

Original Research Article

Critical analysis of peripartum hysterectomies at a tertiary level hospital in 1 year

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Abstract

Peripartum or obstetric hysterectomy is the removal of the corpus uteri alone or with the cervix at the time of a cesarean section, or shortly after a vaginal delivery. It is a challenging though life-saving obstetric procedure it is associated with morbidity and mortality. The medical records of 20 patients who had undergone peripartum hysterectomy, between April 2015 to April 2016 (1 year), in a tertiary teaching hospital, King George Hospital, Visakhapatnam, covering north coastal Andhra Pradesh and surrounding districts of Odisha were reviewed retrospectively. The results were analyzed. Emergency peripartum hysterectomy is a most demanding obstetric surgery performed in very trying circumstances of life threatening hemorrhage. The indication for emergency peripartum hysterectomy in recent years has changed from traditional uterine atony to abnormal placentation. Antenatal anticipation of the risk factors, involvement of an experienced obstetrician at an early stage of management and a prompt hysterectomy after adequate resuscitation would go a long way in reducing morbidity and mortality. Prompt performance of peripartum hysterectomy before patient clinical conditions deteriorate is the main key to success and less postoperative complications.

Key words

Peripartum hysterectomy, Atony, Rupture, Placenta praevia.

Introduction

The first documented hysterectomy on a patient at Cesarean section was performed in United States by Horatio Storer in 1869. Although the uterus was removed successfully, the patient died in 68 hours after surgery.

The reported incidence of emergency peripartum hysterectomy varies between 0.2 and 5.4 in 1000 deliveries. In general, the average incidence is put at 1 in 1000 deliveries; the higher incidence is being reported from the developing world while developed countries generally report lower rates. The high incidence of peripartum hysterectomy in the developing world may be due to her phenomenon of unbooked emergencies and the earlier recourse to hysterectomy due to the lack of adequate cross matched blood and other blood products which limit the time available for examining the effectiveness of other conservative procedures. Moreover, certain modern conservative procedures involving interventional radiology are not practicable in most developing world settings due to lack of human and material resources involved.

The risk factors for post partum hemorrhage include coagulopathies, uterine atony, retained products of conception, precipitate or prolonged labor, fetal macrosomia or multiparity, maternal obesity and previous primary post partum hemorrhage [1–6, 8–14]. Traditionally uterine atony was the most common indication for EPH [7]. Recent studies however have indicated a change in the trend towards abnormal placentation [2, 6, 8, 10, 13] for Total or subtotal hysterectomy.

Total hysterectomy is the recommended surgical method of EPH due to the potential risk of malignancy developing in the cervical stump and the need for regular cytology and other associated problems such as bleeding or discharge associated with the residual cervical stump [15-17]. Currently the proportion of subtotal hysterectomy performed for EPH ranges

from 53% [14] to 80% [1]. The proponents of subtotal hysterectomy report a lesser blood loss, a reduced need for blood transfusion, reduced operating time and reduced intra and postoperative complications [24]. Subtotal hysterectomy may not be effective in management of accreta located in lower uterus. Total hysterectomy should however be considered when active bleeding occurs from lower uterine segment as the cervical branch of uterine artery may remain intact [6]. Both total and subtotal hysterectomy are however associated with high mortality [8, 13, 14, 24]. All pedicles are doubly ligated because of hyperemia and peripartum pelvic tissue tears [6]. The final decision to perform subtotal or total hysterectomy would be influenced by patient's condition. Hence, while total abdominal hysterectomy is a more convenient procedure, subtotal EPH may be a better choice in certain conditions where surgery needs to be completed in a shorter time.

Materials and methods

The medical records of 20 patients who had undergone peripartum hysterectomy, from April, 2015 to April 2016 (1 year), were reviewed retrospectively. Maternal characteristics and characteristics of the present pregnancy and delivery, hysterectomy indications, complications, postoperative conditions, and maternal and neonatal outcomes were evaluated. All deliveries were performed after 24 weeks of gestation, and the hysterectomy was performed shortly (within hours) after delivery. The following parameters were included in this study (**Table – 1**).

Results

During period of 1year, total of 5934 women delivered. There were 20 peripartum hysterectomies with a rate of 3.53 per 1,000 deliveries. 19 hysterectomies were performed after Cesarean delivery and 1 after vaginal delivery with 2 maternal deaths and saving about 18 lives. Distributions of cases were as per **Table – 2**.

Table - 1: Parameters included in the study.

Column1	Column2
1	MATERNAL AGE
2	PARITY
3	GESTATIONAL AGE
4	MODE OF DELIVERY
5	INDICATIONS OF HYSTERECTOMY
6	TYPE OF HYSTERECTOMY
7	MATERNAL OUTCOME
8	PERINATAL OUTCOME

Table - 2: Distribution of cases (N=20).

Maternal age	<18 years	1
	18-35 years	16
	>35 years	3
Parity	Primiparous	6
	Multiparous	14
Gestational age	<37 weeks	4
	37-40 weeks	14
	>40 weeks	2
Mode of delivery	Vaginal (outlet)	1
	Cesarean section	19
Type of hysterectomy	Subtotal	11
	Total	9
Indications	Atony	4
	Rupture	11
	Praevia	3
	Fibroid	1
	Inversion	1
Maternal outcome	Alive	18
	Dead	2
Perinatal outcome	Alive	4
	Dead	16

Majority was multiparous (14/20) that was 70%. Rupture uterus was leading cause in multiparous women – 6 cases had previous scar rupture, 3 cases were grand multipara with prolonged labor and 2 cases was handled by dai with oxytocin abuse. Majority of cases were due to uterine rupture (11/20) that was 55%. All conservative measures were tried in case of atonic post partum hemorrhage - medical management, bilateral uterine arteries and bilateral ovarian arteries ligation, B-lynch sutures were applied. Reasons

for total hysterectomy – 7 cases were due to extension of tear into cervix while 2 cases were due to bleeding from bed in placenta Praevia.

Discussion

Although no risk assessment system can predict all instances where Cesarean delivery will be needed, a significant percentage of the patients who are at high risk for severe hemorrhage and the subsequent need of emergency hysterectomy can be identified before surgery. The preoperative risk factors include previous history of CS, placenta praevia and accreta. The presence of preoperative risk factors should facilitate consultation, referral or transfer of patients before surgery to a tertiary care facility. Due to the complexity of the surgery and decision making, the involvement of an experienced obstetrician at an early stage is desirable. Proper surgical measures such as hemostatic sutures or uterine or hypogastric artery ligation or embolization are options in attempting uterine conservation particularly in patients who are young and in whom future fertility is important and who are relatively haemodynamically stable. When conservative treatment is not feasible or has failed, prompt EPH is performed failing which the delay would contribute to the maternal morbidity and in unfortunate cases mortality.

Despite advances in medicine and surgery, postpartum hemorrhage remains one of the leading causes of maternal morbidity and mortality. Peripartum hysterectomy is performed in the treatment of a life-threatening obstetric hemorrhage that cannot be controlled by conventional methods. The reported incidence of emergency peripartum hysterectomy varies from 0.24 to 5.09 per 1,000 deliveries in the literature. Our incidence of 0.41 per 1,000 deliveries (0.04%) is in agreement with the recent studies. Zeteroglu, et al. reported the incidence of EPH in a teaching hospital as 5.09/1,000 deliveries, which is higher than that of other studies [10].

In our study, majority of patients who underwent EPH were in age group ≥ 35 years and were multipara. Similar trend was observed by Amad and Mir [20] and Barclay et al. [21]. Other risk factors for EPH, like previous Cesarean birth, induced labor, current Cesarean delivery, and abnormal placental implantation and invasion, were similar to the literature [22].

The most frequent indication for EPH in the present study was uterine rupture, followed by morbid adherence of placenta and uterine rupture. There has been a significant change in the indication of EPH over time and from one region to another. Traditionally, uterine atony was the most common indication for hysterectomy. Recent studies have indicated that abnormal placentation is replacing uterine atony as the most common indication for EPH [4]. In 1984, Stanco, et al. reported that 43.4% of their emergency hysterectomies were done because of uterine atony, while 33.9% were due to placenta previa with accreta. A study from the same institution in 1993 stated that their primary indication was placenta accreta, the problem in 45% of cases, followed by uterine atony, with 20% [23]. Baskett reported that the main indications for hysterectomy were abnormal placentation (50%) and atonic postpartum hemorrhage (32.8%) [13]. This study demonstrates that our most frequent indication for EPH still remains uterine RUPTURE, followed by placenta praevia, a feature that can be explained by our low rate of Cesarean delivery. Also, despite the above reports, similar results to our study have been described by Özden, et al. and that was also explained by the low rate of Cesarean delivery [24]. From all this data, we can conclude that there is a considerable variability in the indications of EPH worldwide, and it varies with obstetric practice in each center.

Peripartum hysterectomy is associated with high complication rates, mainly due to the need for massive blood transfusions, coagulopathy, and injury of the urinary tract, and it is also associated with the need for reexploration

because of persistent bleeding and febrile morbidity [2, 25, 26]. All of our patients received blood transfusions and >98% of them had over two units of blood. Bladder injury was found in 1 patient, and this patient had a previous Cesarean delivery. Thus, urological injuries appear to be related to scarring and secondary adhesion of the vesicouterine space following previous Cesarean section. In comparison with Smith's 6%, Kwee's 15%, Yucel's 8.8%, Zeteroglu's 12.5%, and Zelop's 9%, our urinary tract injury rate is 7.7%. [2, 10, 17, 26, 27] Reexploration was performed in 1 case (7.7%) for persistent postoperative bleeding, compared with Smith's 11%, Kwee's 25%, Zeteroglu's 12.5%, and Ozden's 6.8% [2, 10, 17, 24]. In our series, 4 women (30.7%) developed disseminated intravascular coagulopathy, lower than the 33% rate previously reported by Smith and Mousa and Lau et al. [17, 22]. The febrile morbidity rate of 7.7% is lower than that of their studies [14, 17, 28]. There was one maternal death (7.7%) in our study. Lower rates of 4 and 4.5% were cited by Kwee, et al. and Zorlu, et al. and much higher rates of 20 and 23.8% were found by Hamsho and Alsakka and Umezurike, et al. [2, 29, 30]. Our low mortality rate may be related to a high rate of antenatal follow up and an optimal obstetric intervention in the cases of EPH in our department. Our results confirm the previous observations that EPH is associated with high operative and postoperative complications rates.

There are numerous risk factors that can contribute for this entity and recognizing and assessing patients at risk is very important. Also, appropriate management of cases of postpartum hemorrhage is an important issue. Ideally each labor and delivery unit has a postpartum hemorrhage protocol for patients with estimated blood loss exceeding a predefined threshold (often 1000 mL). These protocols provide a standardized approach to evaluating and monitoring the patient, notifying a multidisciplinary team, and treatment. In our department, we have implemented the following sequential steps in managing postpartum hemorrhage

Conclusion

Peripartum hysterectomy rates are increasing over time, possibly related to increasing Cesarean deliveries, and other factors, such as abnormal placentation, that are known to be associated with increasing maternal age and delayed childbearing in today's society. Our results suggest that all factors that have the potential to lead to hemorrhage and infection increase the risk for peripartum hysterectomy and particular attention should be paid to these factors known antepartum by the clinician. Although it is not possible to prevent all cases of hysterectomy, women at particularly high risk should be counselled and preventative steps comprising early assessment and recognition of a woman's potential risk should be employed.

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