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A Retrospective Study on Emergency Obstetric Hysterectomy in a Tertiary Care Hospital

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1. Introduction

Emergency obstetric hysterectomy is an indispensable and lifesaving procedure in a clinical scenario of obstetric haemorrhage unamenable to medical management and conservative surgical techniques. It is defined as removal of the uterus at the time of caesarean section or following vaginal delivery or within the puerperium period; it also includes situations where complications following pregnancy termination such as perforation and sepsis make it necessary.

Storer from the United States was the first to perform caesarean hysterectomy in 1869 [1] but with no desirable result, followed by Porro from Milan in 1871who performed a subtotal hysterectomy and in which case the mother and infant both survived [2,3]. Obstetric hysterectomy is a last resort available to an obstetrician to save the life of a mother in face of uncontrollable haemorrhage.

In developing countries obstetric haemorrhage is the leading cause of maternal deaths [4] . Post-partum haemorrhage accounts for 10% of all pregnancy related deaths worldwide. Common causes of primary PPH includes uterine atony, lacerations, retained placenta, abnormally adherent placenta, defects of coagulation, uterine inversion[5]. Some common causes of secondary PPH (excessive bleeding occurring after 24 hours of delivery) are sub involution of placental site, retained products of conception, infection etc.

Commonest indications for emergency hysterectomy which are cited are uterine rupture and uterine atony[6] . With increase in the caesarean rates abnormal placental adhesions and placenta previa are emerging as common indications in developing countries. Intra-operative and post-operative bleeding during or before emergency hysterectomy lead to hemorrhagic shock; procedure itself can cause urinary tract injuries, bladder injuriesetc[7]

This study was conducted to identify the incidence and indications of emergency obstetric hysterectomy, associated ante natal risk factors, intra operative complications and final feto-maternal outcome.

2. Methods

This retrospective study was conducted in Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, India over a 5 year period from June 2014 to May 2019, after Institution Ethical Committee Clearance, in the department of Obstetrics and Gynecology. Cases for the study were selected on the basis of the following criteria-

Inclusion Criteria

- All women who delivered in KIMSH between June 2014 and May 2019 and underwent hysterectomy for obstetric indications at the time of delivery or subsequently within 6 weeks of delivery
- All women who delivered outside the hospitalbetween June 2014 and May 2019 and were referred for obstetric complications requiring hysterectomy for obstetric causes within 6 weeks of delivery were included in the study.

Exclusion Criteria

- Women undergoing hysterectomy for non-obstetric indications
- Womenundergoing hysterectomy after 6 weeks post partum

Detailed history and appropriate data was collected from operation theatre records and casefile. Each patient's case record was analysed with regard to age, parity, ante natal high risk factors, indication and type of hysterectomy, complications during and after the surgery and the final feto maternal outcome.

3. Results

Out of 6557 patients who delivered during the defined period in the hospital, 10 patients underwent emergency obstetric hysterectomy. 2772 patients delivered vaginally and 3785 patients underwent LSCS (emergency or elective) during the period. 22 years was the youngest and 38 years was the maximum age of the patients undergoing emergency obstetric hysterectomy. Maximum patients(50%) belonged to the age group of 21-25 years.

Table 1: Age distribution

Age in Years	Number (N=10)	Percentage (100%)
<21	0	0
21-25	5	50
26-30	2	20
31-35	1	10
>35	2	20

Only one patient was primiparous and 90% of the cases were multiparous

Table 2: Parity distribution

Parity	Number (N=10)	Percentage (100%)
Primi	1	10
Para 2	4	40
Para 3	1	40
Para 4	4	40

3 out of 10 cases were well booked at an antenatal clinic while 7 patients (70%) were not booked.

Table 3: Antenatal booking status

Booking Status	Number (N=10)	Percentage (100%)
Booked	3	30
Unbooked	7	70

3 patients had gestational age <28 weeks(25weeks+3 days, 27 weeks, 27weeks+2 days), 2 patients(31 weeks+2days, 32 weeks+2 days)were between 28 weeks to 32 weeks+6 days, 4 patients (35 weeks+ 2 days, 36 weeks, 37 weeks, 37 weeks+5 days)were between 33 weeks to 37 weeks 6 days and 1 patient was >38 weeks(39weeks+4 days)

Table 4: Distribution according to gestational age

Gestational Age	Number (N=10)	Percentage (100%)
<28 weeks	3	30%
29 weeks-33weeks+6 days	2	20%
34 weeks-37 weeks+6 days	4	40%
>38 weeks	1	10%

The most common risk factor associated was previous caesarean deliveries. 8 out of 9 multiparous patients had previous caesarean delivery, followed by placenta previa in 2 patients and1 patient was grand multipara.

Table 5: Risk factors

Risk Factor	Number
Previous caesarean delivery	8
Placenta previa	2
Adherent placenta	1
Grand multipara	1
Previous h/o curettage	3

Atonic postpartum haemorrhage (50%) was the most common indication for emergency hysterectomy followed by Placenta accreta spectrum(40%). 2 out of 4 patients having adherent placenta had history of curettage in previous pregnancies. 1 patient was a case of ruptured uterus with intra uterine fetal demise with previous caesarean delivery.

Table 6: Indications for emergency obstetric hysterectomy

Indications	Number (N=10)	Percentage (100%)
Uterine atony	5	50
Adherent placenta	4	40
Ruptured uterus	1	10

In 40% of the cases subtotal hysterectomy was performed while 60% underwent total hysterectomies

Table 7: Type of surgery

Type of Surgery	Number (N=10)	Percentage (100%)
Subtotal hysterectomy	4	40
Total hysterectomy	6	60%

This complicated surgery was followed by various intraoperative and postoperative complications like haemorrhagic shock, transfusion of varied blood products and associated complications, need for resuscitation with single or multiple ionotropes, bladder injury, urinary tract infection, prolonged hospital stay with ICU care, coagulopathy and even death.

Table 8: Complications associated with emergency obstetric hysterectomy

Complications	Number
Hemorrhagic shock	8
Need for inotropes	3
Need for multiple transfusion	10
Need for ICU care	8
Bladder injury	2
Relaparotomy	1
DIC	1
Death	1

2 patients had come with intrauterine fetal demise, one baby was still born, one baby died within 1 hour post-delivery in view of extreme preterm and as minimal care consent was given by family attenders. Other babies had nil perinatal complications

Table 9: Perinatal outcome

Complications	Number (N=10)	Percentage (100%)
IUFD	2	20
Stillborn	1	10
Perinatal death	1	10
nil	6	60%

4. Discussion

The incidence of emergency obstetric hysterectomy in our present study is comparable to various other studies while some studies showed higher incidence

Study	Incidence
Present study	0.15%
Bhoomika et al 2013[7]	0.18%
Shirodker et al 2016[8]	0.16%
Sharma et al 2009[9]	0.54%
Marwah P et al 2008[10]	0.31%

Similar to other studies, the most common indication for emergency hysterectomy was postpartum haemorrhage secondary to uterine atony and another leading cause found was morbidly adherent placenta.

Study	Indication	Incidence
Present study	Atonic PPH	50%
	Adherent placenta	40%
Forna et al 2004[11]	Uterine atony	56.4%
	Placenta accreta	20%
Kant and Wadhwani et al 2005[12]	PPH	41.46%
	Ruptured uterus	36.58%
Lamba J et al 2012[13]	Uterine rupture	40%
	Atonic PPH	28.75%

In our present study, 8 out of the 10 patients underwent Emergency obstetric hysterectomy after failed medical treatment with uterotonics and surgical treatment like B-

Lynch sutures, Hayman's Sutures and stepwise devascularisation. Among the remaining 2 cases one patient had placenta accreta where there was no plane of cleavage between lower uterine segment and the urinary bladder and another case was of ruptured uterus who was not hemodynamically stable and inboth these cases we directly proceeded with hysterectomy.

As hysterectomy renders loss of woman's reproductive capability, sequence of conservative measures should be undertaken prior to such a drastic decision. Bi-manual uterine massage, use of uterotonic(oxytocin, prostaglandins like misoprostol, carboprost, ergometrineetc), uterine tamponade(condom foley's catheter or uterine packing) , haemostatic sutures(B-Lynch sutures, Hayman sutures, Cho's sutures), stepwise devascularisation(uterine artery and internal iliac artery ligation) etc are some of the conservative procedures which reduce the need of emergency hysterectomy.

Total hysterectomy is the recommended method (as noted in our study) as it removes the pathology from the lower uterine segment which can cause bleeding; however subtotal hysterectomy is preferred in certain cases where the general condition is poor and this helps the situation as it is a faster procedure and is associated with lesser blood loss. In subtotal hysterectomy, the uterus is removed at the level of isthmus.

Obstetric hysterectomy should be performed by an expert surgeon as the physiology of pregnancy makes it more difficult than hysterectomy in a non-pregnant patient. All the stumps are doubly ligated to ensure hemostasis.

5. Conclusion

Morbidity and mortality associated with emergency obstetric hysterectomy can be prevented by providing good antenatal care, early detection of the high risk cases and their timely referral, taking into consideration significant history like previous caesarean delivery, previous curettage, grand multiparityetc while planning the delivery of the patients. Doppler studies and magnetic resonance imaging (MRI) should be used whenever in doubt of placenta accreta spectrum. Efficient blood bank facilities and 24 hour Intensive Care unit facilities play a significant role in management of any case of obstetric haemorrhage.
Every obstetrician should be trained in performing conservative procedures as well obstetric hysterectomies. It is highly recommended to avoid difficult vaginal delivery and timely decision to do a caesarean reduces the chances of uterine atony and hence hysterectomy[14].

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