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Postpartum haemorrhage after caesarean section: A prospective study on incidence, risk factors causes prevention & management

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Abstract

Objective: To find out the prevalence of postpartum haemorrhage after C.S and to identify risk factors & preventive measures and management**.**

Materials & method: A prospective study conducted in the department of Obstetrics & Gynaecology, Index Medical College Hospital & RC, Indore, M.P, on all the caesarean section patients irrespective of age, parity, booking status who developed postpartum haemorrhage.

Result: Postpartum haemorrhage occurred in 6.25% cases of which unbooked cases were 7.69% and booked cases were 3.57%.PPH occurred mostly in multigravida (70%) and the most commonest cause being the atonic uterus (52%) followed by tissue trauma (24%) and placental problem (12%).There are certain predisposing factors found in our study of which antepartum haemorrhage (20%), obesity, placental problems are common. It is seen with proper screening of high risk cases in antenatal period and meticulous surgery during o.t can minimize the risk of PPH. With prompt medical and surgical intervention all the PPH cases were managed successfully.

Conclusion: PPH is one of the common complication after C.S which occur more with advanced age, multigravidae and in unbooked cases. Proper screening of the predisposing factors in antenatal period can prevent the occurence and prompt medical and surgical management should be done in PPH cases according to cause.

Keywords: caesarean section, post-partum haemorrhage, uterogenic agents

1. Introduction

Caesarean section is one of the commonest operations performed worldwide and it's incidence is increasing both in developed and developing countries. Caesarean section is the major open abdominal procedure, often performed in an emergency setting. It is a risk factor for postpartum haemorrhage. NICE guideline on Caesarean section gives a rate of 1.1 % for postpartum haemorrhage following planned C.S. The recent guideline of NICE shows 35% of women who developed postpartum haemorrhage had undergone unplanned C.S [1].

2. Aims and Objective

Aim

To describe the range and extent of postpartum haemorrhage after C.S, it's causes, risk factors and management.

Objective

- Find out the incidence of postpartum haemorrhage after C.S during 2 years period of August2015 to August 2017 at Index Medical College& Research Centre, Indore, M.P, India.
- To correlate the incidence according to age, parity and status of antenatal care.
- To find out the precipitating factors
- To find out the preventive measures and role of prompt surgical repairs.

3. Methods and Materials

- **Study type:** prospective study.
- **Source:** study was done on all the cesarean section patients who developed postpartum haemorrhage conducted at the department of Obstetrics & Gynaecology at Index Medical College & Research Centre, Indore, M.P, India from August 2015 to August 2017.
- **Inclusion criteria:** All cases of postpartum haemorrhage after C.S booked or unbooked irrespective of age and parity.
- **Exclusion criteria:** patients with known coagulation disorders, all other complications after C.S were excluded.

All the patients included in the study were analysed to the following characteristics: The amount and extent of blood loss was noted along with patients general conditions, the site of

injury, the antecedent cause of the injury was also noted. After determining the site and cause of the injury prompt surgical repair were done. At the same time any iatrogenic causes during CS were also notified**.**

4. Observation and Result

A total of 800 patients including all booked and unbooked cases irrespective of age and parity were undergone C.S of which 50 patients developed PPH after C.S.

Table 1: Age wise distribution (n=50)

S. no.	Age group(yrs)	No of cases	Percentage
1	20-25	8	16
2	26-30	8	16
3	31-35	10	20
4	36-40	14	28
5	>40	10	20

It is found that PPH is more prevalent in elderly age group between 36-40 years (28%) and 20% in >40 years, most common cause being the atonic uterus.

Table 2: Distribution of Cases According to Booking Status (N=800)

Booking status	No of C.S	No of PPH after C.S	%
Booked	280	10	3.57
Unbooked	520	40	7.69
total	800	50	6.25

Out of total 800 C.S cases postpartum haemorrhage occurred in 50 cases which is 6.25%, PPH in booked cases were 10 out of 280 cases (3.57%) and PPH occurred in unbooked cases are 40 out of 520 cases (7.69%). Hence, proper antenatal care can reduce the chance of PPH in C.S cases.

Table 3: Distribution of Cases According to Parity (N=50)

parity	No of cases	%
Primi	15	30
Post C.S	12	24
Repeat C.S	23	46

Haemorrhage occurred in primigravidae 30% and 70% in multigravidae; in post C.S cases 24% and repeat C.S cases 46% respectively. In repeat C.S patients bleeding occurred mostly due to scarred uterus and adhesion.

Table 4: Distribution of Cases According To Causes (N=50)

causes	No of cases	%
1.Uterine atony	26	52
2.Tissue trauma	12	24
-uterine angle extension	5	10
-cervicovaginal trauma	3	6
-bleeding from adhesion	2	4
-broad ligament trauma	2	4
3.Placental problem	6	12
-placenta previa	4	8
-placenta accreta	2	4
4.Faulty surgical technique	6	12
-uncorrected dextrorotation of uterus	2	4
-too much inferior incision in lower uterine segment	3	6
-faulty breech extraction	1	2

In this study it is found that haemorrhage after C.S occur of which most common being uterine atony 52% followed by tissue trauma 24% (uterine angle extension 10%, cervico-vaginal trauma 6%, bleeding from adhesion 4%, broad ligament haematoma 4% and placental problems 12% (placenta previa and placenta accreta).

It is also noted a few cases occur due to faulty surgical technique mostly in unplanned case like uncorrection of dextrorotation, too much inferior incision in lower uterine segment or faulty breech extraction. It is also evident that bleeding due to trauma can be minimized by using careful surgical technique [2].

Table 5: Distribution of Risk Factors Which Was Associated Before The C.S (N=30)

Risk factors	No	%
Placenta previa	4	13.33
Placenta accreta	2	6.66
obesity	4	13.33
Antepartum haemorrhage	6	20
Birth weight>4 kg	6	20
General anaesthesia	4	13.33
Presence of fibroid	4	13.33

Out of 50 cases of postpartum haemorrhage predisposing factors were present in 30 cases, most common being the antepartum haemorrhage and birth weight >4 kg, and mostly these cases resulted in uterine atony. Most of the placenta previa and accrete cases resulted in intractable bleeding leading to need of blood transfusion and one accreta case resulted in obstetric hysterectomy.

Table 6: Distribution of Cases According To Management (N=50)

Causes	Management procedure	No	%
1.Uterine atony(n=26)	Uterotonic medication(syntocinon,ergometrine,carboprost,misoprostol)	20	40
	Uterotonic agents and tamponade	3	6
	Uterotonic agents +surgical technique (compression suture and/or Internal iliac artery ligation (1 case)	3	6
2.Trauma(n=12)			
Angle extension	Suturing of angle and ligation of uterine artery	5	10
Cervico-vaginal trauma	Suturing from apex of incision	3	6
Broadligamenthaematoma	Suturing of branches of uterine artery in broad ligament/complete whole repair in broad ligament	2	4
Bleeding from adhesion	Haemostatic suture	2	4
3.Placental problem(n=6)			
Placenta previa	Placental bed suturing by type 8 haemostatic suture	4	8
Placenta accreta	Internal iliac artery ligation Obstetric hysterectomy	1 1	2 2
4.Faulty surgical technique	Meticulous surgical repair	6	12

In my study the most common cause (52%) of postpartum bleeding after C.S became the uterine atony, which was treated by different combination of uterotonic agents in maximum cases (40%). In unresponsive cases prompt surgical measures were taken like compression suture, tamponade, etc. Internal iliac artery ligation was needed only in 1 cases. The 2 most common cause was trauma (24%) during o.t which was managed by simple measures like angle suturing, suturing from the apex of incision in lower segment tear, suturing of branches of uterine artery in broad ligament or simple hole repair in the broad ligament to prevent herniation of gut etc. Placental problems were found only in 6 cases (12%) but resulted in intractable bleeding. All the placenta previa cases needed blood transfusion and the placenta accrete cases needed obstetric hysterectomy along with blood transfusion. All the cases were managed with prompt medical and or surgical management, no maternal mortality occurred. There were some iatrogenic bleeding due to faulty surgical technique (12%) which were managed by meticulous surgical repair, so it became evident that precautions could prevent PPH in some cases.

Discussion

- In this study out of 800 C.S patients 50 patients developed postpartum haemorrhage which is 6.2%.In
- a study on "complications of caesarean section", Alexander Field *et al* showed the incidence rate of postpartum hemorrhage after C.S is approximate 5-6%.(3)
- It is also noticed that PPH occurs mostly in the elderly age group; 28% in 36-40 years age group and 20% in >40 years [3].
- It is found that emergency C.S has a higher incidence than elective C.S 7.69 & 3.57% respectively. Megann et.al in a study over 2000 patients of C.S in Australia also showed postpartum haemorrhage after emergency C.S and elective C.S are 6.75% & 4.74% which is close to my study [4].
- PPH after C.S mostly occurred in mulitigravidae patients (70%); mostly in repeat C.S (46%) and then in post C.S cases (24%). In a study of "prevalence, causes, risk factors and outcome of severe obstetrics haemorrhage" Chandrika S. Kodla et.al also found incidence rate of PPH in primi is 33% and in multi 67% which is again supporting my study [5].
- Haemorrhage after C.S occurred for a number of reason of which atonic uterus is the most commonest cause (52%) followed by tissue trauma (24%) and placental problem (12%) [6, 7].
- Some predisposing factors for PPH were found in this study of which antepartum haemorrhage in this pregnancy (20%) became the most common cause followed by obesity (13.33%), placenta previa (13.33%), general anaesthesia (13.33%), and presence of fibroid (13.33%). So proper antenatal screening of high risk cases can reduce the chance of postpartum haemorrhage after C.S.In a study of "risk factors for severe PPH after C.S" Ramachandran B *et al* also found similar risk factors.(9)
- There are some iatrogenic causes like faulty surgical technique (12%) found for PPH after C.S in this study which can be avoided by some preventive measures like dextrorotation of uterus before giving incision or not to give too much inferior incision in lower uterine segment. (3)
- Uterine atony which is the most common cause of postpartum haemorrhage in this study was successfully managed by uterotonics in most of the cases (40%). Some cases required prompt surgical interference. The tissue trauma were managed effectively with surgical measure. Only 1 case of placenta accreta needed obstetric hysterectomy. (7, 8).

Conclusion

Caesarean section is one of the most commonly performed surgical procedure in the world. Among the various complications postpartum haemorrhage occur in 5-6% of cases of which atonic uterus is the most common cause. With proper screening of high risk cases during antenatal period and by meticulous surgical technique during o.t PPH can be prevented in some cases. uterotonic agents are the first choice in the management of atonic uterus, in unresponsive cases prompt surgical measures should be taken, other causes of should also be managed according to cause.

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