ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

INCIDENCE , INDICATIONS ,RISK FACTORS ,MANAGEMENT AND OUTCOME OF PERIPARTUM HYSTERECTOMY AT KAMLA RAJA HOSPITAL ,GAJRA RAJA MEDICAL COLLEGE ,GWALIOR

[1]Dr Vanshika Pundhir, [2]Dr Manmeet Kaur, [3] Dr Anita Meena, [4*] Professor Dr Archana Maurya

1 PG Resident Department of Obstetrics And Gynaecology GRMC Gwalior.
2 PG Resident Department of Obstetrics And Gynaecology GRMC Gwalior
3. PG Resident Department of Obstetrics And Gynaecology GRMC Gwalior
4. MBBS ,MS Obstetrics And Gynaecology ,MICOG,FICOG,MA (HUMAN RIGHTS)
Professor Department of Obstetrics And Gynaecology, GRMC Gwalior

Corresponding author*
Professor Dr Archana Maurya
MBBS ,MS Obstetrics And Gynaecology ,
MICOG,FICOG,MA (HUMAN RIGHTS)
Professor Department of Obstetrics And Gynaecology,
GRMC Gwalior
drarchanamaurya@gmail.com

ABSTRACT

Background-Peripartum hysterectomy is the surgical removal of the uterus performed in obstetrical complications such as uncontrolled postpartum haemorrhage (PPH), unrepairable uterine rupture, and sepsis during or immediately after abdominal and vaginal deliveries. Its incidence has increased in recent years.The objective of this study was to review all the cases of Peripartum hysterectomy in a Kamla Raja Hospital,Gajra Raja Medical College ,Gwalior.(July 2020-July 2022) to determine its incidence, management and outcomes in women who underwent peripartum hysterectomy .

Materials and Method-All women undergoing peripartum hysterectomy from July 2020 to July 2022 were included in the study. Details of the women who underwent peripartum hysterectomy wascollected from the case files ,OT registers and SNCU registers . The total number of deliveries i.e caesarean and vaginal deliveries were included.

Results-A total of 54 cases were collected over a period of 2 years .The incidence of peripartum hysterectomies in our study was 0.19/1,000 vaginal deliveries and 5.1/1,000 caesarean (CS) deliveries .The mean age of women undergoing hysterectomy was 29.46 years, with 28 women (51.8%) less than 30 years .Thirty six women (66.68%) were anaemic with mean preoperative haemoglobin of 8.02 g/dl.Sixty-six percent of women underwent emergency hysterectomy .In our study a total 28/54 women that accounts for 51.85% of the caseshad placenta previa of which 22 were abnormally invasive morbidly adherent placenta . Abnormally invasive morbidly adherent placenta accounts for 68.51% and massive postpartum haemorrhage accounts for 37.03% of the cases and were major indications for peripartum hysterectomy . In our study 18.25 % of patients had isolated atonic PPH , while 51.85% of the cases had placenta previa in combination with atony or abnormally invasive placenta or uterine rupture.Uterine rupture accounts for 4/54 cases i.e 7.40% . More than 50 % of the hadhaemorrhage due to two or more factors (uterine atony, morbid adherent placenta, and traumatic uterine rupture). Uterine atony constituted as the cause of PPH

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

18.25% women single handedly ,55.56% of the cases presented in the emergency hours with minimal prior workup. Average duration of ICU stay in our study was 5.1 days and 11.11% of the cases required ventilator support .83.33% of the patients underwent total hysterectomy which inferred from the fact that majority of the cases presented with placenta previa and abnormally invasive placenta.Uterine artery ligation was done in 48.14% of the cases .Internal iliac artery ligation was done in 7.40% of the cases . The febrile illness was the most common post peripartum hysterectomy complication and the Bladder injury was the second most common intraoperative complication .Onewomen died, one due to coagulopathy . The maternal mortality ratio for PRH was 2.78 per 100,000 live births. Stillbirth rate was 29.62%. **Conclusion**-Over time, caesarean section rates have skyrocketed, leading to life-threatening complications like scar rupture, placenta accreta spectrum, bladder injuries, adnexal bleeding, and broad ligament hematomas.This requires the health care system to identify high-risk women prior to workup to rule out placental invasion, improve hemoglobin stores, control hypertension, and provide appropriate management.Resident doctors need emergency obstetric hysterectomy training and workshops.Patients, family members, and outreach workers like ASHAs and ANMs should be advised that a planned caesarean section is better than attempting a home birth and arriving late to the hospital in obstructed labor.

Keywords: Near miss event, peripartum hysterectomy, placenta accrete, postpartum haemorrhage.

INTRODUCTION

Peripartum hysterectomy is a surgical procedure performed during or immediately after caesarean or vaginal deliveries . The Maternal Mortality Ratio of India has declined from 178 in 2010-12 to 97 in 2017-19(1). This has been consequent to an increase in institutional deliveries, timely management and timely referral ofpostpartum haemorrhage .(1)Peripartum hysterectomy is performed when all conservative measures have failed .The major indications of peripartum hysterectomy includes abnormal placentation /morbidly adherent placenta ,coagulopathies,uterine atony, precipitate or prolonged labor or obstructed labor , multiparity ,retained products of conception and iatrogenic (5).Recent studies have indicated with the increase in the number of previous caesarean sections there has been increase in the placenta accreta /increta (7) .A study was carried put at the Gajra Raja Medical College ,Kamla Raja Hospital , Gwalior for a period of 2 years to understand the Incidence, Indications ,Risk factors, Managementand Outcomes in Women Undergoing Peripartum Hysterectomy**.**

MATERIALS AND METHODS

All women undergoing peripartum hysterectomy from July 2020 to July 2022 were included in the study. Details of the women who underwent peripartum hysterectomy was collected from the case files ,OT registers and SNCU registers . The total number of deliveries i.ecaesarean and vaginal deliveries were included.

Maternal characteristics including

1. Age
2. Parity and gestation at delivery,
3. History of past uterine surgeries,
4. Mode of delivery and
5. Availability of preoperative obstetric ultrasound
6. Details of intraoperative management

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

Maternal outcomes were assessed for

1. Post operative complications,
2. Estimated blood loss-it estimated by direct estimation of blood collected in calibrated suction apparatus, number of mops and vulval pads fully soaked with blood . and measuring blood collected via drapes and was recorded in case sheet.
3. need for blood transfusion,
4. ventilatory requirement and admission to intensive care unit (ICU) and length of hospital stay.
5. Conservative management options like use of haemostatic drugs, uterine artery embolization, bilateral uterine and ovarian artery ligation, internal iliac artery ligation, use of Bakri balloon and use of methotrexate .

Peripartum hysterectomy is defined as hysterectomy performed at the time, or within 24 hours . (5) **Primary peripartum hysterectomy**is defined as hysterectomy undertaken within 24 hours of delivery .(5)**Secondary or delayed peripartum hysterectomy** is defined as hysterectomy undertaken after 24 hours from the obstetric event. (5) Preoperative obstetric ultrasound and MRI (if available) , Intraoperative morphology, location and invasion of the placenta into the myometrium and pelvic organs and operative notes, and histopathology of the uterus and placenta were used to confirm the final diagnosis.

RESULTS

A total of 54 patients underwent peripartum hysterectomy in the period of 2 years at Kamla Raja Hospital , Gwalior. The total number of deliveries during this period was 20542 with 10596 vaginal deliveries and 9946 caesarean deliveries. The total vaginal and caesarean deliveries are recorded in the labor and birth number registers and are further uploaded in the Janani Suraksha Yojana portal. The incidence of peripartum hysterectomies in our study was 0.19/1,000 vaginal deliveries and 5.1/1,000 caesarean (CS)deliveries. Hence the overall incidence of peripartum hysterectomy was 2.6 per 1,000 deliveries .

.

TABLE 1 : TOTAL DELIVERIES AND INCIDENCE OF PERIPARTUM HYSTERECTOMY

	Number	INCIDENCE per 1000 deliveries
Total deliveries	**20542**	
Total vaginal deliveries	**10596(51.58%)**	
Total caesarean deliveries	**9946(48.41%)**	
Total peripartum hysterectomy cases	**54(0.26%)**	**2.6**
Peripartum hysterectomy following vaginal deliveries	**02(0.019%)**	**0.19**
Peripartum hysterectomy following caesarean sections	**51 (0.51%)**	**5.1**

Demographic and Maternal Characteristics

The mean age of women undergoing hysterectomy was 29.46 years, with 28 women (51.8%) less than 30 years. In our study 46/54 women (85.18%) were unbooked (presented to the hospital for the first time in their current pregnancy). The primary mode of delivery in women who afterward underwent hysterectomy was caesarean section and it accounts for 39.81% of the cases.While 1.17%who had vaginal delivery underwent hysterectomy.

Thirty six women (66.68%) were anaemic with mean preoperative haemoglobin of 8.02 g/dl.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

Sixty-six percent of women underwent emergency hysterectomy when compared with planned procedure

TABLE 2:PROPORTION OF BOOKED AND UNBOOKED CASES WHO UNDERWENT PERIPARTUM HYSTERECTOMY

BOOKING	NUMBER	PERCENTAGE
BOOKED	8	14%
UNBOOKED	46	85.18%

TABLE 3 : DISTRIBUTION OF CASES ACCORDING TO THE AGE GROUP .

AGE GROUP	NUMBER	PERCENTAGE
21-30 yrs	28	51.8%
31-40 yrs	25	46.2%
≥41 yrs	01	1.8%

TABLE 4:DISTRIBUTION OF THE CASES ACCORDING TO THE PARITY

PARITY	NUMBER	PERCENTAGE
NULLIPAROUS	**03**	**5.5%**
P (1)	**05**	**9.2%**
≥ P(2)	**46**	**85.18%**

TABLE 6: DISTRIBUTION OF THE CASES ACCORDING TO THE TIMING OF PRESENTATION OF THE CASES TO THE KAMLA RAJA HOSPITAL.

	NUMBER	PERCENTAGE
EMERGENCY	**36**	**66.67%**
ROUTINE	**18**	**33.33%**

TABLE 7:DISTRIBUTION OF THE CASES ACCORDING TO THE PRIMARY MODE OF DELIVERY

TI	NUMBER	O PERCENTAGE
C.SECTION	46	85.18%
N.VAG DEL	01	1.17%
LAPAROTOMY	04	7.48%
HYSTEROTOMY	02	3.7%
SUCTION & EVACUATION	01	1.17%

GESTATIONAL AGE

<37 WKS	**46**	**85.18%**

There were 2 hysterotomies done in view of placenta previa with antepartumhaemorrhage at 22 weeks and 26 weeks .These women were previous 2 caesarean sections and presented in the emergency with torrential bleeding without any prior investigatiozns ,these cases were diagnosed with placenta previa with abnormally invasive placenta at the time of admission with the help of bedside ultrasonography .Laparotomy was undertaken in view of uterine rupture. These cases were referred from peripheral referral centres around Gwalior ,2 of them were previous caesarean section while the other 2 presented as obstructed labor .

TABLE 8 : DISTRIBUTION OF THE CASES ACCORDING TO THE OBSTETRIC RISK FACTORS

	NUMBER	PERCENTAGE
PLACENTA PREVIA	28	51.85%

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

HYPERTENTION	16	29.62%
ANAEMIA	36	66.68%
OTHERS-MULTI FETAL,MULTIGRAVIDA, CPD	11	20.37%
PREVIOUS C SECTION	46	85.18%
PREVIOUS VAGINAL DELIVERY	03	5.5%
MYOMECTOMY	01	1.8%
PREVIOUS CURETTAGE	00	00

In our study a total 28/54 women that accounts for 51.85% of the caseshad placenta previa of which 22 were abnormally invasive morbidly adherent placenta .66.68% of the cases were anaemic which reflects that even after efforts of the healthcare system ,despite multiple national programs targeting the women of different age group ,widespread screening for anaemia and distribution of iron folic acid tablets ,iron sucrose and Ferric carboxymaltose administration anaemia still remains a major obstetric risk factor .Over the years there has been overall rise in the rates of caesarean section

Abnormally invasive morbidly adherent placenta accounts for 68.51% and massive postpartum hemorrhage accounts for 37.03% of the cases and were major indications for peripartum hysterectomy.In our study 18.25 % of cases had isolated atonic PPH , while 51.85% of the patients had placenta previa in combination with atony or abnormally invasive placenta or uterine rupture.

Uterine rupture accounts for 4/54 cases i.e 7.40% .These 4 patients were referred from peripheral referral centres around Gwalior ,2 of them were previous caesarean section who delivered after TOLAC (trial of labor after caesarean section) while the other 2 presented as obstructed labor with loss of uterine contour at the time of admission .

TABLE 9 : DISTRIBUTION OF CASES ACCORDING TO THE INDICATIONS OF HYSTERECTOMY

	NUMBER	PERCENTAGE
ABNORMALLY INVASIVE MORBIDLY ADHERENT PLACENTA	37	68.51%
MASSIVE POSTPARTUM HAEMORRHAGE	20	37.03%
UTERINE RUPTURE	10	18.57%
IATROGENIC	01	1.85%

.

TABLE 10: DISTRIBUTION OF CASES ACCORDING TO THE CAUSES OF POSTPARTUM HAEMORRHAGE

PPH	NUMBER	PERCENTAGE
UTERINE ATONY	11	18.25%
TRAUMATIC HAEMORRHAGE(RUPTURE)	04	7.40%
THROMBIN COAGULOPATHY	03	5.5%
ABNORMALLY INVASIVE ADHERENT PLACENTA	12	22.5%

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

TWO OR MORE FACTORS PLACENTA PREVIA WITH UTERINE ATONY,MORBIDLY ADHERENT PLACENTA AND UTERINE RUPTURE	28	51.85%

Patients with placenta previa can be further grouped as

TABLE 11:DISTRIBUTION OF THE CASES WITH PLACENTA PREVIA ACCORDING TO THE CONTRIBUTING FACTORS

PLACENTA PREVIA	NUMBER	PERCENTAGE
ATONY &ADHERENT PLACENTA	22	78.57%
ATONY & TRAUMA	02	7.14%
ATONY & TRAUMA &ADHERENT PLACENTA	04	14.28%

In our study more than 50 % of the had haemorrhage due to two or more factors (uterine atony, morbid adherent placenta, and traumatic uterine rupture). Uterine atony constituted as the cause of PPH 18.25% women single handedly.

There was significantly higher mean blood loss in hysterectomies undertaken in view of abnormally invasive morbidly adherent placenta and that accounts for 59.25% when compared with other indications .

TABLE 12: DISTRIBUTION OF THE CASES ACCORDING TO THE INDICATIONS OF HYSTERECTOMY

	NUMBER	PERCENTAGE
MORBIDLY ADHERENT PLACENTA	32	59.25%
INTRACTABLEPOSTPARTUM HAEMORRHAGE	16	29.6%
UTERINE RUPTURE	18	33.33%
IATROGENIC	01	1.85%

TABLE 13: DISTRIBUTION OF THE CASES ACCORDING TO THE TIMING OF HYSTERECTOMY

	NUMBER	PERCENTAGE
ROUTINE	24	44.44%
EMERGENCY	30	55.56%

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

TABLE 15: DISTRIBUTION OF THE CASES ACCORDING TO THE MODE OF CONCEPTION

	NUMBER	PERCENTAGE
SPONTANEOUS	52	97%
INFERTILITY TREATMENT	02	3%

TABLE 14: DISTRIBUTION OF THE CASES ACCORDING TO THE PRIMARY AND DA R

PRIMARY	52	96.29%
SECONDARY	02	3.7%

TABLE 16:DISTRIBUTION OF THE CASES ACCORDING TO THE TYPE OF HYSTERECTOMY

	NUMBER	PERCENTAGE
TOTAL	45	83.33%
SUBTOTAL	09	16.67%

AVERAGE ICU STAY-5.1 days

TABLE 17: DISTRIBUTION OF THE CASES ACCORDING TO THE NEED OF VENTILATOR SUPPORT

	NUMBER	PERCENTAGE
YES	06	11.11%
NO	48	88.89%

In our study ,55.56% of the patients presented in the emergency hours with minimal prior workup resulting in the poor prior preparation of the patient thereby increasing the morbidity of the patients .As a result ,all the patients were shifted to Obstetric ICU for the further monitoring .Average duration of ICU stay in our study was 5.1 days and 11.11% of the patients required ventilator support .83.33% of the patients underwent total hysterectomy which inferred from the fact that majority of the patients presented with placenta previa and abnormally invasive placenta.2 of our patients underwent secondary peripartum hysterectomy both of them were grand multipara but the bleeding could not be controlled by uterotonics or bakri balloon or step wise devascularisation as a result they had to be taken for hysterectomy 24 hours after the delivery .

All the patients in our study received uterotonics .There was an average blood loss of 3.6 litres.

At an average there was requirement of 3.5 PCV, 2.4 FFP and 2 cryoprecipitates .
Uterine artery ligation was done in 48.14% of the patients .Internal iliac artery ligation was done in 7.40% of the patients .

All women received broad-spectrum antibiotics after the peripartum hysterectomy .
The febrile illness was the most common post peripartum hysterectomy complication and the Bladder injury was the second most common intraoperative complication .Onewomen died, one due to coagulopathy . The maternal mortality ratio for PRH was 2.78 per 100,000 live births. Stillbirth rate was 29.62%

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

TABLE 18: DISTRIBUTION OF THE CASES ACCORDING TO THE MEASURES USED TO REDUCE BLEEDING

	NUMBER	PERCENTAGE
UTEROTONICS	54	100%
UTERINE ARTERY LIGATION	26	48.14%
INT.ILIAC ARTERY LIGATION	04	7.40%
COMPRESSION SUTURES IN PRIMARY C SECTION	00	00
BAKRI BALLOON	02	3.7 %

TABLE 19: DISTRIBUTION OF THE CASES ACCORDING TO THE POSTOPERATIVE COMPLICAT

	NUMBER	PERCENTAGE
FEBRILE ILLNESS	16	29.62%
LRTI,PNEUMONIA	06	11.11%
WOUND SEPSIS	8	14.81%
RESUTURING OF WOUND	1	1.85%
UTI	0	0
BLADDER INJURY AND REPAIR	10	18.51%
HYPOXIC SEIZURES	0	0
PARALYTIC ILEUS	8	14.81%
COAGULOPATHY	03	5.55%
MATERNAL DEATHS	01	1.85%

TABLE 20: DISTRIBUTION OF THE CASES ACCORDING TO THE FETAL OUTCOME

	NUMBER	**PERCENTAGE**
LIVE BIRTH	**18**	**25.9**
SNCU	**18**	**33.33**
STILL BIRTH	**12**	**29.62**
ABORTIONS	**04**	**7.4**

AVERAGE BIRTH WEIGHT-2.26 kg

DISCUSSION

Our study is ananalysis of the women who underwent peripartum hysterectomy during a period of 2 years i.e from July 2020 to July 2022 at KAMLA RAJA HOSPITAL ,GAJRA RAJA MEDICAL COLLEGE ,GWALIOR .

Worldwide, the rate of PRH ranges widely from rates less than one in 1,000 deliveries to as high as 50/1,000 **.(9)**

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

The described incidence of peripartum hysterectomyranges from 0.24 to 8.9 per 1000 deliveries ,i.efrom 0.33(Netherland), 0.2 (Norway), 0.3 (Ireland), 0.5 (Israel), 0.63 (Saudi Arabia) and 1.2 to 2.7 per 1000 deliveries in USA . (7)

The incidence of peripartum hysterectomy is different for vaginal and caesarean deliveries . While the incidence of peripartum hysterectomy after vaginal delivery varies from 0.1 to 0.3/1000 deliveries reported in the European and US s researches , the incidence of peripartum hysterectomy following caesarean ranges from 0.17 and 8.7/1000 deliveries . (7) In the systematic review by van den Akker and coauthors (2016), the worldwide prevalence of peripartum hysterectomy was reported 0.9 per 1000 deliveries. The ratevaries between the countries. Prevalence of hysterectomy in low- and middle-income settings is much higher than in high-income settings: 10.1 per 1000 deliveries in Indiacompared with 0.2 per 1000 deliveries in Northern European countries.(10)

The incidence of peripartum hysterectomy in our study at Kamla Raja Hospital was 2.6 per 1,000 deliveries which is higher than what was found in the study conducted by Neetu et al and Vidhi et al at Kanpur and Delhi respectively. (2,7)

This can be explained by the fact that the Kamla Raja hospital caters to a larger population and is the only referral centre for the high risk cases of that region .Kamla Raja Hospital receives referrals from a large area as referrals constitutes approximately more than 30-35% of the admission .

51.8% of the women who underwent hysterectomy belonged to 21 -30 years of age group which was similar to the studies that were conducted in the Indian scenario. While on the contrary it was more than 30 years in the countries of Europe and United States .In a similar study conducted by Gulzhanat et al ,in kazakhistan over a period of 4 years maternal age ranged from 18 to 54 years and the median age of peripartum hysterectomy was 33 years .(6)

Marriages at a younger age and thereby early pregnancy remains a major contributor to maternal and child mortality .Pregnancies at a younger age and further multiple pregnancies in a short interval is associates with increased prevalence of anaemia ,poor nutrition ,labor dystocia and caesarean sections .And hence complications relating to pregnancy and childbirth are the leading cause of death in our country. (12)

In our study 85.18% of women were unbooked pregnancies.They presented to our hospital directly in the emergency and without prior workup in a high risk condition .This calls for the need of strengthening the healthcare services at the peripheral centres at the level of ASHA workers and ANM’s so that there can be screening of the pregnant women from the early pregnancy .Nutritional status and the haemoglobin stores of the pregnant women can be built up from the preconceptional and the early pregnancy period .This throws light on the need of counselling and creating widespread awareness regarding smaller families, family planning and increasing the interpregnancy interval.(12)

This also calls for the need of strengthening the referral chain so that high risk pregnant and postnatal women can be timely referred to higher centre and appropriate measures like blood transfusion ,prior work up ,uterine artery embolization ,stepwise devascularisation or early hysterectomy can be undertaken so as to decrease the blood loss and thereby further improving the maternal and fetal outcome .

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

Although with the number of government initiatives like free ambulance services ,AnaemiaMuktBharat,SUMAN help desk ,Janani Suraksha Yojana and ANMOL portal but many women are still deprived of the benefits and end up with complications .

In our study rates of peripartum hysterectomy were higher with caesarean delivery compared to vaginal deliveries in .Also rates of peripartum hysterectomy was higher in women with order of parity more than 2 , 85.18% of the women had previous caesarean section ,66.67% of the womenwere anaemic,51.8% women presented with placenta previa and only 1 pregnant women presented with history of myomectomy . Similar results were found in the Indian studies (2,6,8,9)

In a study by Lovina et al , incidence of previous cesarean section was between 59.8% in patients with adherent placenta and 75% in patients with placenta previa which clearly suggests the high incidence of EPH is directly related to the increasing number of cesarean sections .(4)

In a study by Sumaya et al analysis of Data of WOMAN trial , Women having caesarean sections had a higher risk of hysterectomy (11%) than women who delivered vaginally (3%) . The risk of hysterectomy varied by geographic region: 7% in Asia and 5% in Africa. Moreoverit was foundthat mothers in Asia have a higher risk of hysterectomy than mothers in Africa. Caesarean section, which is a risk factor for hysterectomy, is carried out more frequently in Asia than in Africa . The low rates of caesarean delivery in sub-Saharan Africa are presumably due to low levels of access to emergency surgical care, lack of skilled workers and poor infrastructure. In the WOMAN trial, 25% of the deliveries in Africa were caesarean sections, compared to 37% in Asia and 32% in Europe and America. Although the risk of hysterectomy was higher in Asia than in Africa, mortality was lower (3% in Africa and 2% in Asia). It is possible that by carrying out hysterectomies promptly mortality and morbidity is reduced .(3)

Placenta previa was present in the 51.85 % women in our study .While morbidly adherent placenta was present in 68.5% women .Abnormal placentation has become a common indication due to the greater number of pregnant women with previous Caesarean section deliveries.In women with placenta previa with unscarred uterus 3.7% while with scarred uterus is 27.8 % .Similar results were seen in a study by Lovina et al ,patients with placenta previa and scarred uterus had 16% risk of undergoing emergency peripartum hysterectomy compared to 3.6% in patients with unscarred uterus . (4)Increasing parity are important risk factors in developing placenta previa and accrete . The combination of factors including high parity, number of previous caesarean sections, abortion, previous curettage, has increased the incidence of placenta previa and risk of abnormal placentation . Hence, a multimodality management is required.Management of these requires prior preparation for the tackling the intractable haemorrhage ,senior obstetrician ,surgeon ,neonatologist and interventional radiology for uterine artery embolization to reduce the blood loss thereby improving maternal and neonatal outcome .(6,10)

Regular ANC workup screening of high risk pregnancies plays an important role as with prior investigations like antenatal ultrasound with color Doppler and magnetic resonance imaging (MRI) characteristic findings suggestive of placenta previa and Placenta accreta spectrum can be picked up and the patients can be advised early admission and elective procedure can be planned . Unlike the current scenario where 66.67% of the pregnant women

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

presented directly in the emergency .Similar results were seen in the Indian scenario Neetu and Vibha et al .(2,9)

Due to lackof prior workup maximum patients with adherent placenta directly presented in the emergency and diagnosis was made intraoperatively .In our study only 3/37 patients had USG report of placental invasion.Majority of the patients were referred from far flung places as Kamla Raja Hospital has the 24 x 7 availability of the senior obstetrician ,surgeons and senior anaesthesiologists to tackle the emergencies .But still if the patients would have presented well within time then elective procedures or conservative approach (though majority of them were placenta percreta and placenta increta) could have been undertaken and the maternal and neonatal outcome could have been improved . (8)

In our study it was found that uterine atony contributed 18.25% cases of postpartum haemorrhage ,retained adherent placenta constituted to 22.5% of the cases while the maximum number of the cases were due to placenta previa with contributing factors such as adherent placenta ,uterine atony and ruptured uterus i.e 51.85% of the cases.It has also been seen in the various Indian and western studies that with the course of time incidence of the ruptured uterus has decreased but still a large number of patients were referred from various centres near Gwalior in view of obstructed labor ,impending rupture, scar dehiscence or with uterine rupture in shock either due to delay in seeking the nearby health facilities or delayed referral or desire for normal delivery .Uterine atony is an indication for EPH in 20.6% to 43% of the cases in a study by Lovina et al. (4)

The incidence has decreased due to the new drugs like prostaglandins and carbetocin but multiparity and and use of oxytocin for augmentation of labor, prolonged labor are the risk factors for uterine atony . Combs et al in their study of patients with post partumhemorrhage reported that pre-eclampsia, nulliparity, twins, induction, prolonged labor and augmentation wereidentified as independent risk factors for uterine atony.(13)

Ruptured uterus constituted around 7.4% of the cases in our study while they constituted 1 % of the cases in a study by Gulzhanat et al in kazakhistan. (6)A relatively different picture was found in a systematic review conducted by Majia et al among Nordic countries ,it was found that abnormally invasive placenta constituted around 43.1 % of the cases, uterine rupture constituted 14.7% of the cases and 32.7% of the cases were of uterine atony .(7)

While in a study by Vibha et al ,morbidly adherent placenta constituted 29.2% of the cases, uterine atony constituted 19.5% of the cases and uterine rupture accounts for 7.4% of the cases. Similar results were seen in study by Pandeyet al.(2,9)

Average blood loss in our study was found to be 3.6 litres and at an average there was requirement of 3.5 PCV and2.4 FFP .Blood loss was more in the patients with placenta previa with contributing factors such as uterine rupture ,atony and abnormal placentation .Similar results were found in the study by Swati et al ,the number of blood transfusions required ranged from 2 to 15 depending upon the blood loss .(8)

Furthermore the poor haemoglobin reserve of the patients aggravated the outcome ,these emergencies were tackled with 24 x7 availability of the blood products in the Government blood bank of the JAYA AROGYA HOSPITAL CAMPUS (to which Kamla Raja Hospital is attached) .But the morbidity of the patients was increased and had to shifted to OBSTETRIC ICU for intensive monitoring as ventilator support was required in 11.11% of

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

the patients and ionotropic support was required in 29.8% of the patients .Average stay in the ICU was 5.1 days .

Conservative measures to control bleeding are tried before the decision of hysterectomy The measures include uterotonic drugs,tranexamic acid,haemostatic sutures, step wise devascularisation i.e. uterine or internal iliac artery ligation .Other procedures like uterine artery embolization ,Triple P Procedure could not be done as majority of the patients presented to us in the emergency with torrential bleeding and there was a lack of prior work up hence the required investigations were not available (14).In our study uterotonics were given in all the patients , uterine artery ligation was done in 48.4% of the patients ,internal iliac ligation was done in 7.4% of the patients and bakri balloon was used in 3.7% of the patients .These procedures were undertaken to reduce the blood loss while proceeding towards hysterectomy .In ourIn a study by Lovina et al , the have reported 96% success rate following uterine artery ligation . The choice between conservative management and hysterectomy should be weighed such that delay in the decision of hysterectomy as it further increases the blood loss, transfusion requirement, operative time, DIC , ionotropic support , admission to ICU and poor maternal outcome .(4)

The decision of performing total or subtotal hysterectomy was influenced by the patient's condition. In our study ,83.33% of the patients underwent total hysterectomy while 16% of the patients underwent subtotal hysterectomy .In a study by Swati et al,Subtotal hysterectomy was performed in 18 (50%) women while the rest 18 (50%) had a total hysterectomy. Blood transfusion was required in all patients. The number of blood transfusions required ranged from 2 to 15 depending upon the blood loss .(8)

Total hysterectomy is preferred over subtotal hysterectomy as there is risk of malignancy arising from the remaining cervix and requires regular cytology . (4,5,7)It is also associated with bleeding or discharge .In a study by Stanco et al , proportion of subtotal hysterectomy was 53% .While in a study byChristopoulos et al ,the proportion of subtotal hysterectomy it was 80% . (10,11) The benefits of subtotal hysterectomy are lesser blood loss, lesser operating time and reduced intra and postoperative complications and relatively lesser blood loss and thereby reduced need for blood transfusion .But subtotal hysterectomy is not effective in management of placenta previa and abnormally invasive placenta located in lower segment of the uterus ,when the bleeding occurs from the lower segment due to the fact that cervical branch of uterine artery remains intact .

Peripartum hysterectomy is associated with large number of postoperative and intraoperative complications thereby affecting the maternal morbidity .In our study Febrile illness constituted 29.62% of the casesand was the most common complication ,followed by bladder injury and repair constituting 18.51% of the cases which can be explained by the increase in the number of placenta accreta spectrum cases ,it is followed by the wound sepsis and paralytic ileus each accounts for 14.81% of the cases .These cases can be explained by the fact that with increase in the number of previous caesarean section cases resulting in increased adhesions ,advanced bladder and also there is increased bowel handling .These factors further increase the operative time ,blood loss and chances of infection.Hence ,for the management of these patients requires multispeciality set up where there is 24 x 7 availability of urologists and GI surgeons ,furthermore bladder injuries were managed with prolonged catheterisation for 14 -21 days and Suprapubic cystostomy. These procedures predispose the patients to urinary tract infections and genitourinary fistulas andhave to be kept on long term follow up .LRTI accounts for 11% of the cases .In a study by Pandey et al in the year 2014,

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

similar results were found except the bladder related complications which have increased now. While in the study by Vidhi et al, 1/10th of the cases had bladder related complications (2,9) .In our study 25.9% of the babies were live birth,29% were still birth and 33.33% of the babies required SNCU admission .Average birth weight was 2.26 kg .

In our study ,one women succumbed to the massive haemorrhage ,she was previous 2 caesarean sections with bleeding placenta previa with placenta increta ,This patient presented to us in shock with severe anaemia unbooked patient directly in the emergency decision for emergency hysterectomy was taken and prior to that pharmacological agents oxytocin , tranexaemic acid, prostaglandins and step wise devascularisation was done to reduce the blood loss but the patient has to be taken on ionotropic support ,adequate blood replacement was done .Patient has to be eventually taken on ventilatory support and could not be saved despite continued efforts .

CONCLUSION

There has been a rampant increase in the rates of caesarean sections over a period of time as a result there has been increase of life threatening complications like scar rupture ,placenta accreta spectrum , bladder injuries , adnexal bleeding and broad ligament hematomas .This calls for the strengthening the health care system identifying the high risk women prior workup so that placental invasion could be ruled out and the patients can be admitted timely ,haemoglobin stores could be improved, hypertension can be controlled and appropriate management can be provided with prior preparation .The current scenario requires adequate training and workshops of resident doctors to perform obstetric hysterectomy in the emergencies .Furthermore , the patients ,family members and outreach workers like ASHA ‘s and ANM ‘ s should be counselled that a planned caesarean section is better than unnecessary trial for normal delivery at home then eventually reaching the health facility late and landing up in obstructed labor .

Approval From Ethical Committee

Ethical approval was obtained from the Institutional Ethical Committee of GAJRA RAJA MEDICAL COLLEGE& JAYA AROGYA GROUP OF HOSPITALS ,KAMLA RAJA HOSPITAL ,SUPERSPECIALITY HOSPITAL,veer sawarkarmarg,Gwalior .Our ethical committee certificate number is 152/IEC-GRMC/2022 .Consent was obtained from all participantsi.Data was obtained from medical records , case sheets and OT registers after permission and confidentiality was ensured .

REFERENCES

1. Ministry of health and family welfare, maternal mortality rate (MMR).Posted on :12 february 2021,5:36 pm by PIB ,Delhi
2. Obstetric hysterectomy, still a life saving tool in modern day obstetrics: a five year study Neetu Singh*,Kiran Pandey,RenuGupta,ShailyAgarwal,Amita Chaudhary,
3. Risk factors for peripartum hysterectomy among women with postpartum haemorrhage: analysis of data from the WOMAN trial Sumaya Huque,[1] Ian Roberts, [1] Bukola Fawole,[2] Rizwana Chaudhri,[3] Sabaratnam Arulkumaran
4. Emergency peripartum hysterectomy: Incidence, indications, risk factors and outcomeLovina S.M. Machado
5. Peripartum hysterectomy for management of hemorrhage**AUTHOR:**Daniela A Carusi, MD, MSc .
6. The Prevalence, Incidence, Indications and Outcomes of Peripartum Hysterectomy in Kazakhstan: Data from Unified Nationwide Electronic Healthcare System 2014–2018

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 06, 2023

GulzhanatAimagambetova,[# 1 *] YesbolatSakko,[# 2 ,*] ArnurGusmanov, [2] AlpamysIssanov, [2 ,3] TalshynUkybassova, [4] Gauri Bapayeva, [4] Aizada Marat, [5] AiymzhanNurpeissova, [6] and AbduzhapparGaipov [2]

7. Emergency peripartum hysterectomy: results from the prospective Nordic Obstetric Surveillance Study (NOSS) Maija Jakobsson, Anna-Maija Tapper, Lotte BerdiinColmorn, Pelle G. Lindqvist, Kari Klungsøyr, Lone Krebs, Per E. Børdahl, Karin Gottvall, Karin Källén, Ragnheiður I. Bjarnadóttir .
8. PERIPARTUM HYSTERECTOMY IN A TEACHING HOSPITAL IN INDIA 1 Swati Agrawal, 2 Reena Yadav, 3 Chitra Raghunandan, 4 Shilpa Dhingra, 5 Harvinder Kaur. Department of Obstetrics and Gynaecology Lady Hardinge Medical College and Smt. Sucheta Kriplani Hospital, New Delhi.
9. Incidence, Management and Outcomes in Women Undergoing Peripartum Hysterectomy in a Tertiary Care Centre in IndiaVidhi Chaudhary,[1] Meenakshi Singh,[1] Shilpi Nain,[1] FNU Reena,[1] Kiran Aggarwal,[1] Ratna Biswas,[1] Manju Puri,[1] and Janithya Pujari[1]
10. Emergency peripartum hysterectomy and associated risk factors . Lorraine M Stanco , M.D ,David B Schrimmer , M.D ,Richard H Paul , M.D ,Daniel R Mishell ,M.D .
11. Obstetric hysterectomy. A review of cases over 16 years. Christopoulos P, Hassiakos D, Tsitoura A, Panoulis K, Papadias K, Vitoratos N.
12. Effectiveness of a community based intervention to delay early marriage, early pregnancy and improve school retention among adolescents in India .Devika Mehra, Archana Sarkar, Priyanka Sreenath, ,Jagannath Behera &Sunil Mehra .
13. Combs CA, Murphy EL, Laros RK. Factors associated with post partumhemorrhage with vaginal birth. Obstet Gynecol.
14. Placenta accreta spectrum .**Alison G. Cahill, MD, MSCI; Richard Beigi, MD, MSc; R. Phillips Heine, MD; Robert M. Silver, MD; and Joseph R. Wax, MD.**