

## To Evaluate Changing Trends and Outcomes of Obstetric Hysterectomy over Last Decade

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Received: 13-03-2023 / Revised: 20-04-2023 / Accepted: 13-05-2023

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Conflict of interest: Nil

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### Abstract

**Objective:** To evaluate changing trends and outcomes of obstetric hysterectomy over last decade.

**Methods:** The study subjects who underwent obstetric hysterectomy between 2011- 2020 were included in this study. Each case record files were studied in detail for demographic, clinical characteristics, operation notes, intraoperative and post-operative findings to find out various independent risk factors associated with obstetric hysterectomy. In PPH cases undergoing hysterectomy it was noted what medical and surgical measures were carried out prior to landing into Obstetric Hysterectomy. Post-operative findings were also noted. In cases of rupture uterus, involvement of uterine vessel, ligaments, bladder involvement were also looked for. Maternal and foetal outcomes in terms of morbidity and mortality were noted.

**Results:** Obstetric hysterectomy was associated with caesarean delivery in 83 (79.04%), then with normal vaginal delivery in 22 (20.95%). Most common risk factor for rupture uterus was previous LSCS in 101 (37.94%). followed by Grand multiparty in 39 (18.5%), placenta previa in 28 (14.35%) and obstructed labour in 24 (12.30%). Rupture uterus was the common indication, in 68 (34.9%) morbidly adherent placenta was indication followed by PPH in 24 (12.3%) and Ruptured Secondary Abdominal Pregnancy > 28 weeks in 1 patient. Most common cause of maternal mortality was hemorrhagic shock in 20 cases (10.3%) followed by MODS in 2 (7.7%) cases.

**Conclusion:** In order to lower the rate of caesarean sections, institutions must monitor and reevaluate the indication for the procedure. A skilled obstetrician, paediatrician, or anaesthetist should be involved from the beginning of the procedure because of the intricacy of the surgery and the potential for life-threatening complications. In order to lower the frequency of life-threatening obstetric haemorrhage and uterine rupture, family welfare and reproductive health policies in underdeveloped countries must be implemented more effectively.

**Keywords:** Emergency Obstetric hysterectomy (EOH), The World Health Organization (WHO), Morbidly Adherent Placenta (MAP).

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## Introduction

Emergency Obstetric hysterectomy (EOH) is the surgical removal of the uterus at any time between labour and six weeks following birth, is a crucial and life-saving treatment in a variety of obstetric disorders. [1] EOH is rightly categorised as a near-miss event. A near miss event is defined as women who nearly died but survived a complication that occurred during pregnancy, childbirth, or within 42 days of termination of pregnancy. When conservative measures are unsuccessful in helping patients achieve haemostasis, an obstetric hysterectomy is typically performed. [2]

The World Health Organization (WHO) reports that 810 women die per day from pregnancy- and childbirth-related avoidable causes. [3] The frequency of EOH in contemporary obstetrics ranges from 0.24 to 5.09 per 1000 deliveries. [4] After vaginal delivery, the rate of obstetric hysterectomy is 1:30000, after a caesarean section, 1:1700, and after two or more caesarean sections, 1:220. [5]

The availability and awareness of prenatal care, the availability of conventional obstetric services, and the success of family planning in various regions of the world all influence the occurrence of obstetric hysterectomy. Due to poverty, social norms for women, and a lack of basic obstetric facilities, the incidence is expected to be high in developing nations like our own. [6] Haemorrhage, uterine atony, prolonged obstetric labour, injudicious use of oxytocin, trauma from instrumentation and rupture uterus are the most typical indications of EOH. To effectively control and manage obstetric haemorrhage, community-based use of oxytocin, misoprostol, condom catheter balloon, non-inflatable anti-shock garments, B lynch sutures, uterine artery and internal iliac artery ligation, which are referred as conservative medical and surgical method, has been used widely. Also, innovation in

interventional radiology made uterine artery embolization a viable alternative. These all measures resulted in change of trends in the indications of obstetric hysterectomy.

Recently, morbidly adherent placenta (MAP) has been identified as a prominent indicator of obstetric hysterectomy, which may be related to the global increase in caesarean sections. [7] MAP comprises placenta accreta, increta, and percreta. [8] A previous caesarean section raises the risk of obstetrical hysterectomy because it can cause placenta previa, a morbidly attached placenta, and ruptured uterus. [9] Other reasons for obstetric hysterectomy in developing nations include the time it takes to move to tertiary care institutions, the lack of one-on-one care in the labour room, certain religious and cultural beliefs, inadequate antenatal care, poverty, and a lack of medical equipment. [8] It's a difficult decision to perform an obstetric hysterectomy on a young mother, due to its potential effect on future child bearing. A quick choice, though, might mean the difference between life and death. [10,11,12] When an emergency obstetric hysterectomy is performed, a number of medical problems are reported, including anaesthesia and surgery-related complications with injuries to nearby viscera like the urinary bladder, ureter, and intestine that result in loss of fertility, the need for blood transfusions, the possibility of sepsis, and many cases that necessitate further investigation and even result in death. [13]

Most women who successfully go through surgery unfortunately experience long-term physical, psychological, and social morbidity. Following obstetric hysterectomy, chronic pelvic discomfort, dyspareunia, and generalized weakness are common physical concerns among women. Also, psychological sequelae are long lasting such as, PTSD, depression,

insomnia, personality disorders along with interpersonal and financial issues in society. [11,12,13]

### Materials and Methods

**Study Design:** Retrospective observational study

**Study Site:** Department of Obstetrics and Gynaecology, Sultania Zanana Hospital & Gandhi Medical College, Bhopal.

**Study Duration:** January 2021 to June 2022

**Study Population:** Women who underwent obstetric hysterectomy between 2011-2020 at Department of Obstetrics and Gynaecology, Sultania Zanana Hospital & Gandhi Medical College, Bhopal will be included with consideration of inclusion and exclusion criteria.

**Sample Size and technique:** All the case record files of women who underwent obstetric hysterectomy at SZH between 2011- 2020 were studied in detail.

**Inclusion Criteria:** Records of patient who underwent obstetric hysterectomy between 2011- 2020 at Department of Obstetrics and Gynaecology, Sultania Zanana Hospital & Gandhi Medical College, Bhopal

**Exclusion Criteria:** Women undergoing hysterectomy after 6 weeks of postpartum.

### Method of Data Collection:

- Permission from the institutional ethics committee and university clearance was obtained.
- After getting ethical clearance record of the patients were obtained.
- The study subjects who underwent obstetric hysterectomy between 2011-2020 at Department of Obstetrics and Gynaecology, Sultania Zanana

Hospital & Gandhi Medical College, Bhopal were included in this study.

- Each case record files were studied in detail for demographic, clinical characteristics, operation notes, intraoperative and post-operative findings to find out various independent risk factors associated with obstetric hysterectomy.
- Detailed history and examination findings from the case sheet were noted.
- If it was a referral case, place and facility referred from time delay, mode of transport and why patient was brought to this facility were thoroughly noted.
- In PPH cases undergoing hysterectomy it was noted what medical and surgical measures were carried out prior to landing into Obstetric Hysterectomy.
- Intraoperative findings and details of conservative measures noted.
- Type of hysterectomy done was also noted.
- Post-operative findings were also noted. In cases of rupture uterus, involvement of uterine vessel, ligaments, bladder involvement were also looked for.
- Maternal and foetal outcomes in terms of morbidity and mortality were noted.

**Ethical Clearance:** Ethical clearance for the study was obtained from Institutional Ethics Committee. After obtaining ethical clearance records of the patients were assessed and included after applying inclusion criteria.

### Observation Chart

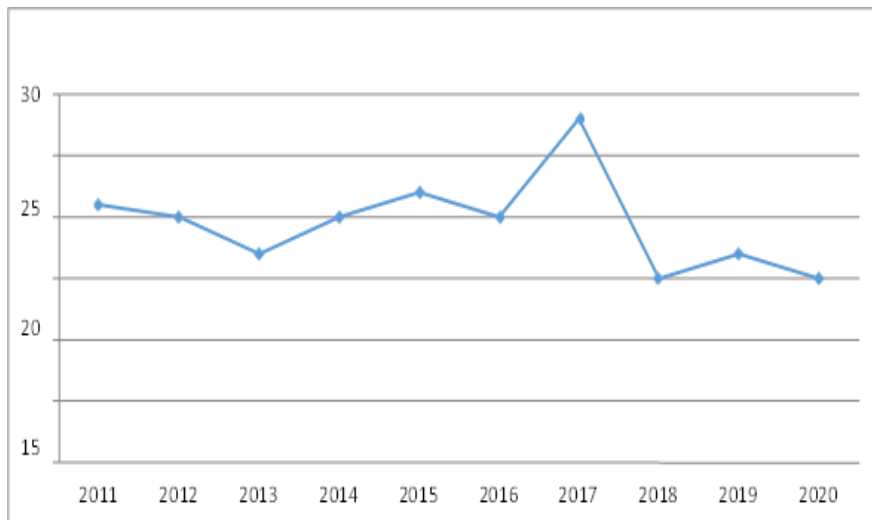


Figure 1: Year wise distribution of frequency of obstetric hysterectomy

Table 1: Distribution according to common risk factor for Obstetric hysterectomy

High Risk factor for Obstetric hysterectomy	Frequency n=195	Percent 100%
Previous LSCS	101	37.94%
Grandmultiparity	39	18.50%
Placenta Previa	28	14.35%
Obstructed labour	24	12.30%
Abruption	23	11.79%
Malpresentation	16	08.20%
History of D&C	06	3.07%
Twins/ Polyhydraminos	02	1.00%

Table 2: Distribution according to indications of obstetric hysterectomy

Indication of OH	Frequency n=195	Percentage 100%
Ruptured Uterus	102	52.3%
Morbidly Adherent Placenta	68	34.9%
PPH	24	12.3%
Ruptured Secondary Abdominal Pregnancy > 28 weeks	1	0.5%
Total	195	100.0%

Table 3: Changing trends of indications of obstetric hysterectomy

Indications of Obstetric hysterectomy	Years										chi square	p-value
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Ruptured Uterus Morbidly	16	14	11	12	8	13	14	7	3	4	39.579	0.05
Adherent Placenta	5	3	5	5	9	4	12	6	12	7		
PPH	0	3	1	3	4	3	2	2	2	4		
Secondary Abdominal pregnancy	0	0	0	0	1	0	0	0	0	0		

**Table 4: Distribution of maternal outcome**

Maternal complications	Frequency n=195	Percentage 100%
Blood product requirement	195	100.0%
Febrile Illness	61	31.28%
Urinary Tract Infection	23	11.79%
Wound Infection	22	11.28%
Burst Abdomen	5	2.56%
VesicoVaginal fistula	1	0.51%
Coagulopathy	3	1.54%
Endotoxic shock	3	1.54%
Death	26	13.33%

**Table 5: Distribution according to Cause of maternal death**

Cause of Maternal death	Frequency n=26	Percentage 100%
Haemorrhagic Shock	20	76.9%
MODS	2	7.7%
DIC	1	3.8%
Septicemia	1	3.8%
Pulmonary Oedema	1	3.8%
Acute Renal Failure	1	3.8%

## Results

- In the period of study, there were 115888 deliveries, among them 195 Obstetric Hysterectomy were performed which gives the incidence of 1.6 per 1000 deliveries or 0.16%. In present study 87 (44.6%) of the cases were in age group of 26-30 years followed by 46 (23.6%) cases in age group of 21-25 years
- Majority of the study participants were urban residents, 129 (66.2%) and 66 (33.8%) were rural residents. In present study, 131 (67.2%) of cases were unbooked, 19 (9.74%) were booked at Department of Obstetrics and Gynaecology and SZH Bhopal and 45 (23.07%) were booked elsewhere. In present study, majority of the study participants i.e. 141 (72.3%) who underwent OH were referred
- In present study, 151 cases (77.4%) were multigravida and 39 (20%) were grand multipara. Only 5 (2.6%) were primigravida. In present study, majority of the study participants had previous LSCS accounting for 101 cases (51.79%). In present study, Majority of

the study participants had term delivery i.e. 132 (67.7%) and 63 (32.3%) had pre-term delivery.

- In our study, we found that Obstetric hysterectomy was more frequently associated with caesarean delivery in 83 (79.04%), than with normal vaginal delivery in 22 (20.95%). In present study, Most common risk factor for rupture uterus was previous LSCS in 101 (37.94%). followed by Grand multiparty in 39 (18.5%), placenta previa in 28 (14.35%) and obstructed labour in 24 (12.30%).
- In present study in 102 (52.3%) rupture uterus was the common indication, in 68 (34.9%) morbidly adherent placenta was indication followed by PPH in 24 (12.3%) and Ruptured Secondary Abdominal Pregnancy > 28 weeks in 1 patient. Also in present study we observed change in trends regarding indications for OH. Rupture uterus as an indication of Obstetric hysterectomy is reducing gradually whereas, we can observe that the cause for Obstetric hysterectomy as abnormal placentation with morbidly adherent placenta are

increasing steadily.

- In present study, most common additional surgery was repair of bladder tear in 19 cases (86.3%) Followed by Repair of bowel injury in 2 cases (9.09%) and ureteric stenting in 1 case (4.54%) only. Most common complication observed was febrile illness in 61 patients (31.3%) followed by urinary tract infection in 23 cases (11.8%) and wound infection in 22 cases (11.28%). In our study, 26/195 i.e. 13.33% of the study participants died. Most common cause of maternal mortality in present study was hemorrhagic shock in 20 cases (10.3%) followed by MODS in 2 (7.7%) cases.

### Statistical Analysis:

Data was collected and entered simultaneously in statistical package for social sciences (SPSS) version 23 and coded appropriately. The data was analysed keeping in view the aim and objectives of the study. Descriptive statistics were calculated to summarize the sample characteristics in terms of frequency and percentage. Graphs and Charts were made. Analytical and inferential analysis was done. Significant was set at standard 0.05.

### Discussion

Present study was a hospital based retrospective study titled "To evaluate changing trends and outcomes of obstetric hysterectomy over last decade" The study subjects who underwent obstetric hysterectomy between 2011-2020 at Department of Obstetrics and Gynaecology, Sultania Zanana Hospital & Gandhi Medical College, Bhopal were included in this study. Key findings of the study are discussed below- Despite the prevalence of easy-to-use contraception, early pregnancy termination options, and the global trend toward smaller families, the number of caesarean sections has been steadily rising. This is partly due to patient preferences and medicolegal consequences on the medical fraternity. It is also a less

painful and risky option to labour thanks to developments in anesthetic, blood bank facilities, and critical care support. [14,15] This has led to an increase in atonic postpartum haemorrhage cases in addition to problems such improper placentation and uterine rupture. Due to this, obstetric hysterectomy after LSCS has gained more significance in contemporary obstetric practice. Difference in the incidence of obstetric hysterectomy in our study and other studies can be explained by factors including the availability of expertise and resources accessibility, advancements in medical research, variations in obstetric practise across different countries, states, population, and socioeconomic and demographic characteristics. [16,17]

**Socio-demographic characteristics Age group-**In present study 87 (44.6%) of the cases were in age group of 26-30 years followed by 46 (23.6%) cases in age group of 21-25 years. [18]

Mean age of the study participants was 27.2±5.5 years. As early marriages are still common in India, most women with pregnancy were seen in this age group. In accordance with our findings, Dani A et al in their study done in 2019 reported that 9 out of 13 cases were in the age group of 26-30 years, youngest women was 20 year old, oldest woman was 32 year old and mean age at presentation was 26.3 years. Similarly in a study done by Sahu et al did a study in 2019 and authors reported that 25/55 (45.5%) of the cases were in the age group of 25-30 years with mean age of 27.1 years. [19]

**Residence:** Majority of the study participants were urban residents, 129 (66.2%) and 66 (33.8%) were rural residents. In contrast to our findings, Sahu et al did a study in 2019 and authors reported that majority of the cases were from rural population (39/55, 71%) and rest were from urban population (16/55) i.e.(29%). Due to their poor socioeconomic condition, the vast majority of people in

rural areas lack access to private transportation and heavily rely on the publicly funded, government-owned ambulance services. After a traumatic home delivery, obstetric complications like uterine atony or rupture may occur, which would inevitably increase the rate of obstetric hysterectomy if the women made it to the hospital alive. These delays are caused by these overworked ambulance services when transporting women with obstetric problems during emergency situations. [20]

**Booking status:** In present study, 131 (67.2%) of cases were unbooked, 19 (9.74%) were booked at Department of Obstetrics and Gynaecology and SZH Gandhi medical college Bhopal and 45 (23.07%) were booked elsewhere. This clearly indicates towards lower awareness; majority of patients did not have regular antenatal check-ups and OPD Visits. Niharika et al and Dogra et al in their study done in 2019 also reported that 24 cases were not booked (70.58%) and 10 booked for delivery. Also, most of the cases from rural areas 74% compared to urban area 26% suggesting poor antenatal care in rural areas. [21]

**Referral status:** In present study, majority of the study participants i.e., 141 (72.3%) who underwent OH were referred. Sahu et al, 2019 in their study also reported that majority of the cases who underwent hysterectomy were referral cases (46 cases, 83.6%). Also author highlighted that delayed referral cases were the maximum in this group (35 cases, 63.6% of all cases). In contrast to our findings, Garg et al, 2018 in their study reported that 20 patients (69%) came directly to our hospital and only 9 were referred case.

**Parity:** As the number of caesarean sections is increasing, the number of scarred uteri is also increasing. This exposes the gravid women to increasing morbidity from uterine rupture, placenta previa and accrete, thus increasing the

incidence of obstetric hysterectomy. Also, malpresentation and obstructed labour is more common in multiparous women the possible reason might be the weakening of grand multipara uterus and hence unable to cope up the stress of induction - augmentation in case of prolonged obstructed labour with tetanic uterine contraction and trial of labor, subsequently resulting in rupture of uterus. Similar results were reported by Dani A et al in their study done in 2019, 2 cases i.e., 15.3% of primiparous women underwent obstetric hysterectomy for atonic PPH. Majority of cases in multiparous group i.e., 11 cases (84.6%). Sahu et al in their study done in 2019, also reported that multiparity was seen in most of the cases who underwent hysterectomy (42 cases, 76.4%).

Hota et al in their study done in 2019 also reported that 89% of the study participants were multiparous.

**Previous history of mode of delivery:** A very important observation was the prominent association of prior caesarean delivery with the major indications of OH. The association between the incidences of peripartum hysterectomy with a history of previous caesarean is mainly because of the occurrence of morbidly adherent placenta. Dogra et al in their study done in 2022, observed that (66/100 cases) 66% of patients had a history of either one or two previous caesarean sections. The dangerous combination of caesarean hysterectomy, previous caesarean sections, and placenta previa was also reported. (61) Munir et al (44) in their study done in 2018, reported that (18/26 cases) 69% of the study participants had history of previous LSCS, among those majority had undergone 2 LSCS.

**Gestational age at delivery:** In present study, Majority of the study participants had term delivery i.e. 132 (67.7%) and 63 (32.3%) had pre-term delivery. Gestational age may be an important and underappreciated risk factor for postpartum

haemorrhage thus resulting in OH. Similar results were reported by Dani A et al, 2019 where 11 out of 13 cases, 84% were term deliveries and 2 out of 13 cases, 15% were preterm. Munir et al in their study done in the year 2018 reported that 18/26 cases, 70% of the study participants had delivery after 34 weeks and 8/26 cases, 30% had delivery before 34 weeks.

**Mode of delivery:** In our study, we found that obstetric hysterectomy was more frequently associated with caesarean delivery in 83 (79.04%), than with normal vaginal delivery in 22 (20.95%). This is partly due to patient preferences and also it is also a less painful and risky option to labour. Increasing public awareness of the long-term morbidity associated to caesarean sections will help decrease "section on demand" requests and ultimately save many women's lives. In their study, Sahu et al and Dani et al in the study done in 2019 found that although caesarean sections and vaginal deliveries were approximately equally common during deliveries at tertiary care facilities, more cases of hysterectomy were among study participants having caesarean sections.

**Risk Factors associated with Obstetric Hysterectomy:** Common risk factors for peripartum hysterectomy include uterine atony, placentation, retained products of conception, multiparty, multifetal gestation, macrosomia, precipitate or prolonged labour, maternal obesity, and coagulopathies. In present study, most common risk factor for rupture uterus was previous LSCS in 101 (37.94%). followed by Grand multiparty Niharika et al in their study done in 2019 reported that previous caesarean section in 12 cases of obstetric hysterectomy giving the percentage of 35.29%. Other risk factor found are severe pre-eclampsia (8/34 cases, 23.52%) leading to DIC (5/34 cases, 14.7%), abruptio placenta (6/34 cases, 17.64%) and HELLP (1/34 cases, 2.94%) leading to obstetric hysterectomy. Anaemia (7/34 cases, 20.58%) is the major contributory factor

further adding to maternal morbidity and mortality. Grand multi para (3/34 cases, 8.8%) and multi fetal gestation (1/34 cases, 2.94%) also contributed to risk factors for obstetric hysterectomy.

**Indication of obstetric hysterectomy:** In present study in 102 (52.3%) rupture uterus was the common indication, in 68 (34.9%) morbidly adherent placenta was indication followed by PPH in 24 (12.3%) and Ruptured Secondary Abdominal Pregnancy > 28 weeks in 1 patient. Like our findings, Dani A et al, 2019 reported that most common indication for EOH was placenta previa (7/22 cases, 53.8%), followed by atonic uterus in (6/22 cases, 46%), placenta previa with accreta in (5/22 cases, 38%) and sepsis with scar rupture in 4/22 cases, 30%. 7 (53.8%) out of 13 cases of obstetric hysterectomy had placenta previa of which 5 had morbidly adherent placenta. All these cases had previous LSCS as a risk factor. Hota et al in their study also reported that uterine rupture was the most common indication followed by Atonic PPH and morbidly adherent placenta.

**Changing trends in indications:** Because of improved antenatal and intranatal care, the incidence of ruptured uterus caused by reckless administration of oxytocin referred from the periphery has significantly decreased. The quality of maternity care has been improved by a few government initiatives, including the provision of skilled birth attendant training, basic emergency obstetric care training, and comprehensive emergency obstetric care training to medical officers and staff nurses working in the periphery. Contrarily, rising caesarean section rates have increased patients' risk of scar dehiscence during labour and abnormal placentation, which is why emergency hysterectomies are being performed on these individuals. Sahu et al in their study reported that there was total 55 cases of EPH, out of which 16 cases were due to uterine atony, 16 cases were due to uterine rupture, 10 cases were due to



scar rupture, 4 cases due to abruption, 4 cases of placenta percreta, 4 cases of placenta previa, blunt trauma 1 case. Dogra et al in their study reported that abnormal placentation (24/50 cases, 48%) causes were the most common indication of OH followed atonic PPH (16/50 cases, 32%), uterine rupture (9/50 cases, 18%) and uterine sepsis (1/50 cases, 2%). Also, grand multiparity was the most common risk factor associated with rupture uterus.

**Types of Obstetric hysterectomy performed:** In present study, total hysterectomy was performed in 189 (96.9%) of the study participants. In 06 (3.1%) of the study participants subtotal hysterectomy was done. 6 participants in which subtotal hysterectomy was done, one was for ruptured secondary abdominal pregnancy and remaining 5 cases were of rupture uterus. Rajoriya et al in their study in 2020 also reported that out of 20 cases Only 10% of cases underwent total hysterectomy in our study. In the remaining 90% sub-total hysterectomy was performed. Hota et al, 2019 in their study reported that majority of the study participants had undergone sub-total hysterectomy, only 10.5% were total hysterectomy. Hota et al in their study done in 2019 reported that bilateral uterine and ovarian artery ligation was performed in 26.3%. B-Lynch sutures were applied in 21%.

**Maternal complications:** Most common complication observed was febrile illness in 61 patients (31.3%) followed by urinary tract infection in 23 cases (11.8%) and wound infection in 22 cases (11.28%). 1 (0.51%) patient developed VVF after 10 days of surgery. Niharika et al in their study done in 2019 reported that out of 34 cases most common complication was febrile morbidity affecting 12 patients (35.29%) followed by coagulopathy in 10 cases (29.40%). In accordance with our findings Dogra et al in their study reported that out of 50 cases wound sepsis occurred in 6 patients (12%), post-operative fever

occurred in 4 (8%) patients, ileus in 5 (10%). Shivade et al in their study reported that most common sequel was intravascular coagulation (45%).

**Maternal mortality:** Most common cause of maternal mortality in present study was haemorrhagic shock in 20 cases (10.3%) followed by MODS in 2 (7.7%) cases. In a study conducted by Dogra et al, four maternal deaths out of 50 were observed giving a mortality rate of 8%. All the maternal deaths were in unbooked or referred patients who were brought in a haemodynamically unstable condition with varying degrees of shock. Munir et al reported that There were 3 out of 26 (11.5%) maternal deaths. These deaths were due to severity of the problem for which hysterectomy was indicated rather than the procedure itself

### Conclusion

In order to lower the rate of caesarean sections, institutions must monitor and reevaluate the indication for the procedure. A skilled obstetrician, paediatrician, or anaesthetist should be involved from the beginning of the procedure because of the intricacy of the surgery and the potential for life-threatening complications. In order to lower the frequency of life-threatening obstetric haemorrhage and uterine rupture, family welfare and reproductive health policies in underdeveloped countries must be implemented more effectively.

### Declarations:

**Funding:** None, **Availability of data and material:** Code availability: Not applicable **Consent to participate:** Consent taken **Ethical Consideration:** There are no ethical conflicts related to this study. **Consent for publication:** Consent taken

**What This Study Add to Existing Knowledge:** It is important to estimate national incidence rates and trends for obstetric hysterectomy to inform obstetric practice and to assess risks and

complications of pregnancy. Resources needed to manage these women go much beyond the price of surgery. Lessons from this study are useful in updating the current clinical protocol for the emergency management of severe obstetric problems because medical practice is always evolving and new discoveries are brought to light. Additionally, when such risk factors are discovered, caesarean deliveries should only be carried out when absolutely required, in suitable clinical conditions, and by qualified surgeons.

Therefore, the purpose of our study was to know the change in trends in form of incidence, indications, risk factors and the maternal complications over 10 years among patients undergoing emergency obstetric hysterectomies at our tertiary level hospital which mainly caters to the rural and urban population.

### Limitations and Scope

We are not able to elicit complete data and establish the cause-and-effect relationship due to long time duration of 10 years. However, the current study is important because there is a scarcity of information on the same topic in this part of the country, it may serve as the basis for further research. Further multicenter studies with a longitudinal component will assist in understanding the problem and, eventually, aid in avoiding problems in the future.

### References

1. PS W. National maternal death response and surveillance. *Ceylon Med J*. 2019; 62:1–3.
2. Nagargoje N, Yadav B, Sarasjothi M. Emergency obstetric hysterectomies in a tertiary care centre of rural India. 2020;4(1):298–301.
3. Maternal mortality WHO [Internet]. 2019; Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>.
4. Kamble SN, JY. Obstetric hysterectomy: a retrospective study. *Int J Rep Cont Obs Gynecol*. 2021; 10:4522–6.
5. Jain M, Dave D. Original Research Article A prospective study of indications and maternal outcome in case of emergency obstetric hysterectomy in a tertiary care hospital of Gujarat, India. 2019;8(3):912–5.
6. Rajoriya DM, Agarwal DS, Tiwari DD. Emergency obstetric hysterectomy: A retrospective study in a tertiary care centre in India over a period of one year. *Int J Clin Obstet Gynaecol*. 2020;4(5):83–6.
7. Behera R, Rath B. Emergency obstetric hysterectomy: a two-year observational study at tertiary care center in Berhampur, Odisha, India. *Int J Reprod Contraception, Obstet Gynecol*. 2019;8(12):4695.
8. Awale RB, Isaacs R, Mandrelle K, Singh S. Histopathological examination of emergency obstetric hysterectomy specimens. *Int J Reprod Contraception, Obstet Gynecol*. 2019;8(10):3889.
9. Shivade, Vaishnavi Sanjay et al. “Emergency obstetric hysterectomy: a retrospective study in a tertiary care center.” *International Journal of Reprod Contraception, Obstet Gynecol*. 2019;8(6):2368+.
10. Dani A, Sabnis HB, Patil S, Gulati D. Emergency obstetric hysterectomy: A study from a tertiary teaching hospital. *MedPulse Int J Gynaecol*. 2020;13(2):43–7.
11. Hota J. Emergency Obstetric Hysterectomy: a Retrospective Study in Bbmch Balangir, Over One Year. *Int J Adv Res*. 2019;7(2):306–10.
12. Sah, Shanti and SG. Obstetric hysterectomy: a surgical emergency 3 years review in a tertiary care centre. *Int J Reprod Contraception, Obstet Gynecol*. 2021;10(8):2999.
13. B-Lynch C, Coker A, Lawal AH, et al. The B-Lynch surgical technique for the control of massive postpartum haemorrhage: an alternative to

- hysterectomy? Five cases reported. *Br J Obstet Gynaecol.* 1997 ;104:372- 375]... )
14. Hayman RG, Arulkumaran S, Steer PJ. Uterine compression sutures: surgical management of postpartum hemorrhage. *Obstet Gynecol.* 2002;99:502-506]
  15. Senthiles L, Gromez A , Clavier E Resch B , Verspyck E ML. Fertility and pregnancy following pelvic arterial embolisation for postpartum haemorrhage. *Br J Obs Gynecol.* 2002;117(1):84–93. 37.
  16. Eshkoli T, Weintraub AY SR et al. Placenta accrete: risk factors, perinatal outcomes and consequences for subsequent births. *Am J Obstet Gynecol.* 2013;208(219):1–7.
  17. Timor - Tritsch IE MA et al. Cesarean scar pregnancy is a precursor of morbidly adherent placenta. *Ultrasound Obs Gynecol.* 2014; 44:346–53.
  18. Munir SI, Iqbal R, Humayun S, Chaudhary S. Indications and Complications of Obstetric Hysterectomy in a Tertiary Care Hospital of Lahore. *Ann King Edward Med Univ.* 2018;24(S):831–5.
  19. Sahu DB, Satapathy DR. A study on incidence and risk factors for caesarean hysterectomies and post vaginal emergency hysterectomies in tertiary care hospital: A prospective study. *Int J Clin Obstet Gynaecol.* 2019;3(4):43–51.
  20. Ahirwar N, Wadhvani R. Analysis of obstetrics hysterectomy in tertiary care centre. *Int J Reprod Contraception, Obstet Gynecol.* 2018;7(6):2192.
  21. Dogra DA, Sharma DS, Sunita Atri D, Kumar DV. Analysis of Indications and outcome of emergency obstetric hysterectomy. *Int J Clin Obstet Gynaecol.* 2022;6(1):05–9. Pratibha G. A retrospective study of obstetric hysterectomy in a tertiary care hospital. *J Med Sci Clin Res.* 2018; 06 (05):1027–31
  22. Chakdoufi S., Moumen A., & Guerboub A. Dyslipidemia and Diabetic Retinopathy in Moroccans Type 2 Diabetics Patients: A Cross-Sectional Study. *Journal of Medical Research and Health Sciences,* 2023; 6(3): 2471–2479.