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A Comprehensive Overview on Peripartum Hysterectomy in Modern Obstetrics

[1]Dr. Shifa Khanam, PG Resident, Department of Obstetrics & Gynecology, Sri Siddhartha Medical, College, Tumkur.

[2]Dr. Rekha N, Associate Professor, Department of Anesthesia, Siddaganaga Medical College, Tumkur.

[3]Dr. Dwarkanath L, Professor, Department of Obstetrics & Gynecology, Sri Siddhartha Medical, College, Tumkur.

[4]Dr Indumathi M, Associate Proffesor, Department of Obstetrics & Gynecology, BGS Medical College, Nelamangala.

Corresponding Author: Dr. Dwarkanath L, Professor, Department of Obstetrics & Gynecology, Sri Siddhartha Medical, College, Tumkur

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Abstract

Background: The objective was to describe the changing trends in etiopoathogensis incidence, indications, risk factors, outcomes, and management of peripartum hysterectomy globally. Peripartum hysterectomy (PH) is performed predominantly when, "Saving life is more important than saving uterus". It is performed for severe obstetric hemorrhage that is unresponsive to conservative methods. The risk factor for peripartum hysterectomy has changed from PPH to morbidly adherent placenta over time, ever since the cessarean sevtion rates are high.

Conclusion: Placenta accreta spectrum is the leading cause of peripartum hysterectomy and was associated with significant and mortality. In view of the rising incidence of placenta previa accreta, all over the world, the need for peripartum hysterectomy may be on the rise.

Keywords: Peripartum Hysterectomy, Placenta Accreta Spectrum, Cesarean Section

Introduction

Peripartum hysterectomy (PH) is performed predominantly when, "Saving life is more important than saving uterus". It is performed for severe obstetric hemorrhage that is unresponsive to conservative methods. PH encompasses hysterectomies that are performed at the time of cesarean section delivery (CS) and those performed within 24 hrs. after both vaginal and cesarean section delivery. [1] However, since it is an unscheduled and rapidly performed procedure, it ends up with maternal morbidity and it has a risk of death ranging between 1% and 6%.[1] It has been accompanied by substantial morbidity and mortality risk and has been quoted to be more than 25 times compared to non obstetric hysterectomy.[1]

Planned PH was defined as scheduled hysterectomy during a C -section.

The decision for planned PH was determined by a team that includes an obstetrician supervisor, experienced gynecologist, neonatologist, anesthesiologist, urologist, and intensive care physician. Planned hysterectomy is performed in case of diagnosed placenta accreta spectrum. A median abdominal incision was made for planned PH.

The uterine incision avoided the placental attachment as far as possible. [2]

Evolution of peripartum hysterectomy

The first documented hysterectomy with caesarean 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. [1]

The first successful PH was performed in 1876 by Eduardo Porro, Professor of Obstetrics at Pavia, to control uterine hemorrhage and prevent peritonitis during caesarean section. His patient was a short primiparous, Julia Cavallani, who was 25 years of age and was of 144cm in height. In this procedure, the uterus was opened and extracted a live baby. After removal of the placenta, an instrument called a cintrat's constrictor was passed over the neck of the uterus and the wire was sufficiently tightened to control hemorrhage and the uterus was then cut away. [2]

By the 1970s elective peripartum hysterectomy was performed in of the severe obstetric haemorrhage and urological injury. Peripartum hysterectomy is almost not practised in modern obstetrics unless occurs as emergent complication. [3]

Incidence

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 countries.

The high incidence of peripatum hysterectomy in the developing countries may be due to phenomenon of unbooked emergencies. [2] The increasing Cesarean Section (CS) rate worldwide over past four decades is followed by increased maternal morbidity due to Placenta Accreta Spectrum (PAS) disorders. [3]

Rates of placenta accreta spectrum are increasing. Observational studies from the 1970s and 1980s described the prevalence of placenta accreta as between 1 in 2,510 and 1 in 4,017 compared with a rate of 1 in 533 from 1982 to 2002. A 2016 study conducted using the National Inpatient Sample found that the overall rate of placenta accreta in was 1 in 272 for women who had a birth-related hospital discharge diagnosis, which is higher than any other published study. [3-4]

In a systematic review, the rate of placenta accreta spectrum increased from 0.3% in women with one previous cesarean delivery to 6.74% for women with one or more cesarean deliveries. [4]

Risk Factors & Indications

1. Abnormal placentation has become the main indication for peripartum hysterectomy, replacing uterine atony, uterine rupture, and other factors. [5]
2. The most common indication for peripartum hysterectomy is hemorrhage but the underlying causes vary over time. Indication for peripartum hysterectomy includes cases of uncontrolled hemorrhage at the time of delivery:

a) Morbidly adherent placenta
b) Uterine atony
c) uterine rupture,
d) extension of cervical tears,

e) Secondary postpartum hemorrhage. [5]

3. Recently, abnormal placentation has been the most common cause of hysterectomy, advanced maternal age and previous one cesarean delivery are the most remarkable risk factors for it. [5]

Indications for peripartum hysterectomy changed significantly in this time period, with "uterine rupture" to "abnormal placentation". The most significant emerging trend was the increase in the incidence of peripartum hysterectomy as a result of morbidly adherent placenta. The term placenta accreta encompasses all cases of morbidly adherent and invasive placenta. [6]

A placenta previa which covers the internal cervical os or a low-lying anterior placenta that reaches <2 cm from the internal cervical os in combination with a prior CS are the main risk factors for Placenta Accreta Spectrum (PAS) disorders,where the placental trophoblasts invade the decidua basalis (placenta accreta), the uterine myometrium (placenta increta), or through the myometrium reaching the uterine serosa and sometimes into adjacent organs such as the urinary bladder, parametrial tissues, intestine or abdominal wall (placenta percreta). This prevents physiological placental detachment from the uterine myometrium after birth and may lead to massive blood loss.[4-5]

Advanced maternal age, previous caesarean sections, assisted reproductive technology, and multiple pregnancies as significant risk factors for obstetric haemorrhage leading to PH, findings that are consistent with our case. Other risk factor smoking, other uterine surgery, uterine anomalies, and intrauterine scar tissue (Asherman's syndrome) increases the risk of haemorrhage [6]

Types of Hysterectomy

1. Circustances

a) Emergency

b) Indicated

c) Elective

2.**Extent**

a) Supracervical

b) Total

c) Radical

2. Clinical Extent

a) Planned cesarean birth

b) Emergency cesarean birth

c) Postpartum

3. Salpingo-Oophorectomy

a) None

b) Unilateral

c) Bilateral

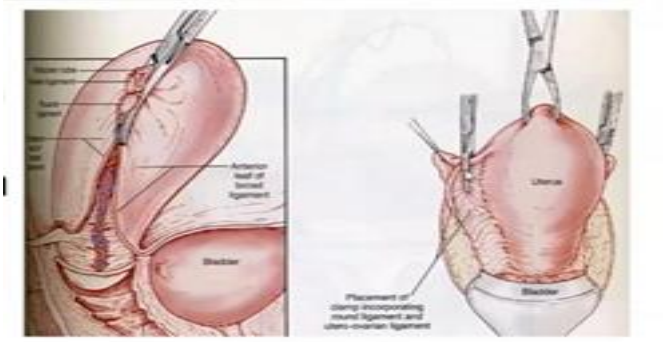
Procedure of Peripartum Hysterectomy

After the decision is made to proceed with hysterectomy, anesthesia and nursing teams are promptly notified that hysterectomy is planned. A self-retaining retractor is placed and exposure is maximized. Conversion from regional to general anesthesia is required to facilitate packing of the abdominal contents and manage duration of procedure.

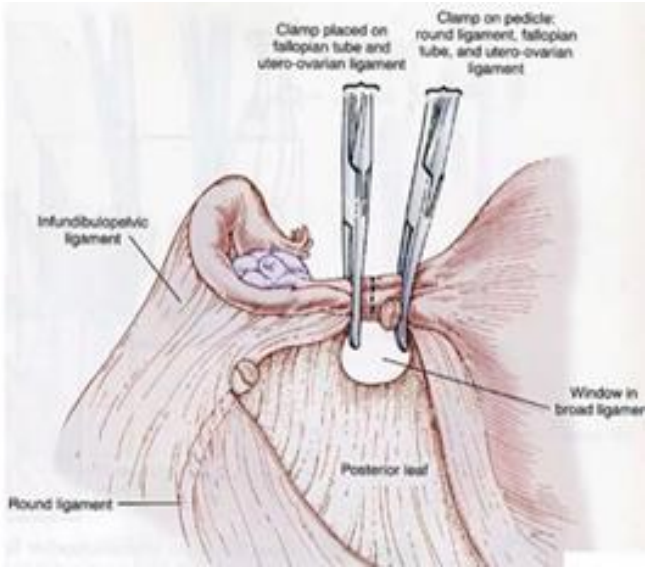
Two large Kelly clamps are placed on the uterine cornu, and the uterus is elevated and placed on traction. The hysterotomy done with a simple running suture . If the bladder has not been mobilized prior for cesarean delivery, it should be dissected from the lower uterine segment, sharp dissection is preferred.

The round ligaments are then ligated and divided. The vesicouterine peritoneum is opened. The ureter should be identified visually or by palpation. If bleeding is significant, the uterine arteries should be secured

immediately. To expeditiously control the uterine vessels, "clamp-cut-drop" technique is preferred where the uterine pedicles are clamped and cut and then left to be ligated after bleeding is controlled. The hysterectomy starts with clamping and transection of the utero-ovarian ligament.



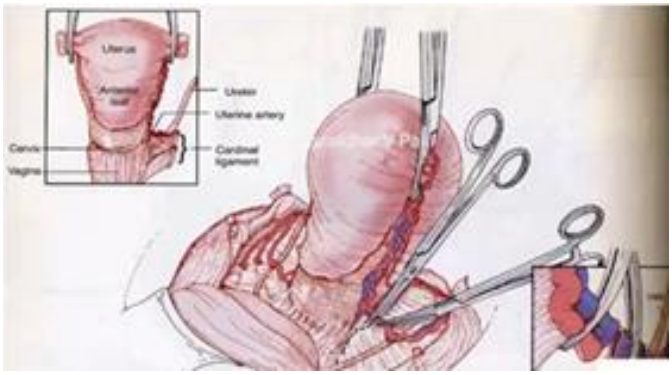
Uterus And Uterine Cornu Is Held And Elevated with Traction



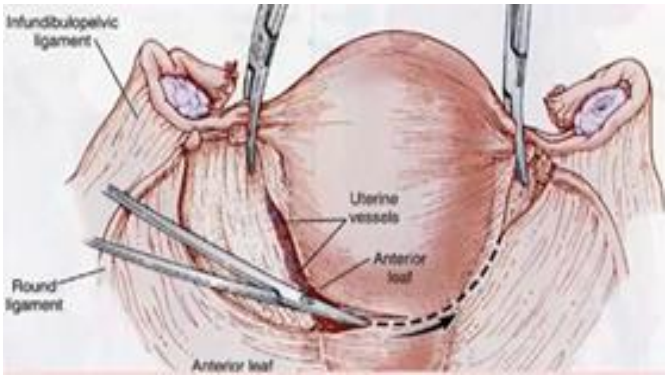
A Window is Created in Posterior Leaf of Broad Ligament

A window to be created through the posterior leaf of the broad ligament to facilitate clamp placement. The uterine vessels are then secured with a Heaney or Zeppelin clamp. A Kelly clamp can be placed along the uterus to avoid "back bleeding" prior to transection of the uterine pedicles.

The uterine vessels are then secured with 0 synthetic absorbable sutures. After the uterine vessels are secured, bleeding usually decreases. The bladder should be inspected and further pushed down. The cardinal ligament is then clamped with a straight clamp (Ballentine or Zeppelin), divided, and sutured. The uterosacral ligament is reached, which is also clamped, transected, and sutured.



Ligation of Uterines



Sharp Dissection of Bladder and Mobilising It Further

If the cervix is dilated, it may be difficult to identify. The lower uterine segment and cervix can be pinched between the finger and thumb to better delineate the cervix, or an assistant can place a hand in the vagina to better define the borders of the cervix. The bladder is then further mobilized. Heaney or Zeppelin clamps are then placed below the cervix, and the uterine specimen is amputated. If bleeding is stable, performing a subtotal hysterectomy is a reasonable option.

After removal of the uterus, the vaginal cuff is closed with figure-of-8 suture of a 0 synthetic absorbable suture. The bladder and ureters should be reinspected. If there is oozing in the surgical bed, topical hemostatic agents can be applied. Once hemostasis has been obtained, the abdomen is closed. (Textbook of Te Linde)

Subtotal Hystrectomy

This is not preferred in modern obstetrics, A subtotal hysterectomy is technically easier and associated with shorter operating time, less blood loss, less urological injury and low morbidity. It is not a choice but happens.[6]

Cardinal ligaments clamped, incised and ligated taking small bites. These steps are repeated until the level of the lateral vaginal fornix is reached to include descending branches of the uterine vessels. Transection of mid cervix is performed by clamping the lateral cervical vessels above the level where the uterine arteries are ligated. Cervical edges are sutured with figure of eight or running sutures. Each vascular pedicle should be checked for hemostasis.[6-7]

Subtotal hysterectomy may be associated with certain post-operative problems from the cervical stump such as cyclical bleeding, vaginal discharge and the need for regular cervical cytology. It may be associated with continued bleeding from the cervical branch of the uterine artery, which supplies the lower segment and the cervix.[7]

Deviations from Usual Hysterectomy Procedure

Peripartum hysterectomy is one of the crisis of modern obstetrics. The difficulties or deviations associated with the procedure are not the surgical technique but the anatomical and physiological changes associated with late pregnancy and the indications for the surgery. [7]

Some of the deviations with obstetric hysterectomy include, areas of concern:

A. Enlarged and distended uterine and ovarian vessels. There is increased blood supply to the pelvic organs in pregnancy.
B. Clamping the uterine blood supply takes procedure over adhesiolysis, packing and clearing.
C. Pedicles can be rapidly “Clamped, cut and dropped” to be suturted later.
D. Pelvic tissues adjacent to the uterus are oedematous and friable.
E. Placenta previa percreta may extend into the bladder and other pelvic organs.
F. Scarring from previous cesarean sections obliterates the utero-vesical space and makes the separation of the bladder from the uterus difficult and prone to injuries.
G. Obtaining adequate exposure and uterine tracrtion will minimize vascular or ureteral injuries.
H. If the bladder cannot be easily pushed down, sharp dissection is preffered or urologists help is sought.
I. Difficulty in identifying the vaginal angles or the cervix to complete a total hysterectomy in laboring patients where the cervix is fully dilated.
J. Adherent placenta should be left in place as removal can increase total blood loss. [7]

Complications

Intraoperatively

The most frequent complication of peripartum hysterectomy is excessive blood loss and need for massive blood transfusion. The extensive blood loss is related mainly to the primary indications for hysterectomy and delay in deciding to carry out hysterectomy. Oedematous tissue, adhesions from

previous surgery and the inherent risk for coagulopathy may contribute to blood loss. [8]

Blood transfusion is the most common adjunct therapy and therefore increases the risk of blood transmitted diseases such as Hepatitis B & C and HIV. The second most common complication is urological injury which affects the bladder or the ureters. [8-9]

The bladder is most frequently injured during the dissection from the lower segment in patients with previous caesarean sections. The ureters can be clamped, sutured or stitched where they pass under the uterine vessels at the lateral aspects of the lower segment. Less commonly reported complications include bowel injuries, laceration of the large pelvic vessels or infundibulo-pelvic ligaments. [9]

Postoperatively

The post-operative morbidity of peripartum hysterectomy is high. Maternal mortality associated with peripartum hysterectomy is decreasing in the developed world but it is high in the developing countries. Identifiable causes of mortality include persistent hemorrhage, disseminated intravascular coagulopathy renal failure and septicemia. [9]

Pitfalls of Peripartum Hysterectomy

A. Uterus is bigger immediate postpartum, hence operative space is restricted
B. Cervix is soft and dilated makes it difficult to identify.
C. Lower segmant elongated, may leave behind some endometrium in subtotal hysterectomy.
D. Blood vessels are greatly dilated.
E. Varices in mesosalphinx and vesicouterine space leads to massive haemorrhage.
F. Excessive bleeding obscure the operative field.
G. The tissues are fragile and susceptible to tearing.
H. Edema in the tissues and vessel walls results in the loosening of ligatures post operatively.
I. Adhesions of lower segment with bladder in case of previous LSCS are more liable to bladder injuries. [9]

Conclusion

Placenta accreta spectrum is the leading cause of peripartum hysterectomy and was associated with significant and mortality. In view of the rising incidence of placenta previa accreta, all over the world, the need for peripartum hysterectomy may be on the rise. [9-10]

The identification of the risk factors for placenta previa accreta and its antenatal diagnosis is utmost neccesasry in high risk group as it represents a possibility for elective or semi elective peripartum hysterectomy in modern obstetrics. [10]

References

1. Bayram F, Urun C, Karakaya J, Karaşin SS. Emergency peripartum hysterectomy: Five-year experience in a university hospital. J Surg Med. 2021;5(11):1086-1089.
2. Chisara C. Umezurike et al. peripartum hysterectomy April 2012, DOI: 10.5772/30132.
3. Anwar H. Nassar Prevention and treatment of postpartum hemorrhage in low-resource settings Int J Gynecol Obstet. 2022;157(Suppl. 1):3–50.
4. Flood KM, Said S, Geary M, et al. Changing trends in peripartum hysterectomy over the last 4 decades. Am J Obstet Gynecol 2009; 200:632. e1-632.e6.
5. Dirik et al Evaluation of Peripartum Hysterectomy East J Med Volume:26, Number:1, January-March/2021
6. Kallianidis et al Emergency Peripartum Hysterectomy Worldwide OBSTETRICS & GYNECOLOGY VOL. 141, NO. 1, JANUARY 2023.

7. Arnadottir B, Salehi S, Nordstrom J, Stjernholm YV. Peripartum Hysterectomy due to Placenta Accreta Spectrum Disorders - Improved Maternal and Neonatal Morbidity after Diagnostic Ultrasound and Multidisciplinary Care. Clin Surg. 2020; 5: 2748
8. Abiodun Omole-Ohonsi, BMBCh, FWACS, Hassan Taiwo Olayinka, Emergency Peripartum Hysterectomy in a Developing Country J Obstet Gynaecol Can 2012;34(10):954–960
9. Jagdeesh Kaur Peripartum hysterectomy clinical characteristics and outcomes- a hospital based retrospective audit study Med J Malaysia Vol 78 No 6 November 2023
10. ACOG guidelines on Placenta accreta spectrum, December 2018.
11. Wang Y, Zhang S. Reflections on peripartum hysterectomy: A 10-year retrospective observational study in Northeast China. Int J Gynecol Obstet. 2024; 165:764-771. doi:10.1002/ ijgo.152
12. Te Linde's textbook of operative gynecology 12th edition.