

Emergency Obstetric Hysterectomies at a Tertiary Referral Shri Vasant Rao Naik Government Medical College and Hospital of Tribal of Yavatmal District (Maharashtra): Retrospective Critical Analysis (6 Years Study)

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ABSTRACT

Objective: To evaluate the demographic profile, high-risk factors, fetomaternal outcome, causes and incidence of emergency peripartum hysterectomies at tertiary referral center Government Medical College and Hospital at Yavatmal.

Study design: Retrospective analysis.

Methodology: Review of 14 case records of patient who undergone emergency peripartum hysterectomies during the year January 2007 to December 2012.

Results: During the study period, there were 39,612 deliveries, out of which 14 patients had undergone emergency peripartum hysterectomy (EPH), having an incidence of 0.35/1000 births. There was 1 (7.14%) maternal death and 5 (35.71%) perinatal deaths. The commonest indications noted were atonic PPH 7 (50%), morbidly adherent placenta 5 (35.71%) and rupture uterus 2 (14.28%).

Five (35.71%) of these patients had not received antenatal care prior to their hospitalization.

Lack of antenatal care and health education indeed a preventable factor that needs to be addressed to reduce maternal and fetal mortality and morbidity.

Identification of high-risk patients, institutional deliveries by expert of risk group and early referral from peripheral health infrastructures are utmost importance in avoiding EPH and reduce maternal and fetal morbidity and mortality.

Emergency obstetric hysterectomy still remains as life saving procedure which every obstetrician must be familiar with it.

Keywords: Emergency peripartum hysterectomy, Morbidly adherent placenta, Obstetrical hysterectomy.

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INTRODUCTION

'An emergency can be defined as a situation of serious and often dangerous in nature developing suddenly and unexpectedly and demanding immediate attention in order to save life.¹

Emergency peripartum hysterectomy (EPH) is defined as one performed after 20 weeks of gestation for uncontrollable uterine bleeding not responsive to conservative measures, occurring at any time before and after delivery, but within the first 6 weeks postpartum.²

Emergency obstetric hysterectomy is performed as a life saving measure in cases of rupture uterus, postpartum hemorrhage, morbidly adherent placenta and uterine sepsis. It is an essential skill in any obstetrician's armory. It is used as a last resort to save the life of the mother, sacrificing her reproductive capability. Often it is a difficult decision and requires timely clinical judgment to reduce maternal mortality. It is considered as a marker of 'near miss mortality'.³

It was first proposed in 1869, but with no desirable results. It was in 1876, that Edward Porro published the first successful case report of this procedure in which the mother and baby survived. Subtotal hysterectomy was carried out successfully with the result that both mother and baby survived. The incidence of EPH is 0.05% worldwide, but there are considerable differences in incidence in different parts of the world.⁴ In developing countries reported incidence range from 2 to 6 per 1,000 deliveries compared to 0.2 to 2.7 per 1,000 in developed countries.

In the past, the most common indications of EPH was uterine rupture and atony.^{5,6} Recent reports show

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that abnormal placental adherence/placenta previa is emerging as the major indication for EPH and is most likely related to increase in number of cesarean delivery observed over the past two decades.^{5,6} Obstetric hemorrhage continues to be the primary cause of maternal mortality and morbidity in developing countries, and the most challenging complication that a clinician will face. In addition, Obstetric hemorrhage contributes to 25% of direct cause of maternal deaths.^{7,8} Therefore, measures to arrest the bleeding should be fast, prompt and preferably in experienced hands to avoid complications.

To date, there are no published data on the incidence of peripartum hysterectomy in Yavatmal district, which mainly caters to the rural and tribal population.

AIMS AND OBJECTIVES

- The objectives of this retrospective study were to access the incidence, indications and clinical implications and risk factors and maternal morbidity and mortality associated with EPH in a tertiary referral center at Government Medical College and Hospital.
- This study would help to identify preventable factors and highlight the lack of uptake of antenatal services and stress the need to study of these to improve maternal and fetal outcome.

MATERIALS AND METHODS

Setting. The study was carried out at tertiary care center Shri Vasantrao Naik Government Medical College and Hospital, Yavatmal in Maharashtra.

This represents one of the major teaching and tertiary referral institute in our region.

Yavatmal is located in the region of Vidarbha, in the east central part of the state. Name derives from the Marathi Yavat (mountain) and Mal (row).

According to the 2011 census, Yavatmal district has a population of 2,775,457 roughly equal to the nation of Jamaica or the US state of Utah.⁹

The district has various entrenched cultures and has India's most ancient tribal communities, e.g. Gond Raja, Gond Pradhan (10%), Kolam, Aandh, Banjara (6%) among others.⁹ In rural and tribal part of this district, the incidence of maternal anemia, malnutrition and lack of awareness regarding health services are still deep rooted, thus leading to increased peripartum complications.

A retrospective analysis was performed to identify the number of patients who underwent EPH over a period from January 2007 to December 2012.

The data were obtained by reviewing the obstetric admission register, operative procedure register, case files, morbidity and mortality register. Each case was analyzed in detail with special focus on the indications,

maternal profile, type of surgery performed, maternal morbidity, mortality and fetoneonatal outcome. Obstetric hysterectomy performed for any indication during pregnancy after 20 weeks of gestation, labor and puerperium have been included in this study.

During the study period of January 2007 to December 2012, there were 39,612 deliveries. Out of which 34,201 were vaginal deliveries and 5,411 were cesarean sections. Fourteen patients were noted to have undergone an emergency peripartum hysterectomies.

Cases proceed to hysterectomy when conservative measures have failed that includes bimanual uterine massage or compression, the use of intravenous oxytocics and intramural prostaglandins, curettage of placental bed, application of uterine packing, suturing of placental bed, stepwise devascularization of uterus and B-lynch suture.

The statistical analysis was conducted with the Micro-soft Excel and SPSS program.

RESULTS

During the study period, there were a total of 39,612 deliveries including 5,411 (13.16%) cesarean section and 34,201 (86.33%) vaginal deliveries. Out of these, 14 patients underwent EPH. The total incidence of EPH in our study is 0.35/1000 deliveries. It was higher after cesarean section (12.95/10,000 deliveries) than with vaginal deliveries (1.161/1000) (Table 1).

The mean age of the patients undergoing EPH was 27.2 years (20-32 years). Majority of the cases (11) were carried out in multiapara (50%) and grand multipara (35.71%) as compared to primigravida 2 (14.28%) (Table 2).

The commonest indication for EPH was atonic PPH in 7 cases (50%), followed by abnormal placentation 5(35.7%) and rupture of uterus in 2 cases (14.28%). All hysterectomy were done for primary PPH except 2 case which were done for tertiary PPH (Fig. 3). Only 9 cases (64.28%) were booked, while remaining 5 cases (35.7%) were unbooked. In our study, we observed that preoperative hemoglobin level found to be in lower range of 4.2 to 8.8 gm/dl and it needed for liberal fresh blood transfusion and in some patient FFP transfusion to prevent further hemorrhagic shock and DIC. All patients received blood transfusion ranging from 1 to 7 units with mean 3.35 blood unit and one patient required FFP. The mean duration of hospital

Table 1: Data of obstetric intervention at our institute during the study period

Statistical data	Number
Total no. of deliveries	39,612
Total no. of vaginal deliveries	34,201
Total no. of cesarean section	5,411
Total no. of obstetric hysterectomy done	14
Incidence of obstetric hysterectomy	0.35/1000

Table 2: Clinicodemographic information of study subjects

Characteristics	No.	Percentage
Age group		
20-24	4	28.57
25-30	8	57.14
31-35	2	14.28
Parity		
Para 1	2	14.28
Para 2	7	50
Para 3	5	35.71
Indications for hysterectomy		
Rupture uterus	2	14.28
Atonic PPH	7	50
Placenta accrete	5	35.71
No. of blood transfusion*		
1	2	14.28
3	5	35.71
4	3	21.42
>5	3	21.42
Hospital stay (days)**		
8-15	10	71.42
>15	4	28.57

*One patient (7.14%) required FFP;

** Average hospital stay: 14.21 days

Table 3: Morbidities and mortalities associated with emergency peripartum hysterectomy

Associated characteristics	No.	Percentage
Associated comorbidities among patients of EPH*		
Febrile morbidity	3	42.86
Wound infection	1	14.29
Resuturing required	1	14.29
Paralytic ileus	1	14.29
Postoperative intensive care	1	14.29
Fetal outcome		
Live	8	57.14
Stillborn	5	35.71
Causes of stillborn		
Ruptured uterus	2	40
Abruptio placenta	3	60

stay for the patients with EPH was 14.21 days with range of 9 to 30 days.

The frequency of intraoperative and postoperative complications are given in Table 3. None of the patients had injury to adjacent urinary bladder and urinary tract intraoperatively in our study and not required re-exploration for the control of hemorrhage. Fever³ was the commonest postoperative complication, followed by wound infection.² One patient required secondary resuturing of the wound and prolonged hospital stay (30 days). One patient required postoperative intensive care and developed hepatorenal syndrome with DIC with acute renal failure and died after 24 days. There was one maternal death (7.14) in our study (Table 3).

Table 4: Emergency peripartum hysterectomy comparison with other study

Study	Incidence	Common indication	Maternal mortality
Sahu et al (2004)	0.20%	Rupture uterus	5.55%
Kant and Wadhvani et al (2005)	0.26%	Atonic PPH	9.70%
Singh and Nagrath et al (2005)	0.43%	Rupture uterus	1.96%
Ahmad and Mir et al (2007)	0.26%	Rupture uterus	3.00%
Marwaha et al (2008)	0.31%	Rupture uterus	10.00%
Rajyashree Sharma et al (2009)	0.54%	Atonic PPH	5.70%
Viana Chibber et al (2010)	0.39%	Atonic PPH	3.6%
Tapisiz et al (2012)	0.36%	Atonic PPH	6.6%
Shumaila Zia et al KSA (2013)	1.97%	Placental abnormalities	3.5%

The main risk factors observed in this study included age > 30 years in 2 cases (14.28%), multiparity in 5 cases (35.7%), previous cesarean section in 6(42.85%) and placental abnormalities (placenta previa and morbidly adherent placenta) in 5 cases (35.7%).

Out of 14 EPH patients, 4 delivered vaginally and 7 underwent cesarean section. In 2 patients, exploratory laparotomy done for rupture uterus.⁵ (35.71%) fetuses were stillborn and IUFD and 8 (57.14%) were alive. One baby required NICU admission. The risk of neonatal morbidity and mortality with all indications of EPH and with route of delivery is similar as shown in Table 3.

Table 4 shows a comparison of other studies with ours in terms of incidence, indication and maternal mortality associated with the procedure.

DISCUSSION

Despite advances in medicine and surgery, postpartum hemorrhage remains one of the leading cause of peripartum hysterectomy and is usually considered the last resort in the management of complications of deliveries. The frequency of EPH in present study is 0.35 per 1000 deliveries and is comparable with the other studies from India.¹⁰⁻¹³

The highest rate of incidence of EPH of 2.5 to 5.4 per 1000 deliveries have been reported in Asia and Africa and lowest of 0.17 to 1.9 per 1000 deliveries in North America, Central Europe and middle east.^{1,14,15} In spite of study from Rural India, the incidence of EPH in the present study is low in comparison with other studies. This study highlights the improvement in delivering

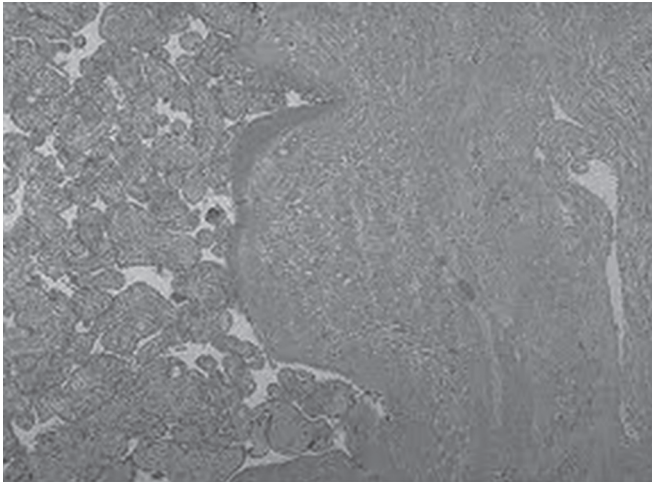


Fig. 1: Histopathology of placenta percreta

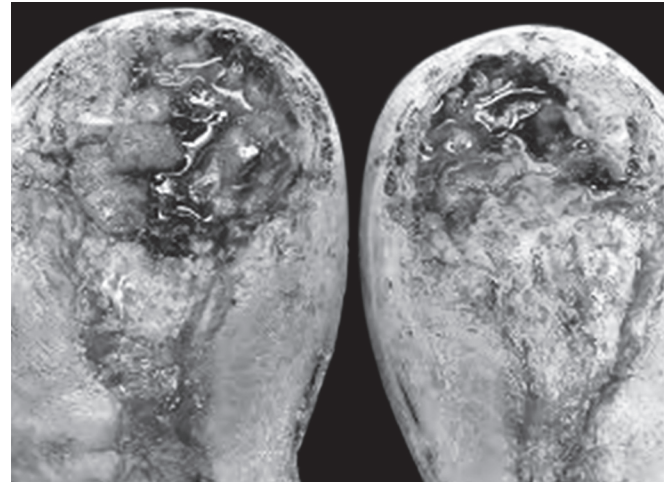


Fig. 2: Specimen of women who underwent cesarean hysterectomy showing placenta accreta

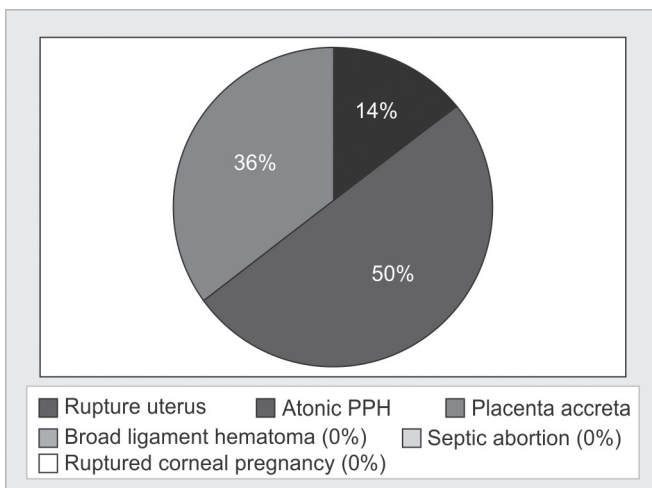


Fig. 3: Distribution of indication for emergency obstetric hysterectomy in our set up

the health facility and strengthening of health system infrastructure, which resulted in less incidence of EPH in our region.

The most frequent indication of EPH in the present study was atonic PPH in 50%, followed by abnormal placentation in 35.7% and rupture of uterus in 14.28% cases (Fig. 3). These findings are consistent with study by Kant and Wadhawani et al,¹⁰ Rajyashree Sharma et al,¹⁶ Viana Chibber et al¹⁷ and Tapisiz et al from Turkey.¹⁸ The indications of EPH with incidence rate in different studies have been compared with those of ours in Table 4.

Abnormal placentation (5 cases) was the second commonest indication for EPH in our study (Figs 1 and 2), which is similar to the studies report from developing countries as explained by increased number of cesarean delivers, which further increases risk of future abdominal delivery, uterine rupture and abnormal placentation. Out of 5 cases, 4 are cases with previous cesarean section and one case had undergone Waulton's procedure in previous delivery for uterine inversion. The incidence

due to abnormal placentation increased from 25.6 to 41.7% due to increased number of cesarean deliveries.¹⁹ In order to decrease the incidence of EPH, we need to reduce cesarean section rate.

Rupture of uterus was the indication of EPH in 2 patients in our study. This low incidence of EPH in with rupture uterus our study as compared to study by Sahu et al,²⁰ Mukherjee et al,²¹ Archana et al²² and Yucel et al²³ was indicative of strengthening of health infrastructure.

Out of 2 patients of rupture uterus, one patient developed hepatorenal syndrome with ARF with DIC and transferred to medicine ICU and died after 24 days. Perinatal mortality was 100% in cases of EPH with rupture uterus. Uterine rupture is significantly associated with multiparity, scarred uterus, previous history of curettage, unsupervised labor at home. All these factors are preventable.

Majority of patients (8 cases) who underwent EPH in our study were in age group of 25 to 30 years and multipara (12) similar trend was observed by Rabiou et al,²⁴ Tebeu et al,²⁵ Ahmad²⁶ and Barclay et al.²⁷

The presence of morbidly adherent placenta due to placenta percreta (Fig. 1) and placenta accrete (Fig. 2), previous cesarean scar or uterine scar (Haulton's procedure), multiparity were main high risk factors in present study and also been described by other researcher.^{15,28}

Surprisingly, 5 cases in our study did not receive any antenatal care and unbooked. This shows that there is need to strengthen the antenatal care services and require more counseling regarding importance of regular antenatal care.

In all patients in our study, subtotal hysterectomy was performed. Several studies suggested that subtotal hysterectomy is associated with shorter operating time, less visceral damage, decrease blood loss and shorter hospital stay.²⁹

No patients in our study had injury to adjacent organs, like the bladder, ureters, broad ligament and not required re-exploration for the control of hemorrhage as compared to previous case series, which mentioned the incidence to be between 1 and 8.8%.^{17,20,30}

The morbidity of EPH is very high as compared to other obstetric surgeries. Most of the patients in our study had some form of complications (50%) that include sepsis, acute renal failure, febrile illness, DIC, hepatorenal syndrome, admission to intensive care unit and massive blood transfusion, prolonged hospital stay (>14 days) and one maternal death and results similar to other studies.

The maternal mortality rate among our women was 7.14% and is comparable to the study reported by Joana F et al³¹ and lower than other studies by Nisar et al, Knwee et al³² and Kanwar et al.³³

CONCLUSION

Emergency peripartum hysterectomy is a potentially a life saving procedure done in emergency situations. Post partum hemorrhage, morbidity adherent placenta and ruptured uterus were the common indications for EPH.

This study emphasized that other surgical techniques to conserve uterus like step wise revascularization of the uterus, i.e. uterus artery ligation, tubo-ovarian artery ligation, internal iliac ligation, application of B-lynch suture need to be considered where appropriate before proceeding to obstetric hysterectomy so as to conserve the uterus.

The proper antenatal care, identification of the high risk groups, early referrals, delivery of high risk group of women by specialist and at higher center, where blood bank is available can prevent and decline the incidence of this catastrophic surgery and decrease maternal and fetal morbidity and mortality. Emergency peripartum hysterectomy remains a necessary tool for consultant obstetricians who need to act at the optimal time with clear judgment using optimal surgical skill to reduce mortality and morbidity in such patients.

Emergency peripartum hysterectomy in young reproductive women not only leads to high morbidity but also has serious psychological implications, especially when family is not complete. Decision making as these issue in emergency is equally difficult for the obstetrician as it for patients and their relations.

Considering the preventive measures, multidisciplinary approach requires which includes strengthening of peripheral healthcare system by training of multi-purpose health workers, ANM in identifying high risk pregnancies and their timely referral, upgradation of first referral units with quick 24 hours transport facilities and posting of specialist in rural areas. These efforts

will definitely reduce our incidence of EPH and related morbidity and mortality.

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