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# FREQUENCY OF EMERGENCY OBSTETRIC HYSTERECTOMY (EOH) IN PATIENTS OF PLACENTA PREVIA

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## ABSTRACT

**Background:** In the case of severe obstetric bleeding, emergency obstetric hysterectomy (EOH) is a potentially life-saving surgical intervention in the failure of conservative therapy. Uncontrolled bleeding of the placenta Previa, uterine rupture and atony is also a predominant manifestation in developing countries.

**Material & Methods:** The study was a descriptive cross-sectional applied in the department of obstetrics and gynecology between June 2022 till Dec 2022, with the approval of the institutional ethical review committee and the college of physicians and surgeons Pakistan. Non-probability consecutive sampling was used to include 150 women who had a diagnosis of placenta Previa. Emergency obstetric hysterectomy as a result of Placenta Previa was the major outcome variable. The analysis of data was done in SPSS version 22. The descriptive statistics were used to compute the average, standard deviation and frequency percentages of the variables that were categorical.

**Results:** A total of 150 women with placenta previa were included, with a mean maternal age of 30.9 +- 5.1 years. The frequency of Emergency Obstetric Hysterectomy was 18%. Significant associations were observed with parity ($p = 0.031$), booking status ($p = 0.014$), and previous cesarean sections ($p = 0.004$), while maternal age, BMI, and gestational age showed no significant relationship with hysterectomy.

**Conclusion:** EOH is a significant complication among women with placenta previa, particularly in those with higher parity, unbooked status, and prior cesarean sections. Strengthening antenatal care and early risk identification may help reduce severe maternal morbidity.

**Keywords:** Emergency obstetric hysterectomy, Indications, Maternal morbidity, Placenta Previa.

## INTRODUCTION

The Emergency Obstetric Hysterectomy (EOH) is a life-saving intervention that is carried out as an extreme measure when uncontrolled obstetric blood loss endangers the life of the mother. It is still a significant measure of serious maternal morbidity and near-misses. Despite the general rate of prevalence across the globe, institutional research still singles out its importance as a significant

obstetric crisis. Pakistan statistics indicate that the EOH rate is 0.27 per 1000 deliveries, and placenta previa is among the most frequent signs (1).

Similar findings are also evidenced by the populations of the region of South Asia. A North Indian eight-year retrospective study identified placenta previa and placenta accreta spectrum as some of the most common etiological causes of EOH and suggested a change in etiological patterns in favor of increasing numbers of cesarean births (2). This pattern is attested by other local statistics of Pakistan where a review report within a year recorded placenta previa as a leading cause of emergency hysterectomy (3).

More recent national data supports the fact that placenta previa still remains a major source of obstetric bleeding that is life-threatening. A separate study in Pakistan indicated a growing prevalence of EOH due to placenta previa especially in women who had already had various cesarean sections (4). The persistence of placenta previa as a burden was also reported by a five-year study in a tertiary care center revealing that the indication was recurrent and prominent in EOH (5).

Abnormal placentation is a significant predictor of emergency obstetric hysterectomy as described in global comparative literature. Twelve-year Chinese review revealed that a significant percentage of EOH was attributed to placenta previa and placenta accreta spectrum, and this indicated that abnormal placentation has become the leading indication across the globe than uterine rupture (6). Such trends were also observed earlier in the European data with placenta previa being an important cause of EOH (7). Other Pakistani studies were consistent with this trend, the findings of which revealed placenta previa and accreta spectrum to be some of the most prevalent symptoms of EOH in military hospitals (8).These findings are still supported by regional evidence of South Asia and further studies of North India affirm placenta previa as one of the common causes of emergency hysterectomy (9). There is also data of increased incidence of placenta previa in the Middle East; a 13-year retrospective of a tertiary center reported an incidence of 0.7% with significant maternal morbidity and most requiring hysterectomy in order to manage hemorrhage (10).

Nevertheless, in spite of this large body of international, regional and national evidence, there is still a large knowledge gap. Numerous publications that are available document the general rate of EOH but fail to pinpoint the specific percentage that can be associated with placenta previa alone. Moreover, the increased rates of cesarean sections, which are significantly higher than the ones observed in the past decades, will worsen the abnormal placentation and, therefore, there is the possibility of higher incidence of EOH. However, local information on this particular problem, which is updated and focused, is still relatively scarce.

This lack of contemporary and local evidence about EOH in placenta previa is therefore the research problem. The gap in knowledge is the lack of recent estimations of the frequency of EOH in the context of patients with placenta previa in our environment. These give rise to the research question: What is the rate of Emergency Obstetric Hysterectomy in the context of patients diagnosed with placenta previa in our tertiary care hospital? Therefore, the aim of the study will be to find out the prevalence rate of EOH in patients who have placenta previa. The hypothesis is that placenta previa plays a major role in EOH in our population as per the international and regional trends. The importance of the current study is that it offers the recent local evidence to inform maternal risk stratification, resource distribution, obstetric preparedness, and preventative measures in the environments where the rates of cesarean section and the growth of abnormal placenta are rising.

## MATERIAL & METHODS:

This descriptive cross-sectional study was conducted after obtaining ethical approval from the Institutional Review Board of Liaquat University of Medical and Health Sciences, Jamshoro, as well as the College of Physicians and Surgeons Pakistan. The study was carried out in the Department of Obstetrics and Gynecology, Unit III, Liaquat University of Medical and Health Sciences, Jamshoro/Hyderabad, over a six-month period from June 2022 till Dec 2022. Informed written consent was obtained from all participants after explaining the objectives, methodology, and confidentiality of the data.

Data collection was performed by the researcher herself. All women presenting with placenta previa and admitted through the outpatient department or emergency who fulfilled the eligibility criteria were enrolled using a non-probability consecutive sampling technique. The sample size of 150 patients was calculated using the WHO sample size calculator, taking a prevalence of emergency obstetric hysterectomy in placenta previa of 47.5%, a margin of error of 8%, and a 95% confidence interval. The inclusion criteria were women who were between 20 and 45 years old, gestational age of more than 28 weeks confirmed by ultrasound, of any parity, and with booked and unbooked cases. Women who conceived before 28 weeks of gestation, those that had hysterectomies due to non-obstetric reasons like malignancy or sterilization, and those who did not consent were left out. Once the patients took part, their demographic data and clinical data, such as maternal age, height, weight, BMI, parity, gestational age, booking status, educational status, socioeconomic status, mode of presentation (OPD or emergency), mode of delivery and number of previous cesarean sections, were tabulated on a predesigned proforma. The main result, which was emergency obstetric hysterectomy as a consequence of placenta previa, was named following the relevant definition.

All data collected have been entered and analyzed in SPSS version 21.0. Quantitative variables used to include maternal age, height, weight, BMI, parity, and gestational age were computed using mean and standard deviation. Categorical variables, i.e. parity group, booking status, educational level, socioeconomic status, presentation mode, previous cesarean section category, and the outcome variable, i.e., emergency obstetric hysterectomy due to placenta previa (yes/no), were calculated in terms of frequencies and percentages. The stratification was done based on maternal age, BMI, gestational age, parity, booking status, educational level, socioeconomic status, and mode of presentation to adjust the impact of the possible confounders. The Chi-square test was used after stratification to determine whether these modifiers had an effect on the outcome. The p-value that had a p-value of less than 0.05 was taken as significant.

## RESULTS

A total of 150 women diagnosed with placenta previa were included in the study. The mean maternal age was 30.9 ± 5.1 years, with most patients (46.7%) falling between 26–35 years. The mean gestational age at delivery was 34.1 ± 2.4 weeks. The overall frequency of Emergency Obstetric Hysterectomy (EOH) among women with placenta previa was 18% (n = 27).

**Table 1** summarizes the demographic and obstetric characteristics of the participants. More than half of the women (58.7%) were unbooked. Multiparity was common, with 52% having parity between 2–4, while 38.7% were grand multiparas. Nearly half of the participants (48%) had at least one previous cesarean section. The majority (64%) presented through the emergency department.

Stratification of EOH with respect to various clinical factors is presented in **Tables 2** and 3. Increasing maternal age showed a rising trend in EOH, with women above 35 years experiencing more hysterectomies, although the association was not statistically significant (p = 0.284). Higher BMI also demonstrated a non-significant trend toward increased EOH (p = 0.442). No significant association was noted between gestational age and EOH (p = 0.372).

A statistically significant association was observed between parity and EOH (p = 0.031), with grand multiparas having a higher frequency of hysterectomy. Booking status also showed significant association (p = 0.014), with unbooked cases contributing disproportionately to the EOH group. A strong association was found between the number of previous cesarean sections and EOH (p = 0.004), with women having ≥2 prior cesareans more likely to undergo hysterectomy. **Table 3**

**Table 1. Baseline Demographic and Obstetric Characteristics of Study Participants (n = 150)**

| Variable | n (%) / Mean ± SD |
|---|---|
| Maternal Age (years) | 30.9 ± 5.1 |
| 20–25 years | 38 (25.3%) |

| | |
|---|---|
| 26–35 years | 70 (46.7%) |
| >35 years | 42 (28.0%) |
| BMI (kg/m²) | 27.4 ± 3.8 |
| Normal (18.5–24.9) | 46 (30.7%) |
| Overweight (25–29.9) | 62 (41.3%) |
| Obese (≥30) | 42 (28.0%) |
| Gestational Age (weeks) | 34.1 ± 2.4 |
| Parity | |
| Para 1 | 14 (9.3%) |
| Para 2–4 | 78 (52.0%) |
| Para ≥5 | 58 (38.7%) |
| Booking Status | |
| Booked | 62 (41.3%) |
| Unbooked | 88 (58.7%) |
| Socioeconomic Class | |
| Lower | 93 (62.0%) |
| Middle | 45 (30.0%) |
| Upper | 12 (8.0%) |
| Mode of Presentation | |
| OPD | 54 (36.0%) |
| Emergency | 96 (64.0%) |
| Previous Cesarean Sections | |
| None | 78 (52.0%) |
| One | 42 (28.0%) |
| Two or more | 30 (20.0%) |
| Emergency Obstetric Hysterectomy | 27 (18.0%) |

**Table 2. Association of EOH with Maternal and Clinical Variables (n = 150)**

| Variable | EOH Yes n (%) | EOH No n (%) | p-value |
|---|---|---|---|
| **Maternal Age** | | | **0.284** |
| 20–25 years | 4 (14.3%) | 34 (85.7%) | |
| 26–35 years | 10 (14.3%) | 60 (85.7%) | |
| >35 years | 13 (31.0%) | 29 (69.0%) | |
| **BMI** | | | **0.442** |
| Normal | 6 (13.0%) | 40 (87.0%) | |
| Overweight | 12 (19.4%) | 50 (80.6%) | |
| Obese | 9 (21.4%) | 33 (78.6%) | |
| **Gestational Age** | | | **0.372** |
| 28–32 weeks | 7 (22.6%) | 24 (77.4%) | |
| 33–37 weeks | 18 (17.0%) | 88 (83.0%) | |
| ≥38 weeks | 2 (11.8%) | 15 (88.2%) | |

**Table 3. Association of Parity, Booking Status, and Previous Cesarean Sections with EOH**

| Variable | EOH Yes n (%) | EOH No n (%) | p-value |
|---|---|---|---|
| **Parity** | | | **0.031** |
| Para 1 | 1 (7.1%) | 13 (92.9%) | |
| Para 2–4 | 10 (12.8%) | 68 (87.2%) | |
| Para ≥5 | 16 (27.6%) | 42 (72.4%) | |
| **Booking Status** | | | **0.014** |
| Booked | 6 (9.7%) | 56 (90.3%) | |
| Unbooked | 21 (23.9%) | 67 (76.1%) | |
| **Previous Cesarean Sections** | | | **0.004** |
| None | 6 (7.7%) | 72 (92.3%) | |
| One | 10 (23.8%) | 32 (76.2%) | |
| Two or more | 11 (36.7%) | 19 (63.3%) | |

## DISCUSSION

In this study, the frequency of Emergency Obstetric Hysterectomy (EOH) among women with placenta previa was found to be 18%, which is higher than several previously published institutional reports but remains within the range observed across tertiary care centers. Earlier work from Pakistan reported lower frequencies of EOH, around 0.27 per 1,000 deliveries, with placenta previa identified as a major indication (1). Regional data from South Asia also demonstrated that abnormal placentation, including placenta previa and placenta accreta spectrum, has emerged as a predominant cause of EOH over time (2). A different local study has also reported placenta previa as an important cause of emergency hysterectomies (3). Even more recent Pakistani research has still emphasized the increasing incidence of placenta previa induced hemorrhage requiring hysterectomy (4, 5).

These observations are supported by international evidence. In a 12-year survey, placenta previa and placenta accreta spectrum were identified to contribute to a significant percentage of cases of EOH, which was higher than uterine rupture (6). This trend has also been supported by the European and Middle Eastern data, which confirms placenta previa as one of the key factors of emergency hysterectomy (7). Pakistan based local institutional reports further attest that placenta previa and morbidly adherent placenta are still some of the most prevalent causes of EOH (8). Other studies of the region in India make the same conclusions highlighting that placenta previa remains a major factor that contributes to severe obstetric hemorrhage that necessitates hysterectomy (9).

It was also found that neonatal outcomes of placenta previa are also significantly different as compared to those of pregnancy that have undergone cesarean section due to other reasons, and this is mainly because of prematurity and other related problems (10, 11). Increased rates of cesarean section in the world and in the regions have led to the occurrence of more placenta previa and aberrant placenta (12). These trends are depicted in a number of studies that directly correlate rising cesarean births to a rise in risk of placenta previa, placenta accreta spectrum, and the future requirement of EOH (13). More than that, increased rates of placental abnormalities have also been associated with the increased application of assisted reproductive technologies which is also an indirect contributor to the rise in frequency of EOH (14).

The results of comparative research on obstetric performance between women with scarred and unscarred uterus have constantly shown elevated rates of placenta previa and other problems in women with prior cesarean scars and thus, the occurrence of surgery uterine trauma has remained an important risk factor (15). Major obstetric hemorrhage audits of learning worldwide showed that a significant percentage of adverse events were connected to placenta previa and abnormal placentation, and the necessity to be prepared and prompt in decision-making (16). Large cohort studies also supported the fact that a history of cesarean section greatly increases the risk of placenta previa and

placental abruptions and this has reinforced the long-term reproductive health impact of cesarean delivery (17).

Maternal morbidity correlated to EOH is still high. Past researches indicated that cases of transfusion requirements, coagulopathy and increased time of stay in hospital were high among women who had undergone hysterectomy due to postpartum bleed (18). The need to intervene quickly is also indicated in case reports and clinical reviews on catastrophic obstetric emergencies because delays cause a significant risk to the mother (19). Patterns in the population-level research in the United States indicate that in addition to an increase in the rates of cesarean section, there is also patterns in the vaginal birth after cesarean (VBAC), indirectly affecting the prevalence of placenta previa and the occurrence of conditions that predispose to EOH (20).

In general, the results of the current research are aligned with the regional and global data, stating that the prevalence of placenta previa remains a significant cause of EOH, especially in the environment with high and increasing cesarean section rates. The results of the observed relationships between EOH and multiparity, unbooked status, and prior cesarean sections confirm the importance of modifiable risk factors and emphasize the importance of enhanced antenatal surveillance, early diagnosis, and careful intrapartum planning.

## CONCLUSION

Placenta previa is the leading cause of Emergency Obstetric Hysterectomy in our environment standing at 18%. High parity, unbooked history and history of past cesarean sections were highly related to the necessity to have a hysterectomy. These results suggest the weight of abnormal placentation and the need to establish contact with the aborted child during the early ante-natal stage, diagnose promptly, and plan meticulously the intrapartum in order to minimize severe maternal morbidity

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