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Emergency obstetric hysterectomy: A retrospective study to evaluate incidence, indications and fetomaternal complications in a tertiary care hospital in Jammu

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Abstract

Objectives: We aim to evaluate the incidence, indications, and feto-maternal complications associated with emergency obstetric hysterectomy (EOH) in a tertiary care hospital in Jammu.

Methods: The present retrospective study was conducted in the Department of obstetrics and gynecology, SMGS hospital, Jammu from March 2019-Feb 2020. The details of patients who underwent EOH were collected from operative room, labor room and ICU record book maintained by the hospital administration. A total of 38 cases of hysterectomies were included in the study.

Results: The incidence of EOH corresponding to normal deliveries is 0.07 while it is 0.30 corresponding to cesarean deliveries. The overall incidence was 0.17. The most common indication for EOH is morbidly adherent placenta (52.6%). The maternal complications with ICU admission constitute 31.6% followed by 28.9% who were in dire need of vasopressors. Fever was observed in almost (24%) of the cases. The fetal complications with NICU admission was observed in 21.1% while 18.4% resulted in neonatal deaths.

Conclusion: Even though EOH ends the child bearing capacity of women but at the same time it saves the life of a mother. The increasing trend of cesarean sections and multiple pregnancies increases the incidence of EOH and hence the associated morbidity.

Keywords: obstetric hysterectomy, incidence, indications and fetomaternal complications

Introduction

Emergency obstetric hysterectomy is a major surgical operation in which the extirpation of uterus takes place during cesarean section or immediately after vaginal deliveries or within puerperium period. This procedure is commonly performed when there is severe uterine hemorrhage that cannot be fixed with usual conservative measures. There are various underlying causes responsible for this unrelenting life threatening hemorrhage that include atonic uterus, uterine rupture, placenta accreta, uterine fibroid and coagulopathy. EOH often opted as a last resort is associated with many adverse outcomes like severe blood loss, risks of blood transfusion, intra operative complications, anxiety and significant postoperative mortality and morbidity. Maternal mortality rate due to EOH ranges from 0 to 30% with higher rates in regions where there are limited hospital resources. In the present study, our objective is to evaluate incidence, indications, and feto-maternal complications associated with EOH.

Material and methods

The hysterectomies performed for hemorrhage, non-responsive for other therapeutic interventions during cesarean section or immediately after vaginal deliveries or within puerperium period were included in the study while as the hysterectomies performed before 24 weeks of gestation were excluded. Records based on parity, age, indication for hysterectomy, intraoperative and postoperative complications, fetomaternal outcomes, blood transfusion, hospital stay duration and intensive care unit data were recorded. The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as Mean \pm SD and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar diagrams. Chi square test was employed for comparing incidence of EOH following vaginal delivery and cesarean section. A p-value of less than 0.05 was considered statistically significant

Results and Observations

In this section we shall present the results based on incidence, indication, parity and feto maternal complication in the study

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

Mode of delivery	No. of patients	EOH	Incidence (%)	P-value
Normal vaginal delivery	13001	9	0.07	<0.001*
Cesarean section	9629	29	0.30	
Total	22630	38	0.17	

Table 1, shows the distribution of emergency obstetric hysterectomy as per the mode of delivery wherein we observe that total no deliveries in the hospital during the study period were 22630, out of which 13001 were normal deliveries and 9629 were cesarean. Only 9 patients out of 13001 normal deliveries underwent EOH, thus the incidence corresponding to normal deliveries is 0.07. Out of 9629 cesarean deliveries 298 cases had EOH and hence the related incidence is 0.30. The overall incidence was 0.17. It is worth to note that we observe a significant difference between normal and cesarean deliveries as the p- value <0.001.

Table 2: Age and parity distribution of patients included in the study

Age (Years)	P1	P2	P3	P4	≥P5	Total
20-25	1	2	0	0	0	3
25-30	0	9	0	0	0	9
30-35	0	0	19	1	1	21
35-40	0	0	0	4	1	5
Total	1	11	19	5	2	38

*Mean±SD (Range)=31.2±5.73 (20-38 Years)

Table 2, displays the age and parity distribution of patients who underwent EOH. It is evident that majority of patients (55%) who had EOH falls in the age group of (30-35) years followed by 9% that fall in (25-30) years of age. Thus 79% of patients operated for EOH were belonging to the age group of (20-35) years. The mean age of all the patients was reported as 31.2 years with a SD of 25.73. Only (2.6%) of patients were having single parity while as (97%) of women were observed to be multiparous.

Table 3: Indications of emergency obstetric hysterectomy

Indications	Number	Percentage
Morbidly adherant placenta	20	52.6
Atonic PPH	8	21.1
Placenta previa	5	13.2
Uterine rupture	2	5.3
Abruptio placenta	2	5.3
Broad ligament hematoma	1	2.6
Total	38	100

All the cases of EOH were institutional, table 3 shows that the chief indicators for EOH were Morbidly adherant placenta (52.6%), Atonic PPH (21.1%), Placenta previa (13.2%) and rest of less frequent indications were either Uterine rupture (5.3%), Abruptio placenta (5.3%) or Broad ligament hematoma (2.6%).

The Morbidly adherant placenta which was observed in over (52%) of cases were previously associated with one or more cesarean sections in 18 cases, curettage in 7 cases, placenta previa in 5 cases and with a history of fibroid uterus or manual removal of placenta two in each case. Multiple factors were associated in most of the cases, for instance, two cases had a history of one prior curette and one prior cesarean. They also had Morbidly adherant placenta and placenta previa. Four other patients, each were having one prior curette and one prior cesarean. One of the cases was having two curettes and one cesarean birth. Atonic PPH which constitute (21.1%) hysterectomies were previous associated with cesarean in 2 cases, with anemia, sepsis or obstructed labor in two cases each and with a distended uterus as polyhydramanous or multiple pregnancies in one case each and placenta previa was previously associated in two cases. The 3rd common indication for EOH was observed to be Placenta previa (13.2%), it was associated with previous cesarean in 4 cases and with prolonged labor, multifetal gestation and sepsis in one cases each.

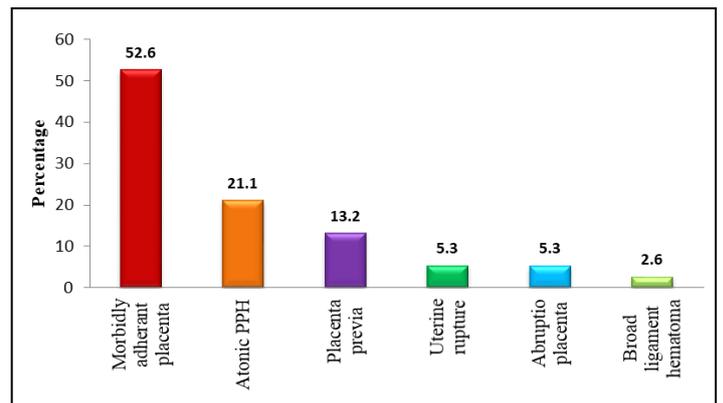


Fig 1: Indications of emergency obstetric hysterectomy

Table 4: Fetomaternal complications of study patients

Fetomaternal complications		Number	Percentage
Maternal complications	Fever	9	23.7
	Coagulopathy	1	2.6
	Wound sepsis	3	7.9
	Relaparotomy	0	0.0
	Need for vasopressors	11	28.9
	ICU admission	12	31.6
	Bladder injury	3	7.9
	Anaesthesia complications	2	5.3
	Paralytic ileus	2	5.3
Fetal complications	Mortality	2	5.3
	NICU Admission	8	21.1
	Mortality	7	18.4

Table 4, shows the feto-maternal complications faced by patients who underwent EOH. We observe that of all the EOH cases, maternal complications with ICU admission constitutes (31.6%) followed by (28.9%) who were in dire need of vasopressors. Fever was observed in almost (24%) of the cases. The Fetal complication with NICU admission was observed in (21.1%) and (18.4%) resulted in death.

Table 5: Total transfusion of blood products

Indication	No.	Packed cell units		Fresh frozen plasma units		Platelets units	
		Total	Average	Total	Average	Total	Average
Morbidly adherent placenta	20	67	3.4	47	2.4	-	-
Atonic PPH	8	34	4.3	26	3.3	-	-
Placenta previa	5	14	2.8	4	0.8	-	-
Uterine rupture	2	6	3.0	3	1.5	-	-
Abruptio placenta	2	9	4.5	7	3.5	3	1.5
Broad ligament hematoma	1	3	3.0	2	2.0	-	-
Total	38	133	3.5	89	2.3	3	0.1

To counter and manage shock in patients, Dopamine was used as a first line agent. Adrenaline or noradrenaline infusion was also used conditionally. Patients who were in dire need of blood transfusion received packed cells as per the requirement ranging from 1 to 14 units with an average of nearly 4 units. The maximum average no. of packed cells were received by patients with atonic PPH indication followed by an average of 3.4 units of packed cells by patients who had morbidly adherent placenta indication. Only 2 patients of Abruptio placenta received platelet concentrates of 1.5 units each. Patients hospital stay was observed to be ranging from two days to one month. The duration of ICU stay was ranging from 3 hours to 5 days. Almost (21%) of patients were admitted in NICU and neonatal mortality was observed (18.4%) in the given study.

Discussion

Peripartum hemorrhage is the major cause of maternal mortality and morbidity, and emergency obstetric hysterectomy is a way forward to fix life threatening hemorrhage. The present study analyzes several factors associated with EOH that includes incidence, indication and feto-maternal complications. We observed that there is a significant difference between the incidence of EOH corresponding to normal deliveries and cesarean deliveries. The incidence of EOH associated with normal deliveries is (0.07%) i.e (70 hysterectomies per 100,000 deliveries) while as the incidence corresponding to cesarean deliveries is (0.30%) i.e (300 hysterectomies per 100,000 deliveries) and the overall incidence was observed to be (0.17%) which means 1.7 hysterectomies per 1000 deliveries which is almost same to the rates reported by Saima *et al.* (1.46/100) [1] and Sebitloane *et al.* (1.20/1000) [2]. The incidence rate for EOH was higher in the present study as compared to the incidence reported by Chawla *et al.* (0.8/1000) [3] and Bodelon *et al.* (0.6/1000) [4].

The mean age of patients in our study was observed as 31.2 ±5.73 years. Of these 38 cases, the highest number of patients operated for EOH was in the age group of 30-35 years which is similar with the observation made by Saima *et al.* [1] and Kwame-Aryee *et al.* [5]. However, in the study made by Chawla *et al.* [3] the maximum number of patients were in the (20-25 years) and (25-30 years) age groups. We observed that 97% of patients who underwent EOH were multiparous while as Chawla *et al.* [3] observed this percentage as 82% only. An important observation regarding the major indications for EOH was made, we observe that of all the hysterectomies, morbidly adherent placenta is the most common indication for EOH which accounts for 52.6% followed by 21.1% of atonic uterus and 13.2% of Placenta previa. However in the study done by Chawla *et al.* [3] it was observed that atonic PPH (25%) was the most common indication of EOH followed by morbidly adherent placenta (21%); some other studies done by Juneja *et al.* [6], Tapisiz *et al.* [7] and Knight *et al.* [8] have also revealed that atonic PPH was the leading cause for EOH. It was observed that

placenta previa (13.2%) is the 3rd common indication of EOH in our study followed by uterine rupture and abruptio placenta, both accounting for 5.3% of cases while as uterine rupture reflects as 3rd most common indication in several other studies due to Chawla *et al.* [3] and Knight *et al.* [8]. On the other hand, studies from Nigeria reported indication for EOH are 93.2% for uterine rupture, (2.7%) for atonic PPH, (2.7%) for puerperal sepsis and (1.4%) for morbidly adherent placenta. The high proportion of uterine rupture indication is owing to the fact that in Nigeria the first common preferential center for delivery are spiritual churches, thereby due to prolonged labor and late referral to hospitals the chances for uterine rupture increases. The study by Korejo *et al.* [9] from Pakistan reported that 47.1% of indications for EOH are due to uterine rupture, 28.9% due to atonic PPH and 17.4% due to placental causes.

We observed that almost 32% of hysterectomies needed intensive care admission and 21.1% of neonates were admitted into NICU. A study from china by Pradhan *et al.* [10] recorded (50%) of cases operated for hysterectomies needed ICU; vasopressors were needed for resuscitation in (26.2%) of cases which in our study is (28.9%). Chawla *et al.* [3] also observed the same percentage of patients who needed vasopressors. The other complications due to EOH were fever (23.7%), wound sepsis (7.9%) and coagulopathy (2.6%), these results are in conformity with the study conducted by Chawla *et al.* [3]. In our study maternal mortality was 5.3% while as the fetal mortality was 18.4%, the maternal mortality reported by Bhaghat *et al.* [11] is (10%) however several authors like Zeeteroglu *et al.* [12], Flood *et al.* [13] and Chawla *et al.* [3] have shown that maternal mortality ranges from (1.2% to 19.4%). Chawla *et al.* [3] have reported (28.6%) fetal deaths due to fetal complication with NICU admission which is higher than our observation. We observed that maximum no. of packed cells (4.3 units) were received by patients having atonic PPH followed by an average 3.4 units of packed cells by patients with morbidly adherent placenta, this is exactly what Chawla *et al.* [3] reported. Only 5.2% patients with abruptio placenta indication received platelet concentrates of 1.5 units each, which is comparatively less than (16%) reported by Chawla *et al.* [3].

Conclusion

Emergency obstetric hysterectomy although the last resort in saving mothers life is also associated with grave and catastrophic effects on fetomaternal morbidity and mortality. Even though it ends the child bearing capacity of women but many a times it saves the life of mother. The morbidity associated with EOH depends upon the type of indication and preexisting disorders rather than to procedure itself. It was observed that need for vasopressors, ICU admission, fever, wound sepsis, bladder injury are some common complications which in turn results in higher morbidity. The incidence of EOH associated with cesarean deliveries is much higher compared to incidence associated with normal deliveries, thus the increasing

trend of cesarean sections and multiple pregnancies increases the incidence EOH and hence associated morbidity.

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