

A Retrospective Study of Cases of Postpartum Hemorrhage at Secondary Health Care Center

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Abstract: ***Aims & Objectives:** The aim was to analyse factors responsible for causing PPH and its management. **Materials and Methods:** This study included all patients admitted for delivery as well as referred patients came to LAKHIMPUR DISTRICT HOSPITAL, NORTH LAKHIMPUR (ASSAM) ending up in PPH. **Results:** Out of 23313 patients 392 patients landed up in PPH from January, 2017 to December, 2023 at Lakhimpur District Hospital, North Lakhimpur (Total duration 7 years). Uterine atony is the major cause of PPH followed by traumatic and retained tissue. In 74.32 % cases of PPH had a more than one predisposing factors like anaemia, prolonged labour, placenta previa, multiparity, multifetal gestations, macrosomia, uterine inversion, fibroid uterus. Total 61.99% cases responds to medical line of treatment. 8.93 % patients required bimanual uterine massage with medical treatment. 22.19 % patients required conservative surgical interventions, 3.06% patients required radical surgery (subtotal obstetric hysterectomy), 3.83% cases referred to higher centres & ~1 % maternal mortality. **Conclusion:** We conclude that identification of predisposing factor and timely medical, surgical and bimanual massage can reduce mortality and morbidity in PPH.*

Keywords: Postpartum hemorrhage, Uterine atony, Bimanual massage, Retained placenta

1. Introduction

Postpartum haemorrhage is a life threatening situation and an obstetrician's nightmare. It remains a major cause of maternal morbidity and mortality worldwide. It is still an important issue in the developing world. About 13% of all deliveries may result in PPH. There are 6,00,000 maternal deaths reported worldwide every year and 99% of these occur in developing countries¹. Around 25% of deaths in developing world and 38 % in India (NHM guideline 2022) are due to PPH. Uterine atony is the most common cause of PPH, in about 75- 90% of cases. Other causes include placenta previa, accreta, lower genital tract laceration, coagulopathy, uterine inversion and ruptured uterus.¹Oxytocin, syntometrine, ergometrine, PGF2 alpha and misoprostol are different medical preparations used as uterotonics for prophylaxis and therapeutic management of PPH. The two main aspects of management of PPH are resuscitation and identification/management of underlying cause. Interventions like application of compression sutures, internal iliac artery ligation, uterine artery embolization and hysterectomy are other life saving measures. Objectives of this study were to determine the frequency, causes of PPH and various available treatment options and study to find out any specific measures for prevention of maternal mortality and morbidity related to PPH.

Aims and Objectives

The aim was to analyse factors responsible for causing PPH and its management.

2. Materials and Methods

- **Study design-** Hospital based retrospective observational study
- **Study Period-** January 2017 to December 2023 (7year)

- **Place of study-** Department of Obstetrics and Gynecology Lakhimpur District Hospital, North Lakhimpur

Inclusion criteria: This study included all patients admitted for delivery & ending up in PPH or presenting with PPH in outpatient department, casualty or referred from outside as PPH.

Exclusion criteria: Patients with history of coagulation disorder & patients who were taking heparin & warfarin. For calculation of frequencies, the total number of deliveries in the setup during study period was used. All data are completely analysed comprises of history, general physical examination, abdominal & pelvic examination, relevant laboratory investigations.

Diagnosis of PPH was made clinically based on findings of pelvic examination, condition of uterus and amount of bleeding. Maternal condition was assessed and managed according to established hospital protocols which included both pharmacological and surgical interventions.

All maternal complications were noted and recorded in predesigned proforma.

3. Results

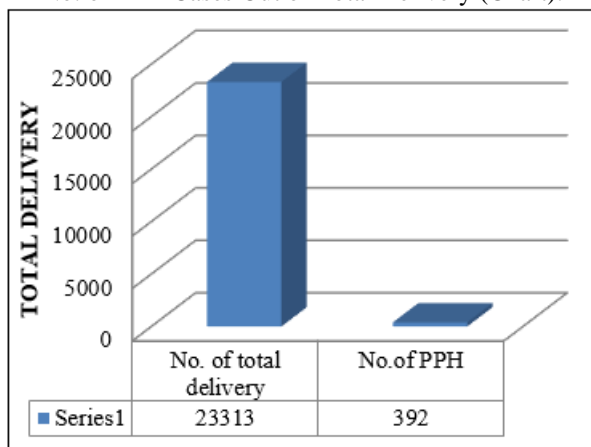
No PPH cases out of total delivery:

392cases land up in PPH out of 23313 cases of delivery.

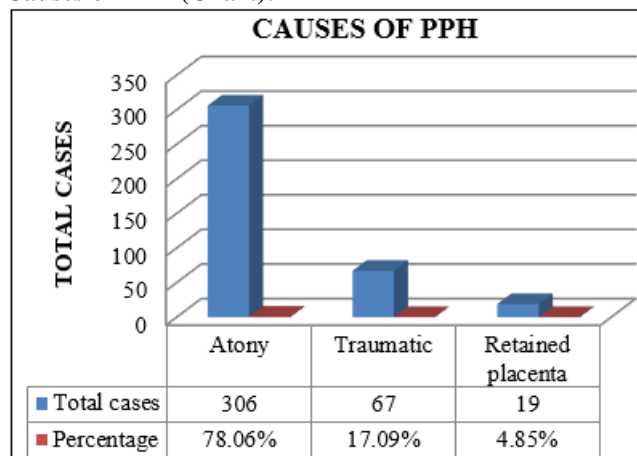
Table 1: No of PPH cases out of total delivery

No. of total Delivery	23313
No. of PPH	392

No. of PPH Cases Out of Total Delivery (Chart):



Causes of PPH (Chart):



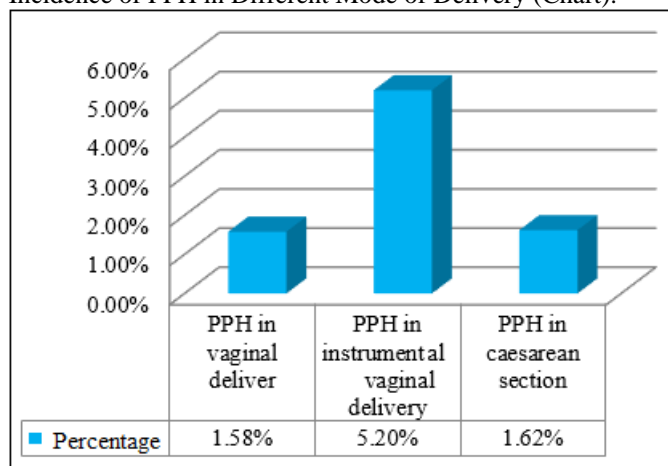
Incidence of PPH in different mode of delivery:

Incidence of PPH increase with instrumental vaginal delivery. But nearly equal in vaginal and caesarian section.

Table 2: Incidence of PPH in different mode of delivery

Title	Percentage
PPH in vaginal Delivery	1.58%
PPH in instrumental vaginal Delivery	5.20%
PPH in Caesarean section	1.62%

Incidence of PPH in Different Mode of Delivery (Chart):



Causes of PPH:

- 1) Atony was present in 78.06% of cases
- 2) Traumatic was in 17.09% &
- 3) Retained placenta in 4.85%.

Table 3: Causes of PPH

Cases of PPH	Total Cases	Percentage
Atony	306	78.06%
Traumatic	67	17.09%
Retained Placenta	19	4.85%

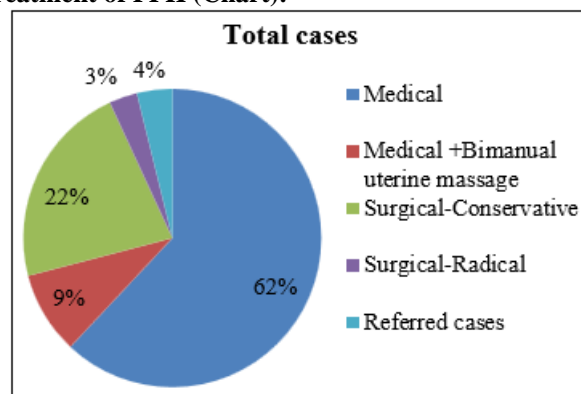
Treatment of PPH:

- a) Total 61.99% cases responds to medical line of treatment.
- b) 8.93% patients required bimanual uterine massage with medical treatment.
- c) 22.19% patients required conservative surgical interventions &
- d) 3.06% patients required radical surgery.
- e) 3.83% cases referred to higher centres. (15 cases)

Table 4: Treatment of PPH

Treatment	Total Cases	Percentage
Medical	243	61.99%
Medical + Bimanual Uterine Massage	35	8.93%
Surgical- Conservative	87	22.19%
Surgical- Radical	12	3.06%
Referred Cases	15	3.83%

Treatment of PPH (Chart):



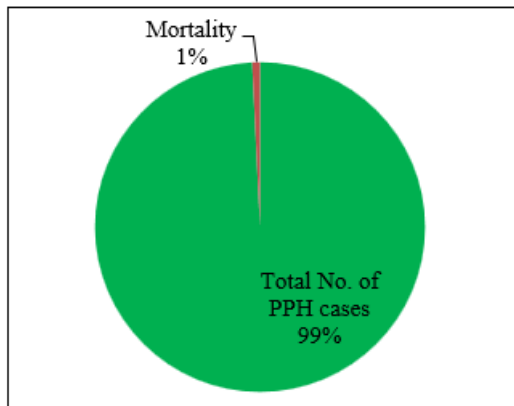
Maternal mortality:

Only 3 patients died due to PPH out of 392 patients

Table 5: Maternal mortality

Total No. of PPH Cases	392
Mortality	3

Maternal mortality (chart):



4. Discussion

Incidence of PPH in different study

- a) In present study, 392 mothers were having postpartum haemorrhage during study period giving incidence of 1.68%.
- b) A study by Lu, MC, Fridman, M, Korst, LM et al., found incidence of 2.4% of deliveries.

Table 6: Incidence of PPH in different study

Present Study	1.68%
Lu, MC, Fridman et al study	2.40%

Incidence PPH associate with different mode of delivery:

- Present study shows 5.20% incidence of PPH in all instrumental deliveries, incidence lower with caesarian section i.e. 1.62%.
- In Combs and colleagues study incidence of PPH with instrumental deliveries is 3%.
- In Magann and colleagues study incidence of PPH with caesarian section is 2.25%.

Table 7: Incidence PPH associate with different mode of delivery

Mode of Delivery	Instrumental Delivery	Vaginal Delivery	Caesarean Section
Present Study	5.20%	1.58%	1.62%
Combs and colleagues' study 3	3%		
Magann and colleagues' study 4			2.25%

Uterine atony:

- a) Present study show uterine atony is the major cause of PPH i.e. 78.06% cases .
- b) In study by Anderson J, Etches D, Smith D., Uterine atony, the most common cause of postpartum haemorrhage, is reported in 70% of cases.
- c) In study done by Dildy GA uterine atony was present in 80% of cases.

Table 8: Uterine atony

Name of Study	Percentage
Present Study	78.06%
Anderson and colleagues' study	70%
Dildy GA6	80%

Medical line of management:

In study done by Soriano D and colleagues observed that Oxytocin is an effective first-line treatment for postpartum haemorrhage 10 international units (IU) should be injected

intramuscularly, or 20 IU in 1 L of saline may be infused at a rate of 250 ml per hour. As much as 500 ml can be infused over 10 minutes without complications.

In present study, oxytocin was required in 36.45% of cases, 15 methyl PGF2 alpha was used in 5.20% of postpartum haemorrhage. A study done by Mousa HA and colleagues found that 15 methyl PGF2 alpha has been proven to control haemorrhage in up to 87 percent of patients.

Manual removal of placenta:

Manual removal of placenta was required in 4.85% of postpartum haemorrhage cases in present study. A study done by Carroli G & colleagues retained placenta occurred in less than 3 percent of vaginal deliveries.

Management of PPH with obstetrical hysterectomy:

In present study 27 out of 23313 patients requires obstetrical hysterectomy and in Yamamoto study only 1 out of 6978 patients required obstetrical hysterectomy.

5. Conclusion

In our study atony was the most common causes of PPH (78.06%), 3 maternal deaths happened out of 392 PPH cases (~1%).

Haemorrhage continues to be the leading cause of maternal mortality worldwide, accounting for 34% of maternal deaths in Africa, 31% in Asia, 21% in Latin America, and 13% in developed countries.⁹

If effective measures are taken to ensure provision of antenatal care to all pregnant ladies, safe hospital deliveries and timely referral of high risk pregnancies, complications are expected to reduce.

Proper anticipation and skilled management, along with timely referral of PPH cases will lead to significant reduction in maternal morbidity & mortality, as PPH is a significant contributor to maternal mortality.

Identification of predisposing factors for PPH like anaemia, multiparity, macrosomia, multiple pregnancy, placenta previa and prolonged labour with use of appropriate laboratorial investigation, clinical judgement and ultrasound can help us to prepare ready for dealing with probable PPH in a particular patient. Appropriate preventable measures, timely medical and surgical intervention can reduce maternal morbidity and mortality in cases with postpartum hemorrhage.

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