

Peripartum Hystrectomy- 2 Year Retrospective Clinical Study I Regional Institute of Medical Sciences Imphal Manipur

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Abstract:

Purpose: Postpartum hemorrhage remains an important cause of significant maternal morbidity and mortality throughout the world. The objective of this study was to review the incidence, indications, predisposing factors and associated complications of emergency peripartum hysterectomy.

Methods: Retrospective observational study was conducted in the RIMS for 2 years. Of the 25 subjects, 14 were for Atonic postpartum haemorrhage. Peripartum hysterectomy was done after CS or vaginal delivery due to severe PPH who didn't respond to conservative management. Data were abstracted from chart reviews. Primary outcomes included indication, risks factors, maternal morbidity and mortality.

Results: 25 peripartum hysterectomies among 23,014 deliveries which yielded an incidence of 0.10%. Uterine atony (56%) and Previous caesarean section (40%) were the main risk factors associated with hysterectomy. Subtotal hysterectomy appeared to be the procedure of choice (88%). Conservative management like oxytocics, uterine massage and haemostatic sutures was attempted in most cases prior to hysterectomy. Coagulopathy was the most common complication. With only one (4%) maternal death and good foetal outcome, the study reiterated the importance of emergency peripartum hysterectomy in modern obstetric practice as an indispensable life saving procedure to reduce the maternal mortality rate.

Conclusions: Hysterectomy for the control of obstetric hemorrhage is associated with significant mortality and morbidity. Prompt intervention to include peripartum hysterectomy may likely decrease the rate of maternal deaths and significant maternal morbidity.

Keywords: Peripartum hysterectomy, morbidity, uterine atony, oxytocics

I. Introduction

Peripartum hysterectomy is an indispensable part of every Obstetrician's armamentarium. In no other gynaecological or obstetrical surgery is the surgeon in as much a dilemma as when deciding to resort to an emergency hysterectomy. On one hand, it is the last resort to save a woman's life and on the other hand, her reproductive capability is sacrificed. First documented Caesarean hysterectomy was performed by Horatio Storer in 1869.(1,2)

Obstetric hysterectomy refers to the surgical removal of a pregnant uterus or a recently pregnant uterus. Incidence of emergency hysterectomy is found to be very low in developing countries (0.4/1000-2.13/1000 deliveries).(4) In the Third World countries, obstetric haemorrhage and uterine atony are the leading cause of maternal deaths followed closely by uterine rupture and uterine sepsis.3,4 This life saving procedure has been in use for more than 100 years. In the past, the majority of emergency obstetric hysterectomy was performed for post-partum haemorrhage. Today, the main indications of emergency obstetric hysterectomy include uncontrolled obstetrical haemorrhage, rupture uterus, placenta praevia and placenta accreta.(6,8) However, due to increase in the number of caesarean deliveries over the past two decades, placenta accreta has emerged as the most common indication for this operation in the developed countries.(5) Early marriage, high parity, and poor utilization of prenatal services has also been identified as predisposing factors in some studies.(7,8) Emergency peripartum hysterectomy during normal vaginal deliveries or caesarean deliveries is performed when all other measures to control maternal haemorrhage have become futile. Obstetric hysterectomy is an important indicator of maternal morbidity and mortality and not many studies about this had been done in this part of the country. Hence, the study was carried out in Regional Institute of Medical Sciences, Imphal, Department of Obstetrics and Gynaecology in order to evaluate the frequency, various causative and contributory factors associated with peripartum hysterectomy in obstetrical emergencies.

Aims And Objects: To find out the frequency of peripartum hysterectomy in RIMS, Imphal.

II. Materials And Methods

Study setting: The study was carried out in the Department of Obstetrics and Gynecology, Regional Institute of Medical Sciences, Imphal. .

Ethical issue: Ethical clearance was taken from the Institute Ethical Clearance (IEC), RIMS, Imphal.

Study duration: The data was collected for a period of 2 years from September 2012 to August 2014

Type of study: Retrospective study

Study population: All cases who underwent hysterectomy due to obstetrical causes in the institute during the study period

Inclusion criteria: All hysterectomies done for obstetrical indications

- After 28 week gestation
- Booked or unbooked
- Undergoing vaginal delivery or caesarean section
- Includes both admitted and emergency cases

Exclusion criteria:

- Hysterectomy due to gynaecological conditions/indications.
- Hysterectomies done for obstetrical reasons before 28 week gestation

Procedure/Data Collection:

- Detailed case history including name, age, religion, parity, economic status, literacy, occupation, menstrual, obstetrical and gynaecology history, personal and family history, medical and surgical history
- Details of onset and duration of labour, mode of delivery, mechanism of delivery of placental membranes, period of gestation at delivery, birth weight, cause and amount of blood loss (from delivery/operative notes was noted), medications prescribed, units of blood transfused and operative interference were noted
- Patients were evaluated for presence of anaemia, shock, ARF, DIC and other post-delivery complications. Medical and surgical interventions undertaken was duly noted. Information and clinical observations recorded were studied and analysed
- A pre-designed proforma was used for recording and documentation of the cases included in the study
- The study was analysed using appropriate statistical tests

III. Results And Observations

During the study period there were 23014 deliveries at RIMS. There were 25 peripartum hysterectomies performed in all from September 2012 to August 2014. Of the 25 subjects, fourteen were for Atonic postpartum haemorrhage. The 25 study subjects account for an overall incidence of 0.97 hysterectomies per 1000 deliveries. The mean age of the women was 30.44, median parity was 1.36 and the median gravida was 2.84. Table 1 shows this into the ranges.

Table 1: Age, Parity and gravida with ranges

| Age (mean range) | Parity (median) | Gravida (median) |
|------------------|-----------------|------------------|
| 30.44 (19- 38) | 1.36 (0- 5) | 2.84 (1-7) |

Table 2: Incidence of Peripartum Hysterectomy according to Parity (N=25)

| Parity | Incidence | Percent |
|--------|-----------|---------|
| P0 | 4 | 16 |
| P1 | 11 | 44 |
| P2 | 8 | 32 |
| P3 | 1 | 4 |
| P4 | 0 | 0 |
| P5 | 1 | 4 |

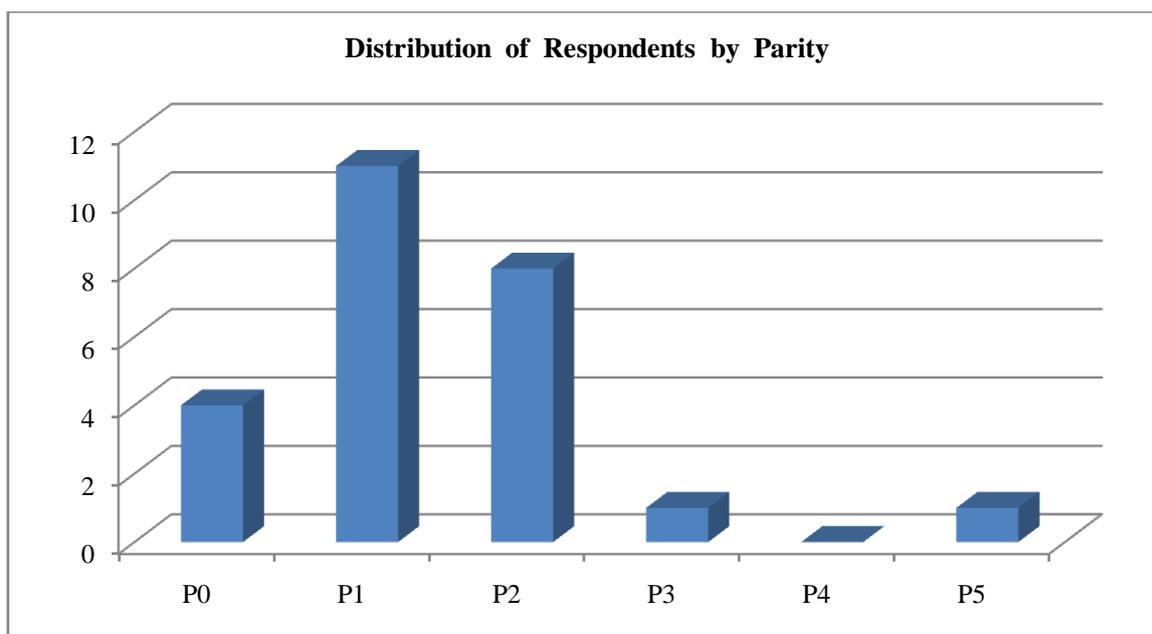


Fig.1: Distribution of Responsence by Parity

The highest number of peripartum hysterectomies was done in the age group of 26- 30 years of age, most of them amongst the para 1 group. Table 2 illustrates the parity- wise incidence of peripartum hysterectomy.

Table 3: Booked and Unbooked Status (N=25)

| Status | Frequency | Percent |
|----------|-----------|---------|
| Booked | 14 | 56 |
| Unbooked | 11 | 44 |
| Total | 25 | 100 |

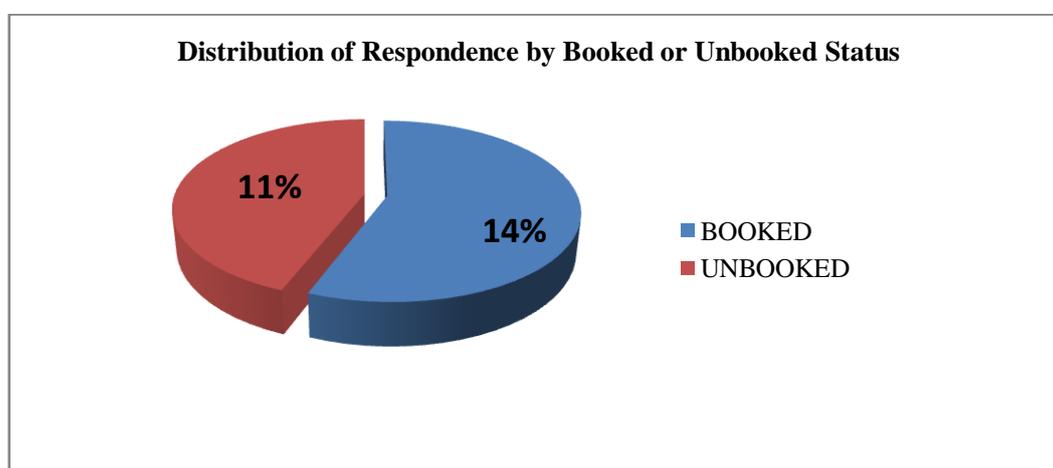


Fig. 2: Booked and Unbooked Status

In terms of antenatal visits, fourteen of the 25 (56%) cases were booked with a mean of 4.22 visits (range 3- 8). The mean gestational age at booking was 22.2+ 5.3 weeks (range 13-32). The median gestational age at admission for delivery was 38 weeks (range 28-41). The mean booking Hb was 11.2 + 1.5 (range 4- 13.7), 4 patients had Hb< 7 mg/dl; and 4 between 7-10.9mg/dl. All 25 patients were HIV negative.

Table 4: Religious Background of the Respondents (N=25)

| Religion | Frequency | Percent |
|-----------|-----------|---------|
| Hindu | 19 | 76 |
| Muslim | 4 | 16 |
| Christian | 2 | 8 |
| Total | 25 | 100 |

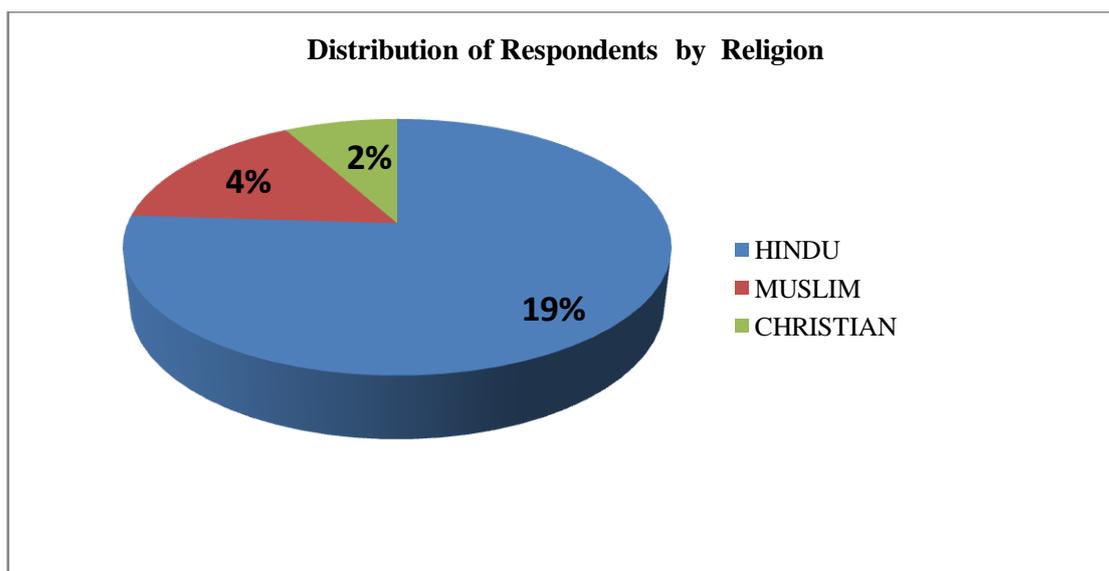


Fig. 3: Distribution of Respondents by Religion

Table 5: Educational Status (N=25)

| Class | Frequency | Percent |
|--------|-----------|---------|
| < VIII | 7 | 28 |
| >VIII | 18 | 72 |
| Total | 25 | 100 |

As far as Educational status is concern, more respondents are seen in those who are of Class VIII or above.

Table 6: Period of Gestation (N=25)

| Period of Gestation | Frequency | Percent |
|---------------------|-----------|---------|
| 28- 37 Weeks | 7 | 28 |
| >37 Weeks | 18 | 72 |
| Total | 25 | 100 |

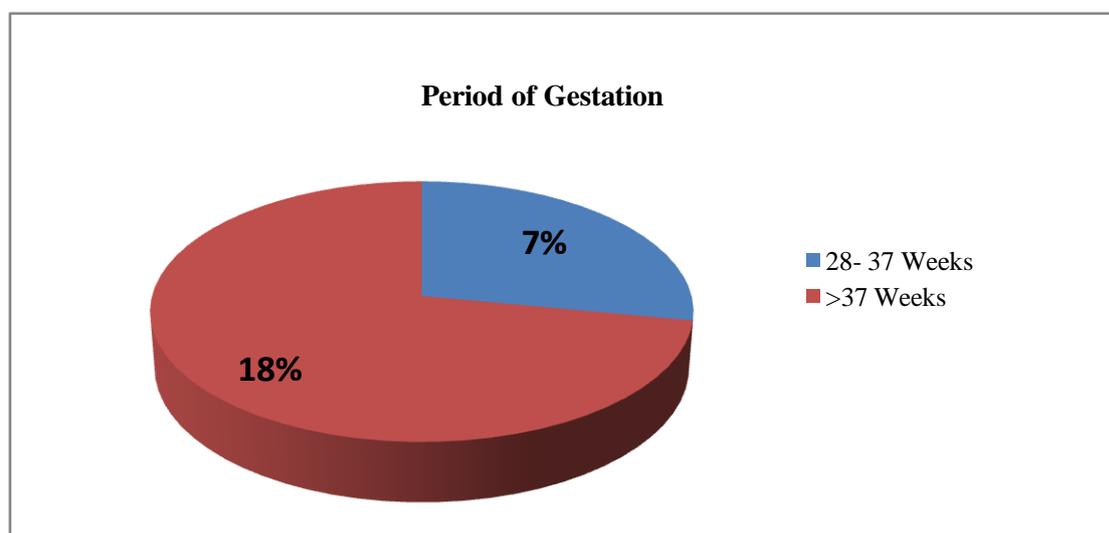


Fig. 4: Distribution of Respondents by Period of Gestation

Table 7 below shows events of the current pregnancy, labour and delivery. Most of pregnancies studied were complicated (82.9%), and the most common complication encountered was anaemia (32%). One patient had a previous vaginal delivery with postpartum haemorrhage requiring blood transfusion. Six women (24%) had one previous caesarean delivery and three (12%) had two previous caesarean deliveries. Thirteen women (52%) experienced spontaneous labour, and 3 (12%) were induced. The induction agent used was Dinoprostone gel (Prostaglandin E2). Three women had a prolonged 1st stage of labour of >12 hours, with 1

woman in 1st stage for 26 hours. One woman with prolonged 1st stage of labour and 2 women with prolonged 2nd stage were augmented with syntocinon, for a median of 120 minutes (range 60-170 minutes).

Table 7. Current Pregnancy complications

| Complications | Number |
|--------------------------------|--------|
| Pre-eclampsia | 2 |
| Ante- partum Haemorrhage | 3 |
| Anaemia | 8 |
| Preterm Labour | 7 |
| Preterm Rupture of membranes | 5 |
| Gestational Hypertension | 1 |
| Postdates | 1 |
| IUFD | 1 |
| Prolonged Rupture of Membranes | 2 |

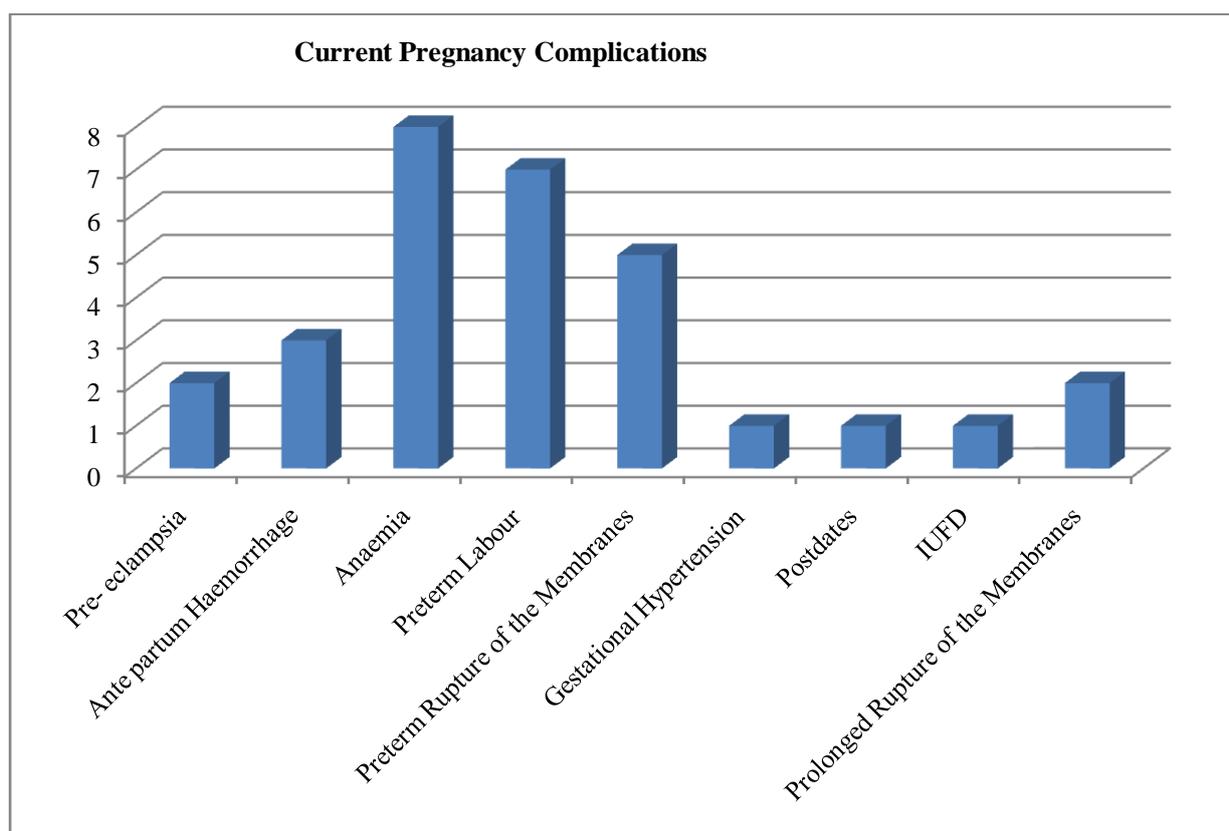


Fig. 5: Representation of Current Pregnancy Complications

Table 8. Mode of delivery N=25(%)

| | |
|-----------------------------|---------|
| Vaginal | 6 (24) |
| Emergency Caesarean Section | 12 (48) |
| Planned Caesarean Section | 3 (12) |
| Laparotomy | 4 (16) |

Six women (24 %) delivered vaginally and 12(4 %) delivered by emergency caesarean section and 3 (12%) by elective caesarean section. There were no instrumental deliveries and no vaginal birth after caesarean (VBAC). The indications for caesarean delivery have been shown in table 9. At the time of caesarean section, 13 (81%) women had regional anaesthesia and 3 (19%) women had general anaesthesia. In the vaginal delivery group, five women had a prolonged 1st stage of labour of >12 hours, with 1 woman in 1st stage of labour for 26 hours, four women delivered within 30 minutes of the onset of the 2nd stage of labour, with a median of 10 minutes (range 5-90). Two women took more than 30 minutes to complete the 3rd stage of labour.

Table 9: Indications for Current Caesarean Section

| | |
|------------------------------------------------|---|
| Previous twice caesarean section (Elective) | 2 |
| Previous twice caesarean section (Emergency) | 1 |
| Previous caesarean section with CPD (Elective) | 1 |
| Previous caesarean section (Emergency) | 6 |
| Placenta Praevia | 3 |
| Cephalo-pelvic Disproportion | 2 |

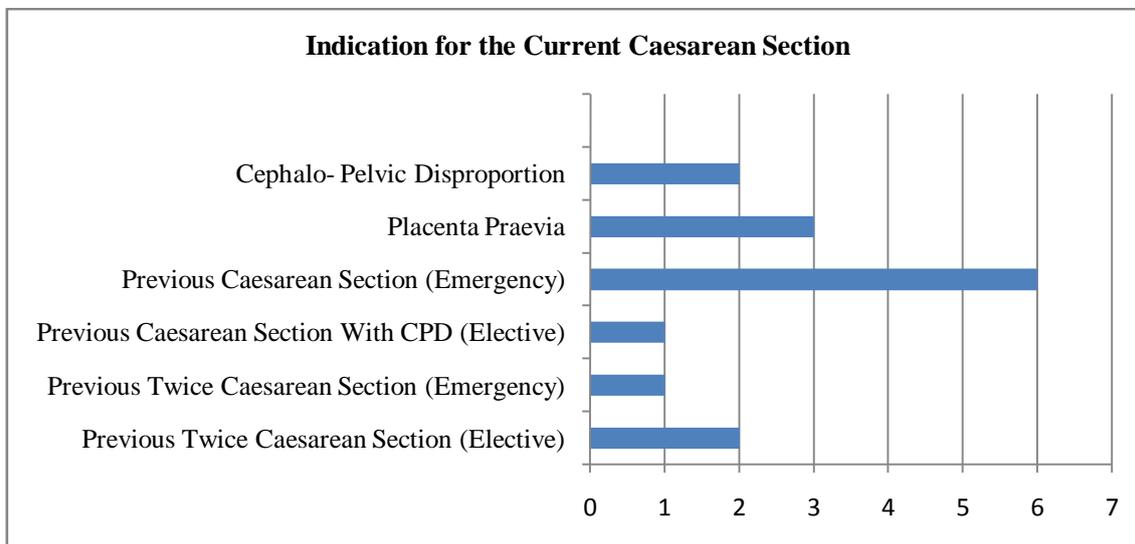


Fig. 6: Current Caesarean Section Indication

All women received oxytocin routinely both intramuscularly and as an intravenous infusion as per hospital protocol at the time of delivery. From Table 10, seven women (28 %) had no additional therapies for haemorrhage other than hysterectomy. Only 6 (24 %) women received additional uterotonics before hysterectomy. There were only 3 documented attempts of B-lynch sutures or hemostatic suture in the atonic group.

Table 10: Perioperative initiatives taken before hysterectomy

| | |
|----------------------------------------------------------------|---|
| None | 7 |
| Uterotonics (Oxytocin/Misoprostol/ Methylergometrine/ PG F2-α) | 6 |
| B-Lynch/ Haemostatic sutures | 3 |
| Uterine Packings | 9 |

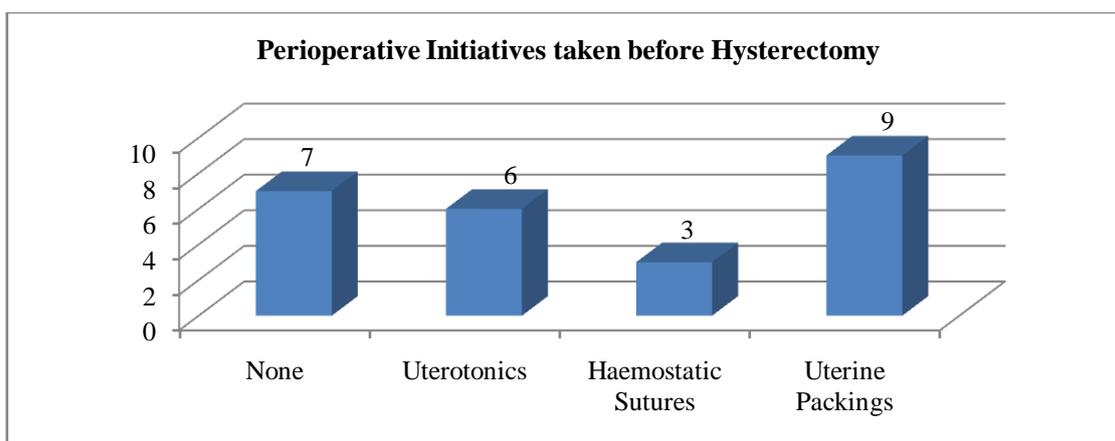


Fig. 7: Representation of Perioperative initiative prior to Hysterectomy

Table 11: Indications for Peripartum Hysterectomy (N=25)

| | |
|-------------------|---------|
| Uterine Atony | 14 (56) |
| Uterine Rupture | 4 (16) |
| Adherent Placenta | 7 (28) |

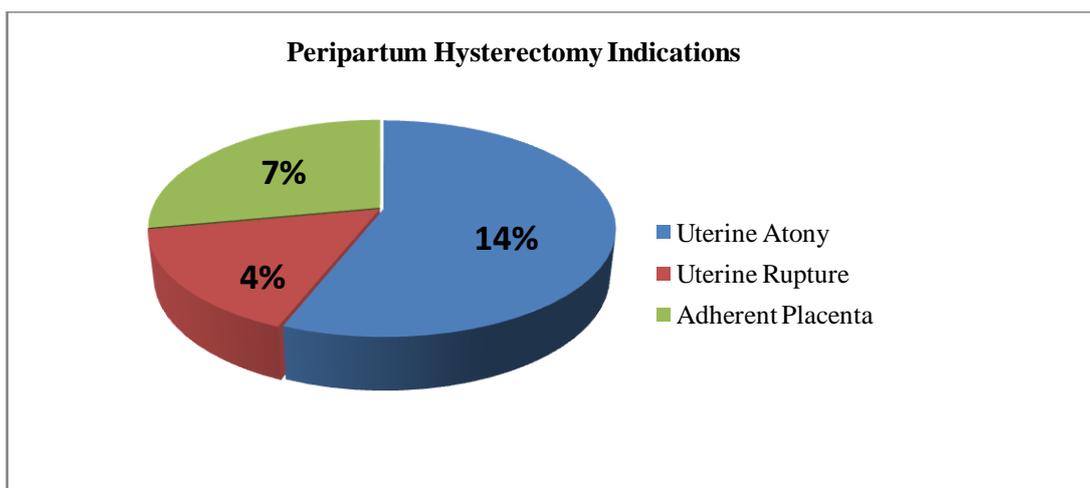


Fig. 8: Indications of Peripartum Hysterectomy

As shown in table 11 and Fig. 9, the leading indications for hysterectomy were uterine atony (56%) and adherent placenta (28%). In the women with atonic uterus, 2 had abruptio placentae and 1 had subseptate uterus. The median time from haemorrhage to surgery was 110 minutes (range 20-170minutes).

Table 12: Primary Surgery

| | |
|-------------------------------|----|
| Emergency caesarean section | 12 |
| Elective caesarean section | 3 |
| Emergency Laparotomy | 4 |
| Examination Under Anaesthesia | 2 |
| Evacuation of the Uterus | 4 |

The Table above depicts the indications for primary surgery. As can be seen, caesarean section regardless of emergency or elective was the common indication for primary surgery. Four women had Emergency Laparotomy as primary surgery as all these women had uterine ruptures not amenable to repair and 1 woman had intractable atony following Caesarean delivery outside our Institute, despite attempt at conservative management with oxytocics.

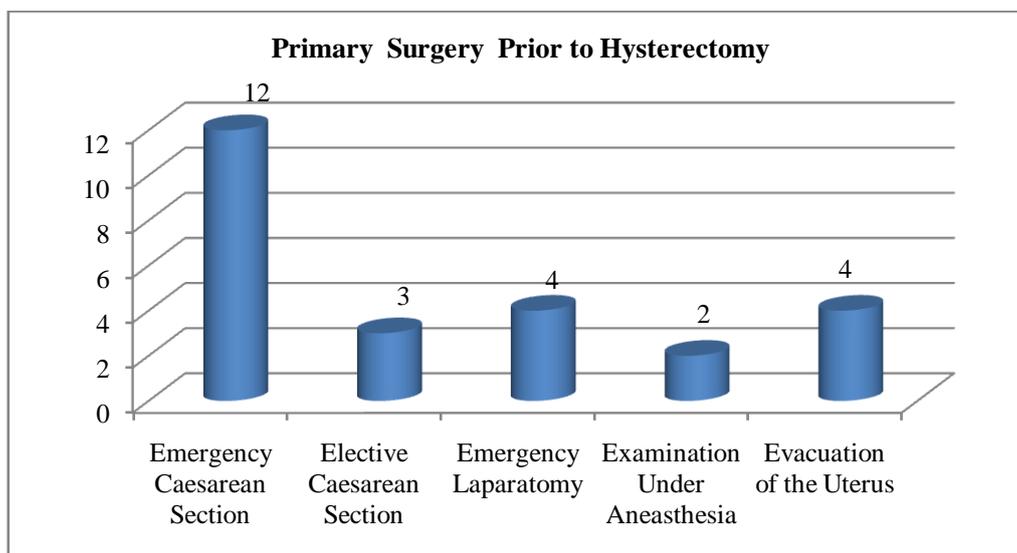


Fig. 9: Details of Primary Surgery prior to Peripartum Hysterectomy

Table 13: Details regarding hysterectomy after Caesarean Section(N=15)

| | |
|---------------------------------------------------------------------------|----|
| Number of Hysterectomies performed at the time of index caesarean section | 12 |
| Number of Hysterectomies performed after index caesarean section | 3 |

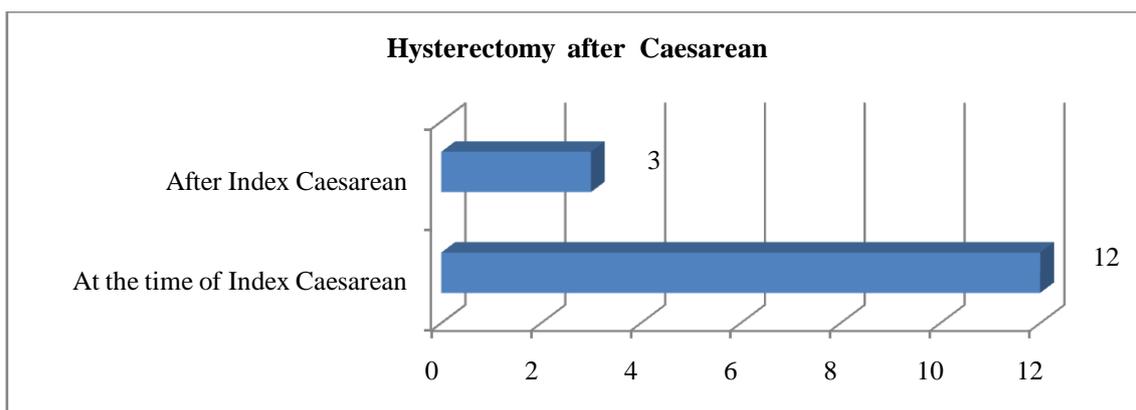


Fig. 10: Details of Hysterectomy after Caesarean

Twelve hysterectomies were performed at initial caesarean section, and three were performed after the index caesarean section.

Table 14: Primary and Definitive surgeons

Primary Surgeon

| | |
|------------------|----------|
| Consultant | 7 (28%) |
| Senior Registrar | 18 (72%) |

Definitive Surgeon

| | |
|------------|-----------|
| Consultant | 25 (100%) |
|------------|-----------|

Though the primary surgeons were senior registrars in 72% of the cases, consultants remained the final surgeons performing peripartum hysterectomy.

Table 15: Type of Hysterectomy N (25)

| Type | Frequency | Percent |
|------------|-----------|---------|
| Sub- Total | 22 | 88 |
| Total | 3 | 12 |

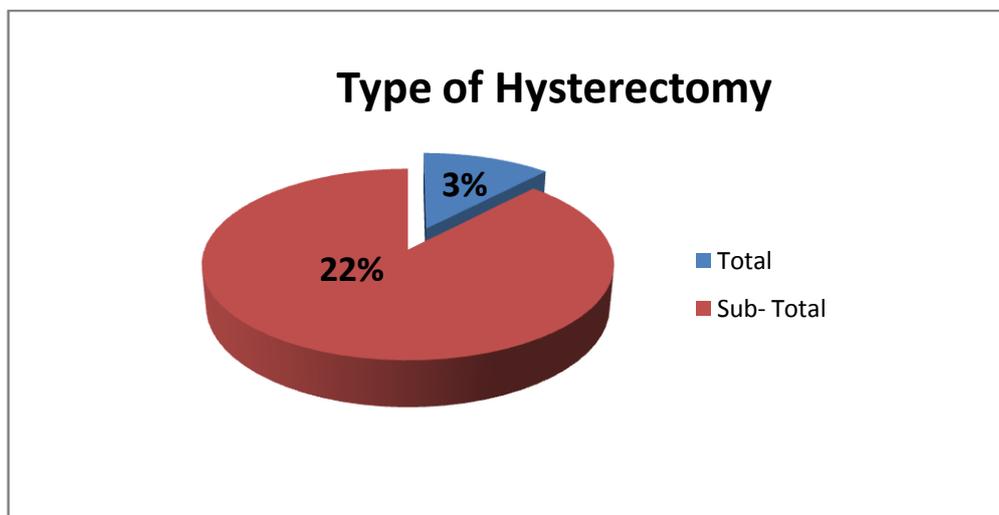


Fig. 11: Representation of the Type of Hysterectomy

Three (12%) total hysterectomies were performed and twenty two (88 %) were subtotal.

Table 16: Details of Blood Transfusion

| Blood (Component) Transfused | Frequency | Percentage |
|------------------------------|-----------|------------|
| 1-2 PRBCs | 12 | 48 |
| 3-8 PRBCs | 5 | 20 |
| PRBCs + FFPs | 8 | 32 |

In terms of blood and blood products used, all 25 patients received blood transfusions and one patient was transfused 11 units of packed red blood cells (PRBCs) with 10 Fresh Frozen Plasma (FFPs). Eight patients received fresh frozen plasma and one patient received 2 unit of platelet concentrates.

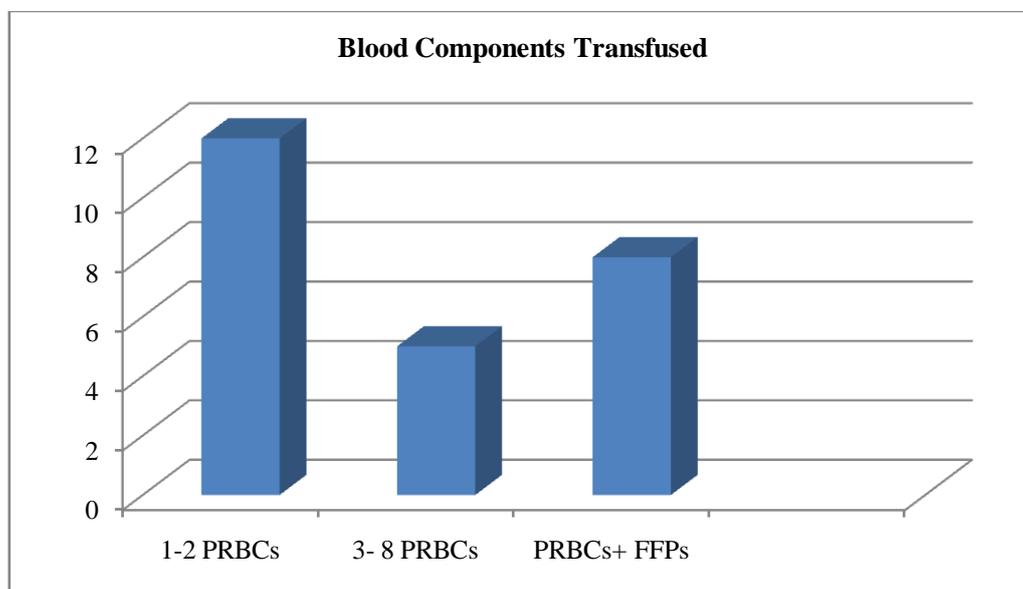


Fig. 12: Details of Blood Transfusion

Table 17: Complications associated with Peripartum Hysterectomy

| | |
|---------------------|---|
| Coagulopathy | 9 |
| Ventilatory support | 1 |
| ICU stay | 2 |
| Renal Dysfunction | 2 |
| Febrile morbidity | 5 |
| Other Sepsis | 1 |
| Wound Sepsis | 1 |
| Death | 1 |
| Anaemia | 6 |

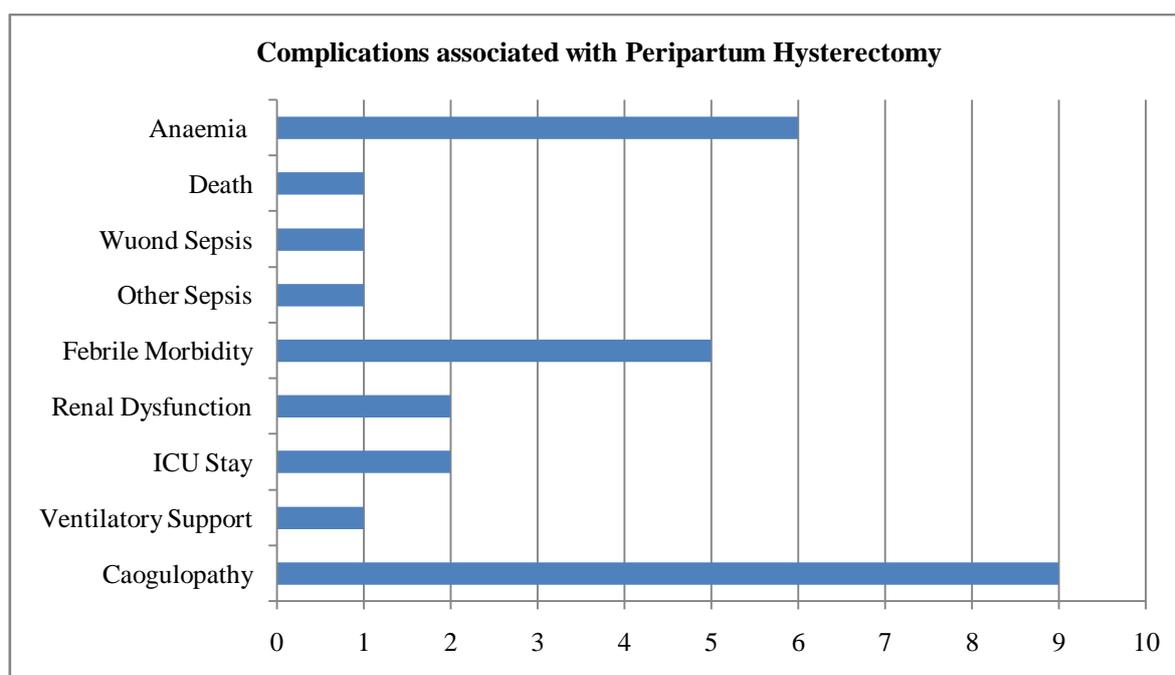


Fig. 13: Complications Post Peripartum Hysterectomy

As highlighted in the table 17 and Fig. 13, coagulopathy was the most common complication. Nine patients had a coagulopathy, all 9 patients received Fresh Frozen Plasma proportional to the number of packed cell received by the patient and 1 received platelet concentrates. One woman required ventilatory support and 2 required ICU admission. One woman died during surgery. The woman that died succumbed to severe haemorrhage following rupture uterus which was referred late to our hospital in shock for which resuscitation with blood transfusion and intravenous fluids was given and emergency peripartum hysterectomy done. She developed severe disseminated intravascular coagulation and died intraoperatively.

IV. Discussion

The present study showed an incidence of 0.9 peripartum hysterectomies per 1000 deliveries in Regional Institute of Medical Sciences, Imphal in the study period from September 2012 to August 2014. Javed et al⁴ cited an incidence of 0.4/1000 deliveries in the developing countries while Lamba J et al⁶ showed a much higher incidence of 2.13/1000 live births.

In a study by Yoonget al¹⁴, obstetric hysterectomy appeared to be more common with advancing maternal age. The same view was shared by Lamba J et al⁷ where the mean maternal age for peripartum hysterectomy was 30.5 years. The present study showed the mean maternal age of 30.44 years, which is identical to the above studies.

Lamba J et al⁷ showed that the highest incidence is in the parity 2-4 and Mathe JK⁶ cited a mean parity of 7. However there was no correlation with increasing parity in our study (median parity 1.36).

Most of the emergency hysterectomies in this study were performed for intractable haemorrhage following caesarean section, suggesting that a rise in caesarean sections may be a contributory factor. Fifteen (60%) of subjects in this series had undergone caesarean section. Nisar et al¹⁰ showed a frequency of 42.9% of peripartum hysterectomy amongst post caesarean candidates whereas Afaf RD et al¹⁰ showed an incidence of 72% in the same category, which is much higher than this present study.

In our study, 22(88%) subtotal hysterectomy were done compared to 3(12%) total hysterectomies which is similar to the study done by Nijam R et al¹¹ where subtotal (79.2%) is preferred to total (20.8%) hysterectomy. Afaf RD et al¹⁰ showed similar frequency for total and subtotal hysterectomy (20% and 80% respectively).

Five women in the study group had a prolonged 1st stage of labour of >12 hours, with one woman in 1st stage for 26 hours. This is a well known risk for post partum uterine atony that leads to haemorrhage. One woman with prolonged 1st stage of labour and 2 women with prolonged 2nd stage were augmented with oxytocin, for a median of 120 minutes (range 60-170 minutes). Uterine atony was the most common indication for emergency peripartum hysterectomy in this study, accounting for 56% of the total study subjects. This is consistent with the study done by Mathe JK et al⁶ where uterine atony accounts for 54% of the subjects undergoing peripartum hysterectomy

V. Summary

Emergency peripartum hysterectomy is an important indicator of maternal morbidity and mortality. It is often performed as a last resort to save the life of the patient. The incidence, indications, contributory factors and demographics of the patient varies with region to region and studying them will help in improving patient management and feto-maternal outcome. This retrospective study on emergency peripartum hysterectomy was conducted in the Department of Obstetrics and Gynaecology, Regional Institute of Medical sciences, Imphal for a period of 2 years (September 2012 to August 2014). Twenty (25) cases have been studied and summarised as follows:-

Twenty-five women underwent hysterectomies during the study period. Fifty six percent of the women were booked, with a mean of 4.22 antenatal visits. Uterine atony (56%) and Previous caesarean section (40%) were the main risk factors associated with hysterectomy, with placenta accreta contributing to another 28% of cases. Subtotal hysterectomy appeared to be the procedure of choice (88%). Conservative management like oxytocics, uterine massage and haemostatic sutures was attempted in most cases prior to hysterectomy. After hysterectomy, 2 (8%) of women were admitted to the intensive care unit. One women died (4%) during operation as a result of uterine rupture due to mismanaged labour at home and late referral.

The present study, therefore, suggested that uterine atony, placenta accreta and uterine rupture were the most common indications for emergency peripartum hysterectomy in Regional Institute of Medical Sciences, Imphal. With only one (4%) maternal death the study reiterated the importance of emergency peripartum hysterectomy in modern obstetric practice as an indispensable life saving procedure to reduce the maternal mortality rate.

VI. Conclusion

Indications requiring peripartum hysterectomy are rare but unpredictable. The possibility of emergency hysterectomy exists for all births including patients with no specific risk factors for primary postpartum haemorrhage or other indications like adherent placenta. Confounders such as new technology, protocols and the introduction of drugs such as misoprostol have changed the face of obstetrics. The delaying of childbirth and the world wide increase in caesarean section rates (some on demand) have changed the risk factors and possibility for peripartum hysterectomy. The indication for emergency peripartum hysterectomy in recent years has changed from uterine atony to abnormal placentation, which is a result of an increased in the rate of caesarean section. In view of this, we need to reconsider the option of offering caesarean delivery on demand to patients. Upgradation of the peripheral health centres and the timely referral of high risk parturients to tertiary centres can reduce the rate of peripartum hysterectomy and improve maternal care and pregnancy outcome. Effective antenatal care, identification of patients at risk, enhancement of blood transfusion facilities, improvement of surgical skills and attempts to reduce the caesarean rate are helpful in reducing the relative risk for peripartum hysterectomy. In the ideal situation, multidisciplinary team involvement, including consultant obstetrician, anaesthetist, haematologist, radiologist and midwifery staff, could significantly aid in the management and markedly reduce the mortality and morbidity in these patients.

In the contemporary obstetric practice, when obstetric surgery is usually performed to benefit the foetus, it should not be forgotten that emergency surgery to save the mother is still necessary. Emergency peripartum hysterectomy remains an essential life saving procedure for the mother and when performed in selected cases at an appropriate time helps in bringing down maternal mortality.

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