International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2020; 4(1): 298-301
Received: 16-11-2019
Accepted: 20-12-2019

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Emergency obstetric hysterectomies in a tertiary care centre of rural India

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DOI: https://doi.org/10.33545/gynae.2020.v4.i1e.479

Abstract
Objective: Though unusual in modern obstetrics, emergency obstetric hysterectomy remains a lifesaving procedure in case of uncontrollable postpartum hemorrhage. Decision of proceeding for obstetric hysterectomy on time will save one life. Because of its own significance, a study was conducted to analyse emergency obstetric hysterectomy in various aspects. Here we sought to determine incidence, risk factors, age distribution, parity association, feto-maternal outcomes, indications, post-operative complications and prognosis associated with emergency obstetric hysterectomy.
Materials and Methods: A descriptive observational study was conducted as a retrospective analysis of 34 patients over a span of 2 years from January 2018 to December 2019 in the department of obstetrics and gynecology at Government Medical College & hospital a tertiary care centre in Latur, Maharashtra. All the peripartum hysterectomy cases were analysed under various factors and its outcome regarding maternal morbidity and mortality.
Results: The incidence of obstetric hysterectomy was 2.03 per 1000 confinements. Majority of the women were in the age group of 21 to 25 years contributing 35.20% and belonged to parity two and above. The commonest indication was postpartum hemorrhage (64.70%) followed by morbidly adherent placenta (17.64%). Previous cesarean section was the most common risk factor (35.29%). Among the post operative complications, febrile morbidity remain the most common (35.29%). There were five maternal deaths (14.70%).
Conclusion: Providing the universal proper antenatal care to identify the risk pregnancy, there should be increased frequency of ANC visits in case of high risk cases for timely diagnosing the condition and to prevent the deadly complication further. Referral to higher centre for medically supervised delivery for timely intervention if needed and that can reduce emergency obstetric hysterectomy and finally lead to reduction in maternal morbidity and mortality.

Keywords: obstetric hysterectomy, postpartum hemorrhage, cesarean section, maternal mortality, morbidly adherent placenta

1. Introduction

1.1: Obstetric hysterectomy is defined as removal of uterus at the time of cesarean section or following vaginal delivery or within the puerperium period or for complication following pregnancy termination such as perforation or sepsis [1]. Horatio Storer in 1869 performed first cesarean hysterectomy at United States for management of obstetric emergency to improve maternal outcome. After that Porro of Milan narrated first cesarean hysterectomy with good fetal and maternal outcome. As a mark of honor, the procedure is frequently referred to as Porro operation [2]. It is last remain procedure to save maternal and fetal life in life threatening hemorrhage in developing countries sacrificing mother's reproductive capability. Indications of hysterectomy include atonic uterus, abnormal placentation like previa, separation as in abruption placenta, uterine rupture, traumatic PPH ending into devastating hemorrhage and maternal mortality with morbidity.

1.2: Our study is a retrospective study of obstetric hysterectomy in relation to various aspects like age factors, incidence, indications, risk factor and outcome to optimize standard of care at tertiary care center to reduce maternal and perinatal outcome and to identify risk factor for obstetric hysterectomy to reduce incidence of that procedure.

2. Objectives

To study obstetric hysterectomy with regard to frequency, indication, maternal risk factor, complication, outcome in tertiary center.

3. Materials and Methods

Retrospective observational study of 34 cases of obstetric hysterectomy was carried out over period of 2 years from January 2018 to December 2019 in department of Obstetrics and Gynecology, Government Medical College Latur, Maharashtra. We analyzed patients characteristics include age, parity, risk factors, indications for obstetric hysterectomy, complications and its outcome.

4. Results

4.1: During the period of 2 years total no. of deliveries were 16,694 and obstetric hysterectomies were 34 giving an incidence of 0.20%. Out of 34 obstetric hysterectomies 21 were after doing 7042 cesarean section giving an incidence of 0.29% ; 10 were after doing 9842 vaginal deliveries leading to incidence of 0.20 % and 3 were after doing 1394 evacuations with incidence of 0.22%.

Table 1: Incidence of obstetric hysterectomy (n=34)

Statistical data	No. of deliveries	No. of obstetric hysterectomies	Percentage
Total deliveries	16694	34	0.20%
Vaginal deliveries	9842	10	0.20%
Cesarean sections	7042	21	0.29%

Incidence of obstetric hysterectomy -0.203%

Table 2: Reported incidence of obstetric hysterectomy

Author	Incidence
Kant *et al.* [2]	0.26%
Sharma *et al.* [3]	0.37%
Saharabhojanee *et al.* [4]	0.35%
Singh *et al.* [5]	0.43%
Bakshi and Meyer (2002) [6]	0.27%
Kastner *et al.*(2002) [7]	0.14%
Sahu *et al.*(2004) [8]	0.20%
Praneshwari Devi *et al.* (2004) [9]	0.07%
Gupta *et al.*(2001) [10]	0.22%
Basket (2003) [11]	0.53%
Kwee *et al.* (2005) [12]	0.03%
Present study	0.20%

4.2 Maternal characteristics

4.2.1 Age: Majority of patients were in the age group 21 – 25 years (35.2%). Other were of age group 18-20 years (26.4%) and one in age group of 35-40 years (2.94%)

4.2.2 Parity: Only 8 women were primiparous (23.52%) and rest all were multiparous.

4.2.3 Antenatal booking: 24 cases were not booked (70.58%) and 10 booked for delivery. Most of the cases from rural areas 74% compared to urban area 26% suggesting poor antennal care in rural areas.

4.2.4 Type of obstetric hysterectomy: Total obstetric hysterectomy was possible in 64% with fair general condition. Rest 36% has undergone subtotal hysterectomy.

Table 3: Distribution of age group in obstetric hysterectomy

Age group	No. of patients (n=34)	Percentage
18-20	9	26.4%
21-25	12	35.2%
26-30	8	23.52%
31-35	4	11.16%
36-40	1	2.94%

Table 4: Relationship between parity and obstetric hysterectomy

Parity	No. of Patients	Percentage
Primi	8	23.52%
Gravida 2	13	38.23%
Gravida 3	9	26.47%
Gravida 4	1	2.94%
Grand multi	3	8.8%

Most common indication was atonic postpartum hemorrhage (PPH) accounting for 64.70% of hysterectomies followed by morbidly adherent placenta (17.64%). There were 2 cases of rupture of uterus (5.8%). Postpartum hemorrhage was also due to mixed cause like cervicovaginal tear 1 case and extension of lower segment in cesarean section.

Table 4: Indications of obstetric hysterectomy

Sr. No.	Indication	No. of Patients	Percentage
1	Postpartum hemorrhage	22	64.70%
	Cesarean delivery	13	38.23 %
	Vaginal delivery	6	17.64%
	Post abortion	3	8.82%
2	Morbidly adherent placenta	6	17.64%
	Placenta percreta	1	2.94%
	Placenta accrete	5	14.70%
3	Mixed postpartum haemorrhage	2	5.88%
	Cervicovaginal tear (traumatic)	1	2.94%
	Extension of lower segment	1	2.94%
4	Rupture uterus	2	5.88%
	Scar dehiscence	1	2.94%
	Obstructed labour	1	2.94%
5	Acute inversion	1	2.94%
6	Perforation during termination of pregnancy	1	2.94%

Table 5: Risk factors for obstetric hysterectomy

Risk factors	No. of patient	Percentage
Previous cesarean section	12	35.29%
Pre eclampsia	8	23.52%
Anemia	7	20.58%
Abruptio placenta	6	17.64%
Placenta previa	4	11.76%
DIC	5	14.70%
IUD	6	17.64%
Grand multipara	3	8.8%
Multi fetal gestation	1	2.94%
HELLP syndrome	1	2.94%

Risk factors for obstetric hysterectomy as stated includes previous cesarean section in 12 cases of obstetric hysterectomy giving the percentage of 35.29%. This is followed by hypertensive disorder in pregnancy accounting pre eclampsia in

8 cases and eclampsia & Hellp syndrome each 1 case. Commonly found sequence was severe preeclampsia with untreated hypertension leading to abruptio placenta and fetal death if more degrees of abruption.

Table 6: Indication for cesarean section in patients undergoing obstetric hysterectomy

Indication	No. of cases(n=21)	Percentage
Placenta previa	5	23.80%
Abruption placenta	5	23.80%
Previous 2 LSCS	3	14.28%
Cephalopelvic disproportion	2	9.52%
Meconium stained liquor	2	9.52%
Fetal distress	1	4.76%
Multifetal gestation	1	4.76%
Ruptured uterus	1	4.76%
Failure of induction	1	4.76%

Indications for cesarean section are presented in table no.6. Placental abruption (23.80%) and abnormal placentation (23.80%) were main indications followed by previous 2 LSCS (14.28%), CPD (9.52%), meconium stained liquor (9.52%), fetal distress (4.76%), multifetal gestation (4.76%), ruptured uterus (4.76%) and failure of induction (4.76%).

Table 7: Complications and post operative morbidity

Complications	No. of cases	Percentage
Febrile morbidity	12	35.29%
Wound infection	4	11.76%
Septicemia	4	11.76%
Paralytic ileus	1	2.94%
Urinary tract infection	21	5.8%
Bladder injury	6	2.94%
Pneumonitis	4	17.64%
Thrombophlebitis	4	11.76%
Coagulopathy	10	11.76%
ICU admission	18	52.94%
Renal failure	4	11.76%
Resuturing	3	12.50%
Repeat laparotomy for bleeding	1	2.94%
Maternal mortality	5	14.70%
Fetal NICU admission	5	14.70%
Neonatal death	3	5.8%

Post-operative complications

Most common complication was febrile morbidity affecting 12 patients (35.29%) followed by coagulopathy in 10 cases (29.40%). Secondly to infection contributing to most of the ICU admission (10), pneumonitis found commonly in patients admitted to ICU – 6 patients (17.64%) other complications causing morbidity are wound infection, 4 cases, septicemia 4 cases. Anemic patients requiring blood transfusion are more prone for development of wound infection and septicemia. Thrombophlebitis found in 4 cases followed by other complication like ARF is found in 4 cases of atonic PPH secondary to PPH hypovolemic shock, urinary tract infection (2), Paralytic ileus (1), wound infection patient 3 required resuturing. Repeat laparotomy for bleeding is done for 1 case.

There were 6 intrauterine deaths, 4 stillbirths, 24 live births and 3 neonatal deaths. Neonatal death among preterm twin deliveries and one with rupture uterus. Maternal mortality found in 5 cases out of 34(14.70%). Factors found responsible are disseminated intrauterine coagulation secondary to abruption placenta, IUD and severe preeclampsia. Anemia is underlying contributory factor with grand multiparty.

5. Discussion

5.1. Acquiring skills of obstetric hysterectomy still remains the important tool in saving maternal life threatening condition in rural areas of developing countries.

The incidence of obstetric hysterectomy in present study is 0.20% which is similar to study of Gupta *et al.* [10] and Kant *et al.* [2].

Table no.2 shows incidence of obstetric hysterectomy our incidence is similar to studies conducted in peripheral rural area.

5.2. Postpartum hemorrhage is most common found indication for obstetric hysterectomy in our study contributing 64.70% followed by morbidly adherent placenta (17.64%). This may be due to increase in rate of cesarean section leading to abnormal placentation as we are getting more referral cases from periphery in view of tertiary care center. Third indication was rupture uterus accounting for 2 cases giving 5.8%. Both of the patients were unbooked referred in shock which is similar to study by Bharati Sharma *et al.* [13] (7.5%). However in other studies rupture uterus was most common indication statistically.

5.3. Table no.5 shows risk factors found in our study are previous cesarean section contributing to 35.29% studies done by Singh Rekha *et al.* [5] also shows rising trend of obstetric hysterectomy in previous scar pregnancy. Other risk factor found are severe pre eclampsia (23.52%) leading to DIC (14.7%), abruptio placenta (17.64%) and Hellp (2.94%) leading to obstetric hysterectomy. Anemia (20.58%) is the major contributory factor further adding to maternal morbidity and mortality. Intrauterine death (17.64), grand multi para (88%) and multi fetal gestation also contributed to risk factors for obstetric hysterectomy.

5.4. Table no. 6 shows indication for cesarean section in patient undergoing obstetric hysterectomy. Of all placenta previa (23.8%), placental abruption (23.80%), previous 2 LSCS (14.28%), cephalopelvic disproportion (9.52%), meconium stained (9.52%) and each cases of fetal distress, multi fetal gestation, rupture uterus and failure of induction.

In table no.7 as complication concerned infebrile morbidity affects 12 patients (35.29%) also common in studies collected by Bhawana Sharma *et al.* [3], pneumonitis in 6 patients (17.64%) followed by renal failure in 4 patients(11.76%) and other complications like bladder injury, thrombophlebitis, recurrent UTI also encountered. Resuturing of wound required for 3 patients and one patient underwent repeat laparotomy for bleeding.

Out of 34 of patients 10 were admitted in ICU. Most of them were unbooked. Vasopressor needed for 7 patients. There are 5 cases of maternal mortality (14.70%). Out of 5 patients, 2 patients died because of DIC and 2 patients of cardiopulmonary arrest and 1 due to septicemia whereas in other studies incidence varies from 10% to 13%. As regards to perinatal mortality 5 babies admitted to NICU and 3 were died.

5.5. Maternal morbidity and mortality found in our study was mainly due to condition of patient at time of procedure. Timey referral to higher center and availability of blood and blood products.

6. Conclusion

6.1. Recently India registers 26.9 % decline in MMR since 2013 and these is 77 to 72 maternal deaths per 100000 live births in Southern India. Surgery in the pregnant patient present several unique challenges. Hysterectomy usually is the safest procedure and also the quickest that can be performed for refractory bleed.

6.2. Emergency obstetrics hysterectomy in good faith many maternal lives at the expense of motherhood. Mostly time of

procedure and not due to procedure itself. Regular antenatal care, early diagnosis of high risk cases, safe confinement of these cases to tertiary care center. Timely recognition of complication, correction of underlying high risk factors, indicated cesarean sections can help in reducing incidence of further morbidity and mortality.

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