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Original Research Article

One-Year Retrospective Analysis of Emergency Obstetric Hysterectomy: Insights from Sheth Lallubhai Gordhandas Municiapal General Hospital, Maninagar, Ahmedabad

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ABSTRACT

Background: The procedure known as Emergency Obstetric Hysterectomy (EOH) involves the removal of the uterus in response to life-threatening conditions during the postpartum period. While this intervention is crucial for saving lives, it is also linked to severe complications.

Material and Methods: This retrospective observational study was conducted at Sheth Lallubhai Gordhandas Municipal General Hospital in Maninagar, Ahmedabad, over one year, focusing on Emergency Obstetric Hysterectomy (EOH) cases. The study included cases with complete medical records and excluded those with incomplete documentation. Data variables included demographic details, indications for EOH, maternal outcomes, surgical details, and neonatal outcomes. Descriptive statistics were used to analyze the data, along with comparative analysis based on demographics and indications for EOH. Statistical tests, such as chi-square or t-tests, were applied to assess outcomes, including maternal morbidity and mortality rates.

Results: Study revealed the majority of cases (37.1%) were women aged 26-30, with multiparity (65.7%) and abnormal placentation (45.7%) as common risk factors. Caesarean hysterectomy had a higher survival rate at 65.7% compared to 11.4% for postpartum hysterectomy. The average operating time was 74.57 minutes, and patients had an average hospital stay of 9.34 days.

Conclusions: This study underscores the need for enhanced antenatal care and emergency management strategies to address severe obstetric conditions, as evidenced by the high incidence of complications and variability in outcomes observed.

Keywords: Emergency Obstetric Hysterectomy, Obstetric Emergency, Post-partum Complication, PPH

INTRODUCTION

Obstetric hysterectomy, a life-saving surgical intervention, remains a crucial procedure in the management of severe postpartum hemorrhage and other obstetric emergencies.[1]

Emergency peripartum hysterectomy, performed immediately after vaginal delivery or cesarean section, is often the last resort to control intractable bleeding when other conservative measures fail,2

Abnormal placentation, uterine atony, uterine rupture, and coagulopathy are some of the leading causes necessitating such emergency procedures.[2]

EOH can be rightly classified as a near miss event. While advances in obstetric care have improved the ability to detect, anticipate, and prevent severe maternal hemorrhage3, unexpected complications can still occur, emphasizing the need for comprehensive emergency obstetric services, including access to blood transfusions and skilled surgical intervention.[2,3]

The maternal health landscape in Gujarat, India, has seen various initiatives to improve maternal mortality, such as public-private partnerships and training of healthcare providers.4 However, challenges persist, underscoring the importance of understanding the local context and experiences to inform effective strategies.[4]

This retrospective study aims to analyze the incidence, indications, and outcomes of emergency obstetric hysterectomy performed at Sheth Lallubhai Gordhandas Municipal General Hospital, Maninagar, Ahmedabad, over a one-year period.

MATERIAL AND METHODS

This retrospective observational study was conducted at Sheth Lallubhai Gordhandas Municipal General Hospital from August 2023 to July 2024. The aim was to evaluate the incidence, indications, and outcomes of emergency obstetric hysterectomies (EOH).

A total of 35 cases were included in the study, all of which involved patients who underwent EOH due to obstetric complications such as uterine rupture or severe hemorrhage.

Elective or non-obstetric hysterectomies were excluded. Data on demographics, obstetric history, hysterectomy details, and outcomes were extracted from medical records and anonymized for analysis.

Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize the data. Inferential statistics, such as chi-square and t-tests, were employed to compare categorical and continuous variables, respectively. A significance level of $p < 0.05$ was used to determine statistical significance.

RESULTS

The data shows that most emergency obstetric hysterectomies were performed on women aged 26-30 years, who accounted for 37.1% of the cases. Women aged 20-25 and those aged 31-35 each made up 25.7% of the cases, while those aged 36 and older represented 11.4%.

Regarding parity, the highest proportion of patients, 42.9%, had a parity of 3. Patients with a parity of 2 and those with more than 4 children each constituted 22.9% of the cases, while those with a parity of 1 comprised 11.4%.

In terms of booking status, a significant majority of the patients, 62.9%, were booked cases, meaning they had received regular antenatal care.

In contrast, 37.1% of the patients were unbooked or referred cases, indicating they had not received regular prenatal care and were referred to the hospital for emergency treatment.

Table-1: Demographics and Clinical Characteristics of Emergency Obstetric Hysterectomy Cases (n=35)

Variable	No.	Percentage
Maternal age (years)		
20-25	9	25.7%
26-30	13	37.1%
31-35	9	25.7%
36+	4	11.4%
Parity		
1	4	11.4%
2	8	22.9%
3	15	42.9%
+4	8	22.9%
Booking status		
Booked	22	62.9%
Unbooked (referred cases)	13	37.1%

Table-2: Risk Factors and Indications for Emergency Obstetric Hysterectomy (N-35)

Variables	No.	Percentage
Risk Factor*		
Placenta accreta	14	40.0%
Uterine atony	10	28.6%
Coagulopathy	3	8.6%
Multiparity	23	65.7%
Uterine rupture	4	11.4%
Indication of EOH*		
Abnormal Placentation	16	45.7%
Uterine Atony	6	17.1%
Intractable PPH	11	31.4%
Central placenta previa	1	2.9%
Uterine rupture	3	8.6%

*Multiple answer

Among the risk factors, the most prevalent was multiparity, observed in 65.7% of cases. Placenta accreta was the second most common risk factor, present in 40.0% of patients. Uterine atony affected 28.6% of the cases, while uterine rupture and coagulopathy were noted in 11.4% and 8.6% of patients, respectively.

Regarding the indications for EOH, abnormal placentation was the leading cause, accounting for 45.7% of the cases. Intractable postpartum hemorrhage (PPH) was the second most frequent indication, responsible for 31.4% of the hysterectomies. Uterine atony necessitated the procedure in 17.1% of cases, whereas uterine rupture was the indication in 8.6% of the patients. Central placenta previa was a less common indication, observed in 2.9% of the cases.

Regarding the mode of delivery, cesarean sections were predominant, accounting for 65.7% of live births and 8.6% of neonatal deaths, with a statistically significant p-value of 0.015. Vaginal deliveries resulted in 11.4% of live births and 14.3% of neonatal deaths.

Table-3: Mode of Delivery and Previous Obstetric History in Relation to Delivery Outcome of Pregnant Women among Emergency Obstetric Hysterectomy Cases (N-35)

Obstetric Factors and Delivery	Outcome of Pregnant Women		Total No. (%)	p Value
	Live (n-27)	Dead (n-8)		
Mode of Delivery				0.015**
Cesarean	23 (65.7%)	3 (8.6%)	26 (%)	
Vaginal	4 (11.4%	5 (14.3%)	9 (%)	
Previous H/o mode delivery				0.09
Previous 1 cesarean	6 (17.1%)	1 (2.9%)	7 (20.0%)	
Previous ≥2 cesarean	16 (45.7%)	2 (5.7%)	18 (51.4%	
Previous normal deliveries	3 (8.6%)	3 (8.6%)	6 (17.1%)	

** p-value < 0.01 was considered as highly significant

Examining previous obstetric history, 17.1% of women with a history of one cesarean section had live births, while 2.9% had neonatal deaths. Women with a history of two or more cesarean sections constituted 45.7% of live births and 5.7% of neonatal deaths.

Additionally, women with previous normal deliveries had an equal distribution, with 8.6% resulting in both live births and neonatal deaths. The p-value for previous obstetric history was 0.09, indicating no significant statistical difference.

The data presents a detailed account of complications observed in patients undergoing emergency obstetric hysterectomy, segmented into pre-operative, intra-operative, and post-operative stages.

Pre-operative complications included anemia and hypertension disorders, affecting 25.7% and 28.6% of patients, respectively. Other pre-operative issues, such as shock, central placenta previa, intrauterine death (IUD), and disseminated intravascular coagulation (DIC), were noted in 17.1% of cases. Notably, 28.6% of patients had no pre-operative complications.

During the intra-operative period, ventilator support was required for nearly half of the patients (48.6%), indicating a significant need for respiratory assistance. Bladder injury was reported in 14.3% of cases, while 37.1% of patients experienced no intra-operative complications.

Post-operative complications included DIC, affecting 31.4% of patients, and shock, which was observed in 28.6% of cases. Septicaemia was present in 5.7% of patients. A notable 34.3% of patients had no post-operative complications, highlighting a significant proportion of patients who did not face issues following the surgery.

This box and whisker plot graph illustrates the average operating time for Caesarean hysterectomy and postpartum hysterectomy, along with the overall average time for emergency obstetric hysterectomy.

The average operating time across all procedures was 74.57 minutes, with a standard deviation of 13.90 minutes and a range from 45 to 105 minutes.

Specifically, the average time for Caesarean hysterectomy was 75.6 minutes, with a standard deviation of 12.85 minutes and a range between 55 and 105 minutes. In comparison, postpartum hysterectomy had an average operating time of 72 minutes, with a standard deviation of 16.70 minutes and a range from 45 to 105 minutes.

The cross-table summarizes clinical outcomes for 35 patients undergoing emergency obstetric hysterectomy, showing that 77.1% had live outcomes and 22.9% had deceased outcomes.

Caesarean hysterectomy had a higher survival rate with 65.7% live outcomes and 5.7% deceased, coprising 71.4% of cases.

Conversely, postpartum hyterectomy had 11.4% live outcomes and 17.1% deceased, representing 28.6% of cases. The p-value of 0.003 indicates a significant difference in outcomes between the two types of hysterectomy.

Table-4: Association between Type of Obstetric Hysterectomy and Clinical Outcomes (N-35)

Type of OH	Clinical outcome		Total	p Value
	Live	Dead		
Caesarean hysterectomy	23 (65.7%)	2 (5.7%)	25 (71.4%)	0.003**
Postpartum hysterectomy	4 (11.4%)	6 (17.1%)	10 (28.6%)	
Total	27 (77.1%)	8 (22.9%)	35 (100.0%)	

** p-value < 0.01 was considered as highly significant

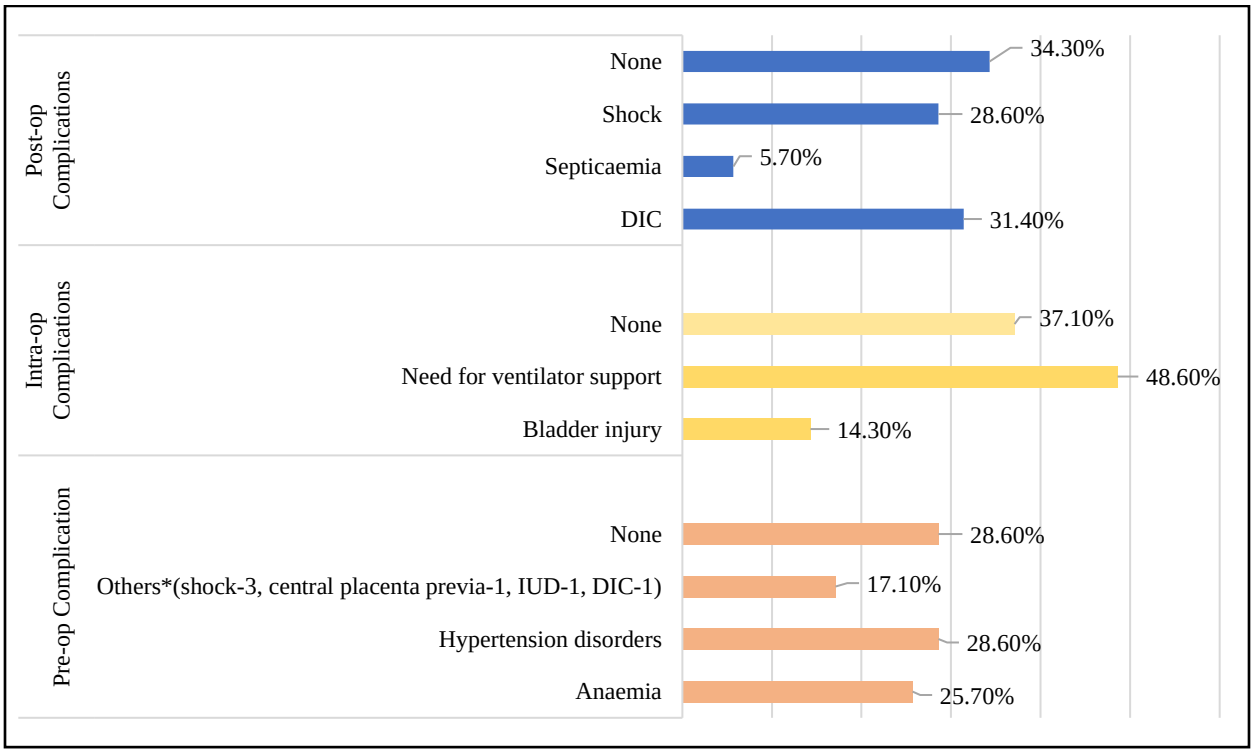

Figure-1: Pre-, Intra-, and Post-Operative Complications in Emergency Obstetric Hysterectomy cases. (N-35)

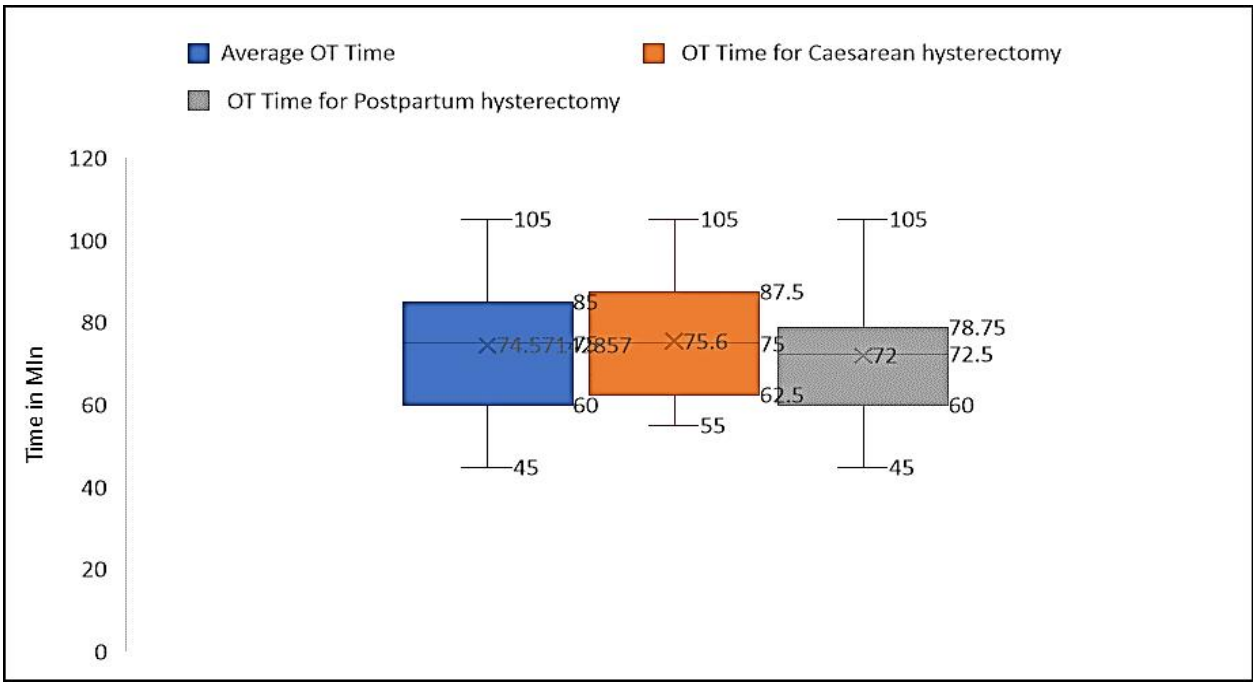

Figure-2: Average Operating Time for Caesarean and Postpartum Hysterectomy cases. (N-35)

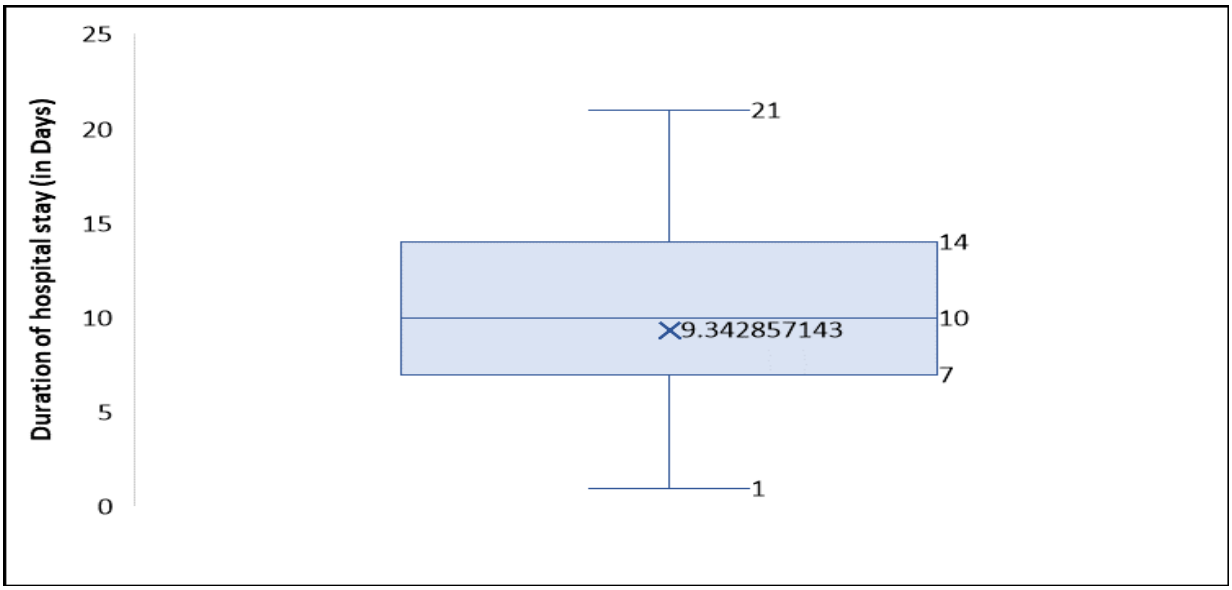

Figure-3: Average Hospital Stay Duration for Emergency Obstetric Hysterectomy cases. (N-35)

DISCUSSION

This study provides insights into the incidence and outcomes of emergency obstetric hysterectomy (EOH) at Sheth Lallubhai Gordhandas Municipal General Hospital, with a specific focus on maternal demographics, indications, and complications.

Our study found that most EOH cases were performed on women aged 26-30 years, representing 37.1% of the cases, and those with a parity of 3 were most commonly affected (42.9%). This aligns with Shirodker SD et al.[5], where 44% of women were in the 26-30 age range, and 71.1% were multiparous. Similarly, Aslam L et al.[6] reported a high prevalence of multiparity among their patients. These findings underscore the predominance of younger, multiparous women in EOH cases, which is consistent with general trends observed in other studies.

Our results showed that 62.9% of patients were booked cases, while 37.1% were unbooked or referred. This is at odds with Nwobodo EI[7] and Aslam L et al.[6], where a high percentage of patients were unbooked (89.2% and 81.25%, respectively). The significant disparity suggests a regional difference in antenatal care access or management practices.

In our study, abnormal placentation was the leading indication (45.7%), followed by intractable postpartum hemorrhage (31.4%). This is consistent with Shah N et al.[8], who also identified ruptured uterus and uterine atony as major causes. However, Mbakwa MR et al.9 noted a higher incidence of intractable postpartum hemorrhage and uterine rupture, highlighting potential variations in surgical indications based on local practice or patient demographics.

Our study detailed pre-operative, intra-operative, and post-operative complications. Pre-operative anemia and hypertension disorders were notable, with ventilator support being required for nearly half of the patients during surgery. Post-operative DIC and shock were significant issues. These findings are in line with Nwobodo EI,[7] who identified anemia and sepsis as major complications. Conversely, our study observed a lower rate of excessive hemorrhage compared to Nwobodo EI[7], suggesting differences in complication profiles or management strategies.

The study revealed that Caesarean sections were the predominant mode of delivery, associated with a higher survival rate compared to vaginal deliveries. This is supported by findings from other studies,

including Mbakwa MR et al.[9], who also highlighted the association between Caesarean hysterectomy and better outcomes. The lack of significant difference in previous obstetric history outcomes (p-value of 0.09) contrasts with Shah N et al.[8] and Aslam L et al.[6], where prior cesarean sections were a significant factor.

Our data showed an average hospital stay of 9.34 days and an average operating time of 74.57 minutes. These metrics are broadly consistent with the findings of Shah N et al.[8], who reported similar hospital stay durations, but slightly lower than those reported by Aslam L et al.[6] regarding operating times. The variability may reflect differences in surgical techniques or patient management protocols.

Maternal mortality rates in our study reflect a critical aspect of EOH outcomes. Comparatively, maternal mortality rates in the literature vary significantly. For example, Kant and Wadhwani et al (2005)[10] reported a mortality rate of 9.70%, while Flood et al. (2008)[11] observed a lower rate of 4%. In contrast, Ahmad and Mir (2007)[12] reported a 3% mortality rate, and Sharma et al. (2009)[13] recorded 5.7%. The variability in mortality rates across studies highlights the impact of local healthcare practices and the effectiveness of emergency management protocols.

CONCLUSIONS

This study examines emergency obstetric hysterectomy (EOH) at Sheth Lallubhai Gordhandas Municipal General Hospital over a year. The leading causes for EOH were abnormal placentation and severe postpartum hemorrhage. The study highlights a notable incidence of complications such as DIC and shock, with significant variability in operating times and hospital stays. Compared to other research, our study shows a higher incidence of EOH, suggesting regional differences in obstetric care. Overall, the findings emphasize the need for improved antenatal care and enhanced emergency management strategies to better handle severe obstetric conditions and improve patient outcomes.

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