman, it is life saving for her.

It is often a difficult decision to make and requires good clinical judgment. Decision taken in time can not only save the woman's life but, also prevent morbidity to her. The prevalence of obstetric hysterectomy is higher in cesarean sections, as compared to vaginal deliveries. It is also more commonly noted in multiparous women as compared to primigravida. Atonicity of the uterus contributed to the majority of the cases, for which attempts medical and surgical attempts were tried prior to taking the decision for OH. There were no medical comorbidities commonly seen, that could be associated to or precipitated OH. Morbidity associated was mostly due to excessive blood loss that could result in hypovolemic shock, hence there was a need for transfusion of blood and blood products intraoperatively or post operatively. Early recognition of negative prognosis is imperative to prevent further complications such as DIC, shock and mortality.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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