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Anju
Assistant Professor,
Dept of Obstetrics and Gynaecology, Government Medical College & Rajindra Hospital, Patiala, Punjab, India

Preetkanwal Sibia
Professor, Dept of Obstetrics and Gynaecology, Government Medical College & Rajindra Hospital, Patiala, Punjab, India

Parneet Kaur
Professor, Dept of Obstetrics and Gynaecology, Government Medical College & Rajindra Hospital, Patiala, Punjab, India

Corresponding Author:
Anju
Assistant Professor,
Dept of Obstetrics and Gynaecology, Government Medical College & Rajindra Hospital, Patiala, Punjab, India

Emergency obstetric hysterectomy: A clinical study

Anju, Preetkanwal Sibia and Parneet Kaur

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Abstract
Emergency obstetric hysterectomy is a life saving procedure. Its incidence is on the rise as is the increasing incidence of caesarean sections and placenta accrete spectrum.
Methods: This descriptive prospective study was conducted for a period of two years on patients who underwent emergency obstetric hysterectomy to determine the frequency, demographic characters, indications and fetomaternal outcomes from July 17 to June 19 at tertiary care institute of Punjab in Department of Obstetrics and Gynaecology, GMC Patiala.
Results: There were 40 cases of obstetric hysterectomy out of 10859 deliveries giving an incidence of 3.6 per 1000 births, Most of the patients were unbooked (87.5%). 65% were multiparas. Maximum number of women (50%) were in age group 26 to 30 years. 75% patients were cases of previous caesarean. 80% among these had placenta accrete spectrum and these ended up in caesarean hysterectomy. There were five maternal deaths attributed to late referral, irreversible haemorrhagic shock and acute respiratory distress syndrome. Maternal death to maternal near miss ratio during study period was 1:6.4.
Conclusion: Emergency obstetric hysterectomy is definitely life saving procedure but we should reduce its iatrogenic incidence by reducing the incidence of scarred uterus.

Keywords: Emergency Obstetric Hysterectomy (EOH), Placenta accrete spectrum, Post partum Haemorrhage (PPH)

Introduction
Obstetric Hysterectomy is more commonly performed during or after caesarean section delivery but may be done following vaginal birth and most commonly performed to arrest or prevent haemorrhage from intractable uterine atony or abnormal placentation [1].
This is often performed to save the life of the patient from life threatening obstetric complication [2]. This is called caesarean hysterectomy while being done during C-section or post-partum hysterectomy when done post vaginal delivery or post C-section because of atonicity of uterus, post-partum uterine infection, leiomyoma. Peripartum hysterectomy is a broader term that combines these two [1].
The incidence of caesarean hysterectomy is on the rise. Over the years the indications for peripartum hysterectomy have taken a toss, the conditions for which caesarean hysterectomies were done earlier, now count the lowest. So, the study was undertaken to study the risk factors, indications, outcome and complications of caesarean/peripartum hysterectomy along with demographic factors.
These kinds of studies often help us to evaluate our clinical setups and government strategies to upgrade the medical care and facilities.

Material and methods
This study was done as descriptive prospective study for a period of 2 years on patients who underwent emergency obstetric hysterectomy (EOH) from July 2017 to June 2019 in the Department of Obstetrics and Gynaecology, Government Medical College & Rajindra Hospital, Patiala.
The subjects (pregnant women) who either reported as emergency in labour room after being referred from periphery or were booked cases were included in the study. Their clinical parameters like age, parity, booked or referred, obstetric history, method of termination of pregnancy and indications for obstetric hysterectomy, type of hysterectomy, post operative complications, maternal mortality, maternal near miss and perinatal outcomes were studied.

Results

There were 40 hysterectomies over a period of two years. There were a total of 10859 Deliveries. The incidence of obstetric hysterectomy was found to be 3.6per 1000 deliveries.

In this study, 50% mothers belonged to age group of 26-30 years, 22.5% were in age group 31-35 years and 7.5% were more than 35 years of age (Table No.1).

Table 1: Showing age distribution

Age in years	No. of subjects	Percentage
20-25	8	20
26-30	20	50
31-35	9	22.5
>35	3	7.5
Total	40	100

Most of the patients were multiparous, that is, 92.5% were multigravidas and only 7.5% were primi gravida indicating that multiparous women had more incidence of obstetric hysterectomy (Table No 2).

Out of total, 87.5% were unbooked and were referred from other facilities, may be their booked patients but were referred to us at term. 55% were from rural areas and rest from urban areas (Table No 2).

About 20% of patients reported in emergency in haemodynamically unstable condition. Rest were referred at term or were our booked cases with stable vitals. Majority of the patients had gestational age between 34-37 weeks.

Out of 40, 75% (30) were with previous LSCS, either 1(32.5%), or 2(37.5%) or 3 (5%). One patient was primigravida and nine patients had previous normal vaginal deliveries (Table No 3).

Table 2: Showing demographic profile

Gravidity	No. of subjects	Percentage
Primi gravida	3	7.5%
Gravida 2	7	17.5%
Gravida 3	17	42.5%
>Gravida 3	13	32.5%
Booked	5	12.5%
Unbooked	35	87.5%
Rural	22	55%
Urban	18	45%

Table 3: Showing previous mode of delivery

Previous mode of delivery	No. of subjects	Percentage
Previous one LSCS	13	32.5%
Previous 2 LSCS	15	37.5%
Previous 3 LSCS	2	5%
Previous vaginal deliveries	9	22.5%
Primigravida	1	2.5%

Table 4: Indications of emergency obstetric hysterectomy

Indications	No of subjects (40)	Percentage
Placenta previa		
• With atonic PPH	6	15%
• Placenta accreta	16	40%
• Placenta increta	3	7.5%
• Placenta percreta	5	12.5%
Rupture Uterus		
• With previous 2 LSCS	1	2.5%
• with previous one LSCS	1	2.5%
• multipara with obstructed labour (previous vaginal delivery)	2	5.0%
• primi with obstructed labour	1	2.5%
Intractable PPH	5	12.5%

There were total 75% (30) cases of placenta previa in present study.

There were six patients with major degree placenta previa who had intractable haemorrhage following placental separation who did not respond to various pharmacological measures and resulted d in emergency obstetrical emergency. 24 of 30 patients (80%) had placenta accrete spectrum and were taken up for elective/emergency caesarean and ended up in obstetric hysterectomy. In most of the patients, classical C-section was done, and foetus delivered alive with APGAR of 9,9 at one minute and at five minutes followed by hysterectomy when placenta failed to separate or there was haemorrhage.

12.5% (5) patients had rupture uterus and out of these, 2 had scarred uterus. Patients reported in labour with scar rupture. One patient with 30 weeks POG with IUD with previous 2 LSCS in labour expelled the foetus but had retained placenta. When MROP was being tried, rupture was diagnosed, and patient was taken up for laparotomy followed by subtotal hysterectomy as the placenta was low lying and adherent over scar. Another patient with previous LSCS had large fibroid with placenta posterior Type 2, in this case subtotal hysterectomy was done. There were three cases in which there was rupture in unscarred uterus, two were multiparas with previous normal vaginal deliveries and one was primi gravida All presented with rupture following obstructed labour. In 2.5% there was lateral tear extending from cervix to vault to lateral uterine wall.

12.5% of patients had atonic PPH or traumatic PPH, massive enough to do emergency hysterectomy. Before resorting to emergency hysterectomy other life saving measures like bilateral uterine artery ligation, B-Lynch suture, balloon tamponade and internal iliac ligation were done in 7.5%, 2.5%, 7.5% and 5% respectively (Table No 5).

Table 5: Lifesaving procedures before hysterectomy

Procedure	No of subjects	Percentage
B/L uterine artery ligation	3	7.5%
B-Lynch suture	1	2.5%
Balloon tamponed	3	7.5%
Internal iliac ligation	2	5%

72.5% of subjects needed PRBCs and 50% were given FFPs and PRPs and cryoprecipitates. 4 patients required more than 6 PRBCs and 18 required 4-6 PRBCs along with FFPs.

There was associated bladder rupture in 27.5% of patients. Shock was seen in 20% of patients. Febrile morbidity was common post-operative morbidity, followed by secondary haemorrhage, burst abdomen, renal failure and UTI.

Table 6: Post-operative complications

Complication	No of subjects	Percentage
Bladder injury	11	27.5%
Shock	8	20%
Fever	3	7.5%
Secondary haemorrhage	1	2.5%
Wound infection	1	2.5%
Septic shock	1	2.5%
Renal failure	1	2.5%
Urinary tract infection	1	2.5%

Total hospital stays varied from as less as 3 hours to as many as 15 days along with ICU admissions. There were five (12.5%) maternal deaths and 32 (80%) patients met the criteria of maternal near miss in the study. Ratio of maternal death to maternal near miss was 1:6.4

Discussion

In our study, the incidence of emergency obstetric hysterectomy was 3.6 per 1000 births. Total number of births in two years was 10,859. This is higher than other studies like Fatu F et al 0.8 per 1000, [2] 1.2 per 1000 by Shradha Shetty, [6] 0.83 per 1000 by Jaya Chawla [8] and 1 per 1000 by Meena N [9]. Our institute is tertiary care referral centre, with referrals from around the region. Incidence of complicated cases is high and so is incidence of obstetric hysterectomy. But still our study was comparable with studies by Umashankar 3/1000, Bhawna Sharma 3.7/1000 and Afroz Sayma 7.26/1000 [12, 13, 17].

The incidence of emergency obstetric hysterectomy is higher in the age group 25-35years [3-5, 7-13, 15, 16] and in grand multiparas. [2-16]. In our study too, incidence of emergency peripartum hysterectomies was found to be 50% in this age group and most were multiparas. 87.5% of cases were unbooked [3, 4, 9, 15].

Table 7: Comparative incidence of obstetric hysterectomy and maternal mortality

Author	Incidence/1000	Maternal mortality
Fatu F et al (2003)	0.8	3.6%
Shardha Shetty (2013)	1.2	None
Jaya Chawla (2015)	0.8	17.7 %
Meena N Satia (2016)	1	8 %
Surya Jayaraman (2016)	1.7	12.3 %
Bhawna Sharma (2016)	3.7	13.3 %
Umashankar Km (2017)	3	16.6 %
Rashmi Ajit (2017)	1.9	24 %
Afroz Sayma (2018)	7.26	16.6 %
Present study	3.6	12.5 %

In our study, 75% patients had previous caesarean as the risk factor for lower segment placental implantation as seen in other studies like F. Forna (63.6%), Shardha Shetty (33.3%) and Jaya Chawla (82%).

The most common indication for EOH in our study was placenta accrete spectrum (75%) with scarred uterus. From review of literature from 2003 till date, the incidence of placenta accrete has increased from 12.19% to 58.6% [2, 3, 8-11, 14, 17] and so has the incidence of caesarean which is the most common risk factor for abnormal placentation due to destruction of Nitabuch's layer and resultant placenta accrete spectrum. This is thought to be due to mal-repair of endometrium and/or decidua basalis. Cytotrophoblast invade decidualised endometrium but fail to encounter the spongiosis layer and do not encounter the normal signal to stop invasion and trophoblast continue their invasion to an abnormal degree [18]. The relative hypoxia of caesarean scar tissue recruits preferentially the blastocyst to implant in the area as cytotrophoblast invasion is stimulated by hypoxia till they reach the spiral arterioles and trophoblast change behaviour, allowing spiral arteriole reorganisation and increased oxygen tension and delivery [19].

Uterine rupture is a commonly associated with vaginal birth after caesarean section. In our study 12.5% of the cases were of uterine rupture, 2 had scar rupture and 3 cases were following vaginal delivery. Two were grand multipara and one was primigravida referred from primary care centres in obstructed labour and all three had rupture uterus and ruptured bladder. A retrospective study of 5 years (1999-2003) from the same institute, revealed rupture uterus as the most common indication for EOH (60%) followed by adherent placenta as second indication (20%) [20]. Over a period of 15 years, there is a vice versa change. Incidence of ruptured uterus because of injudicious use of oxytocin referred from periphery has drastically decreased because of improved antenatal and intranatal care. Various initiatives by the government like skilled birth attendant training, basic emergency obstetric care training and comprehensive emergency obstetric care training to medical officers and staff nurses working the periphery has helped in improving the maternity care. On the contrary, increasing caesarean section rates have put the patients at the higher risk of scar dehiscence in labour and placenta accrete spectrum for which emergency hysterectomies are being done.

Third major cause of emergency hysterectomy in our study was post-partum haemorrhage. Atonic PPH and Traumatic PPH in 12.5% cases. Before proceeding to emergency hysterectomy other lifesaving procedures like balloon tamponade in 7.5%, B-lynch suture in 2.5% cases, bilateral uterine artery ligation in 7.5% and internal iliac artery ligation in 5% cases was tried following the pharmacological agents like oxytocin, methergine, misoprostol, injection carboprost. Uterine atony was once the most common cause of emergency obstetric hysterectomy and now there is a decreasing trend from 66.7% to 20% in a review of literature [2-17].

Bladder injury is the most serious co-morbidity in emergency obstetric hysterectomy. Urological injuries appear to be related to scarring and secondary adhesion of vesico-uterine space following previous caesarean section and invasion of bladder by placenta. 11 (27.5%) patients had bladder injury in present study, 3 were in cases of unscarred rupture uterus and 8 were in placental accrete spectrum with previous LSCS deliveries. Afroz Sayma and Jahan RH have also reported 20.6% and 16.6% incidence of urological injuries respectively, in their studies [16, 17]. There is also higher risk of morbidities like fever, secondary haemorrhage, wound infection, sepsis, renal failure and UTI.

Massive blood transfusion is almost always required in patients of obstetric hysterectomy and it has its own implications. In our study, on an average 72.5% patients required 4 or more units of PRBCs and 50% required FFPs, PRP and cryoprecipitate. Our being a tertiary care centre, availability of blood bank is a boon. Hospital stay is also prolonged from 7days to more than 15 days in these cases.

Maternal mortality rates are higher in peripartum hysterectomy cases. Most of the studies have reported a mortality rate of 7% to 24% [5, 8-13, 15]. In our study it was 12.5%. The mortality rate is attributed to causes like irreversible haemorrhagic shock, patients reporting late in emergency, to septic shock and ARDS. But at the same time, saving 87.5% of cases, gives immense satisfaction that though a radical procedure, emergency obstetric hysterectomy is indeed a lifesaving procedure and if not performed, would lead to maternal death. So maternal near miss

in our study was 80% and maternal death to maternal near miss ratio was 1:6.4. There is often a debate as to whether to perform total vs subtotal obstetric hysterectomy at the time of emergency. Total hysterectomy is a procedure of choice for placenta accrete spectrum because otherwise haemorrhage may not be controlled. In others, subtotal hysterectomy may be the procedure of choice, keeping in view the obstetric shock index requiring quick in and quick out procedure. In our study, 67.5% required total and 32.5% required subtotal hysterectomy.

Conclusion

Keeping in view the changing indications for which EOH are being done, we need to think and reorganise our practices. We have blatantly put onus on poor antenatal, intranatal care, illiteracy, poor health services and strategies, low resource setting and not enough qualified personnel. But points to ponder are that -

- Percentage of deliveries being conducted in the institutes has increased.
- There is reduction in incidence of ruptured uterus over the years because of obstructed labour and injudicious use of oxytocin.
- There is decrease in the PPH because of better pharmacological agents and timely management. We owe all these achievements to good quality antenatal care and intranatal services being provided by the SBA trained, BEMOC/CEMOC trained staff and medical officers providing good quality services.
- What we need to check is, the rate of caesarean sections which is increasing, may be because of new methods of fetal monitoring, increased legalities adding to obstetrician's dilemma and on demand caesareans.
- Primary caesareans are to be worked on and effort should be done to reduce their number by doing audits at our place of work at regular intervals.
- Once a caesarean always a caesarean, should be stopped. TOLAC should be offered to all patients who have under gone section for a non-recurrent indication.
- Improved technique for suturing uterine incision can go a long way in preventing placenta accrete syndrome.
- Alternative surgical and conservative strategies should be attempted before proceeding to hysterectomy.

As the old adage goes "excess of everything is bad" let us show lots of patience in managing labour and apply our knowledge judiciously for deciding caesarean sections.

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