

To Study Complications of Caesarean Section in Tertiary Care Hospital

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Abstract

Background: Caesarean section is one of the commonest obstetric operations. Now a day's increasing Caesarean section rates in developed countries, Caesarean section rates are also increasing in some developing countries. The majority of these proceed smoothly and safely; however, caesarean section is a major, open abdominal procedure, often performed in an emergency setting. The incidence of re-laparotomy after caesarean section is 0.12–1.04%. The most common indications being intra-abdominal bleeding, intra-abdominal abscess or bladder and bowel complications. **Aim and Objectives:** 1.To study most common and serious complications of caesarean section.2 To study the association of complications with various risk factors. **METHODS:** Study Design: Prospective study. Sample size: 100 **Results:** majority of subjects were from age group 20-25 yrs contributing 53 (53%) followed by 26-30 yrs age group 28 cases (28%), > 30 yrs 15 cases (15%) and 4 cases (4%) found in <20 yrs age group. Anemia was most common medical condition among subjects contributing 38 (38%) followed by Hypertensive disorders 15 (15%), APH 14 (14%) and Malpresentation in 13 (13%) cases respectively. most of study cases were delivered as an emergency contributing 76 cases and 24 cases were with elective caesarean section. Fetal Distress was most common indication for LSCS in present study contributing 23 cases followed by Prolonged Labor 14 cases, Hypertensive disorders 12, Breech 08, Placenta previa 7, Oligohydraminos 6, Obstructed Labor 5, Abruptio 5, Severe anemia 3 and Transverse Lie in 3 patients respectively. Surgical site infection was most common complication in patients with caesarean section contributing 17 cases followed by Post partum haemorrhage 8 cases, Injury to bladder and intestine 2, Thromboembolism found in 1 case. A statistical significant association was seen between hypertensive disorders in pregnancy and complications in caesarean delivery.[p<0.05] **Conclusions:** Fetal Distress was most common indication for LSCS in present study followed by prolonged Labor, Hypertensive disorders, malpresentations, antepartum haemorrhage, obstructed labor and previous LSCS. Surgical site infection was most common complication in patients with caesarean section followed by post partum haemorrhage, Injury to bladder and intestine and thromboembolism. **Keywords:** Antepartum haemorrhages, Post partum haemorrhage, Malpresentations, Obstructed labor,

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Introduction

Caesarean section is one of the commonest obstetric operations.¹ Now a day's increasing Caesarean section rates in developed countries, Caesarean section rates are also increasing in some developing countries.² The majority of these proceed smoothly and safely; however, caesarean section is a major, open abdominal procedure, often performed in an emergency

setting. The incidence of re-laparotomy after caesarean section is 0.12–1.04%.³ the most common indications being intra-abdominal bleeding, intra-abdominal abscess or bladder and bowel complications.⁴ As such, there are a number of immediate and delayed complications that may be encountered and the obstetrician must be familiar with and able to rectify these.

Caesarean section is a risk factor for postpartum haemorrhage, although a wide range of definitions and risks are quoted in the literature. The National Institute for Health and Care Excellence (NICE) guideline on caesarean section gives a rate of 1.1% for postpartum haemorrhage following planned caesarean section versus 6.0% for planned vaginal birth (although in the study that NICE obtained these figures from, 35% of women in this group actually had an unplanned caesarean section).⁵ Caesarean section is the most important risk factor for postpartum sepsis, which may arise from a number of sources. Wound infection and endometritis are the commonest sites of postoperative infection.^{6,7}

The overall rate of surgical site infection was 9.6% and the commonest organisms isolated were *Staphylococcus aureus*, anaerobes and enterobacteriaceae such as *Escherichia coli* (*E. coli*) and enterococcus.⁸ bladder Injury at caesarean section is uncommon most bladder injury in primary caesarean section occurred during peritoneal entry and in repeated section most occurred during dissection of bladder from the lower uterine segment. while ureteric injury in caesarean section less common than bladder injury.⁹ immediate bowel injury is rare complication in caesarean section.¹⁰

Haemorrhage at caesarean occurs for a number of reasons, including uterine atony, tissue trauma (for example, uterine angle extensions, cervico-vaginal trauma, bladder injury or bleeding from adhesions), coagulation defects and problems with the placenta. The treatment of haemorrhage at caesarean must be directed at the cause.

Uterine atony is treated with uterotonic medications, such as syntocinon, ergometrine, carboprost and misoprostol. If these fail, surgical methods such as intrauterine tamponade balloon and/or compression sutures (for example, B Lynch) should be employed.⁷ Prophylactic antibiotics prior to skin incision are one of the most important ways of reducing postoperative sepsis.¹⁰

Need for the study

Cesarean section is one of the most commonly performed surgical procedure in appropriateness of increasingly employing a surgical procedure to short circuit or entirely bypass labour and delivery.¹¹ According to WHO, though there is no ideal CS rate, CS rate above 10-15% does not confer additional health benefits in terms of fetal and maternal morbidity and mortality.¹²

According to ICMR study conducted in 30 teaching hospitals in India; there is an increase in CS rate from 21.8% in 1993-1994 to 25.4% in 1998-1999 [13]. The rapid increase in cesarean birth rates from 1996 to 2011 without clear evidence of concomitant decreases in maternal or neonatal morbidity or mortality raises significant concern that cesarean delivery is overused.¹⁴

Very few studies conducted regarding to study complications of caesarean section in tertiary care hospital. So I am interested to find out the various indications of caesarean section, clinical profile, to study most common and serious complications of caesarean section, to be able to describe recognition and initial surgical management of suspected bladder ureteric and bowel injuries and to study the association of complications with risk factors.

Objectives

1. To study most common and serious complications of caesarean section
2. To study the association of complications with various risk factors

Material And Methods

Study Design: Prospective study

Study Centre: Department of OBGY Rohilkhand Medical College And Hospital Bareilly.

Study Population: All Post caesarean patients admitted in Department of OBGY Rohilkhand Medical College And Hospital Bareilly during study period such cases were included in the study,

Sampling method: Convenient sampling

Period of Study: 10 November 2022 to 11 November 2023

Sample size: With reference to study by Jain M *et al.* (2016)¹⁷ he revealed that, Majority of cases (79.3%) underwent emergency cesarean section. Only 20.7% cases had elective cesarean section.

Formula for sample size:

$$N=4 \times P \times Q / L^2$$

N=sample size

P=Prevalence of Elective cesarean section in India =**20.7%**

$$Q=100-P=79.3$$

L =Allowable error = Absolute error (8%)

$$N= 4 \times 20.7 \times 79.3 / 68.55$$

N=95.78, N=Sample size rounded to 100

Inclusion Criteria

1. All patients undergoing caesarean section

Exclusion criteria

1. Patient with bleeding disorder
2. Patients not willing to participate in study.

Approval for the study

Written approval from Institutional Ethics committee was obtained beforehand. Written approval of OBGY and other related department was obtained. After obtaining informed verbal consent from all patients undergoing caesarean section such cases were included in the study.

Study procedure

Study subjects were enrolled after obtaining clearance from ethics committee. All the subjects were explained in detail about study procedure in language she understands.

Informed written consent was obtained from study participants. Predesigned and pretested study proforma was used as a tool for data collection. Data was collected about sociodemographic characteristics, Parity, gestational age in weeks, ANC visits, Hypertensive disorders (PIH, preeclampsia or eclampsia), USG findings (Malpresentations, oligohydraminos), investigations like urine protein and CBC, type of LSCS and complications encountered during LSCS.

Operational definitions

Anaemia: Hb<11gm%

Preeclampsia: Gestational hypertension BP (140/90 mm/Hg) and proteinuria

Eclampsia: Preeclampsia complicated with convulsions

DATA ANALYSIS

All the data collected was entered in excel spreadsheet and analyzed using SPSS version 21 software. Chi square test was used to study associations. $P < 0.05$ was considered as significant.

Result And Observations

Table No.1: Distribution of cases according to age (N=100)

Age (Years)	Frequency	Percentage
<20	04	4%
20-25	53	53%
26-30	28	28%
>30	15	15%
Total	100	100 (100%)

Above table shows that, majority of subjects were from age group 20-25 yrs contributing 53 (53%) followed by 26-30 yrs age group 28 cases (28%), > 30 yrs 15 cases (15%) and 4 cases (4%) found in <20 yrs age group.

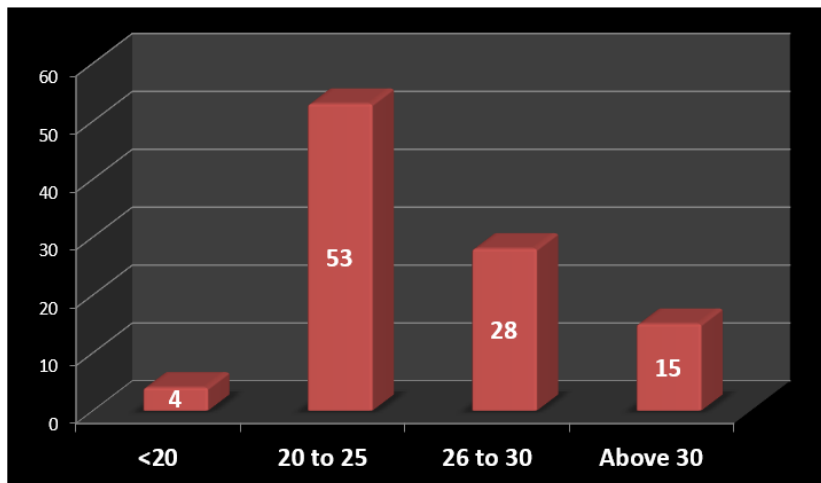


Figure 1: Distribution of cases according to age (N=100)

Table No.2: Associated medical conditions among study cases (N=100)

Associated medical conditions*	Frequency	Percentage
Hypertensive disorders	15	15%
APH	14	14%
Anemia	38	38%
Malpresentation	13	13%

Above table shows that, Anemia was most common medical condition among subjects contributing 38 (38%) followed by Hypertensive disorders 15 (15%), APH 14 (14%) and Malpresentation in 13 (13%) cases respectively.

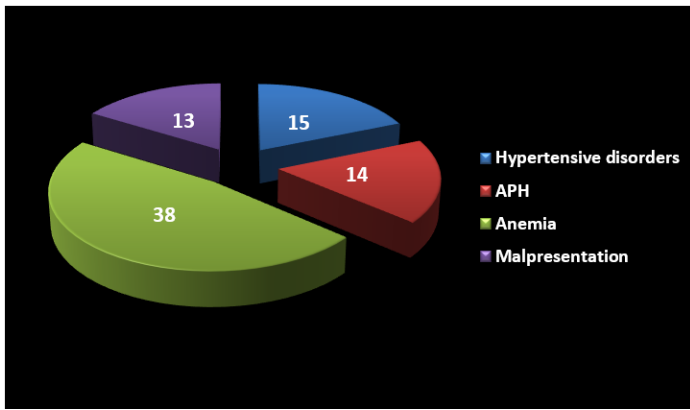


Figure 2: Associated medical conditions among study cases (N=100)

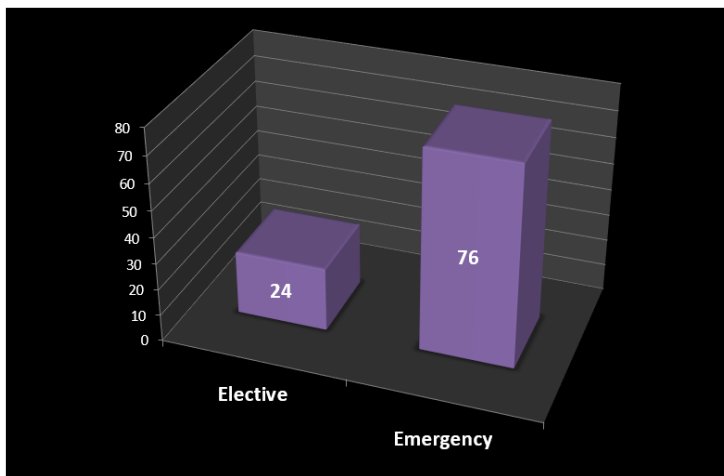


Figure No.3: Distribution of study cases according to type of caesarean section (N=100)

Above figure shows that, most of study cases were delivered as an emergency contributing 76 cases and 24 cases were with elective caesarean section.

Table No.3: Indications for caesarean section among study cases

Indication	Frequency	Percentage
Fetal Distress	23	23%
Prolonged Labor	14	14%
Hypertensive disorders	12	12%
Abruption	05	5%
Breech	08	8%
Placenta previa	07	7%
Oligohydraminos	06	6%
Obstructed Labor	05	5%
Severe anemia	03	3%
Transverse Lie	03	3%

Above table shows that, Fetal Distress was most common indication for LSCS in present study contributing 23 cases followed by Prolonged Labor 14 cases, Hypertensive disorders 12, Breech 08, Placenta previa 7, Oligohydraminos 6, Obstructed Labor 5, Abruption 5, Severe anemia 3 and Transverse Lie in 3 patients respectively.

Table No.4: Complications of caesarean delivery among study participants (N=100)

Complications	Frequency	Percentage
Surgical site infection	17	17%
Post partum haemorrhage	08	8%
Thromboembolism	01	1%
Injury to bladder and intestine	02	2%
No complications	72	72%

Above table shows that, Surgical site infection was most common complication in patients with caesarean section contributing 17 cases followed by Post partum haemorrhage 8 cases, Injury to bladder and intestine 2, Thromboembolism found in 1 case.

Table No.5: Association between hypertensive disorders in pregnancy and complications among study subjects (N=100)

Hypertensive disorders *	Complications				Total	p
	Present		Absent			
	N	%	N	%		
Present	8	57.14	6	42.85	14	0.001062*
Absent	15	17.44	71	82.55	86	
Total	23	23	77	77	100	

The Chi square=10.7155, df=1; The p-value is 0.001062. significant at $p < 0.05$

Above table shows that, proportion of complications was significantly high in subjects Hypertensive disorders contributing 57.14 % as compared to those with without hypertensive disorders (42.85%). A statistical significant association was seen between hypertensive disorders in pregnancy and complications in caesarean delivery. [$p < 0.05$]

Discussion

This prospective study was conducted among 100 cases at Department of OBGY Rohilkhand Medical College and Hospital Bareilly

In current study majority of subjects were from age group 20-25 yrs contributing 53 (53%) followed by 26-30 yrs age group 28 cases (28%), > 30 yrs 15 cases (15%) and 4 cases (4%) found in <20 yrs age group. A similar study by Rehman BU *et al.* (2019)¹⁶ revealed that, majority were age group between 21 and 30 years (67.1%). Another study by Jain M *et al.* (2016)¹⁷ also revealed similar finding.

It was observed that, Maximum number of women undergoing primary cesarean section were in the age group of 21-25 years (54.3%) and the lowest number was in the age group of ≥ 36 years (1.5%). A similar study by Yadav S *et al.*²² observed that, Mean age of study participants was 27.2 year.

In current study Anemia was most common medical condition among subjects contributing 38 (38%) followed by Hypertensive disorders 15 (15%), APH 14 (14%) and Malpresentation in 13 (13%) cases respectively. A similar study by Jain M *et al.* (2016)¹⁷ also revealed similar finding. It was observed that, Anemia, malpresentations, oligohydramnios, eclampsia and preeclampsia were more common antenatal complications in primipara patients than multipara. patients while APH was more common complication in multipara patients

In current study shows most of study cases were delivered as an emergency contributing 76 cases and 24 cases were with elective caesarean section. A study by Jain M *et al.* (2016)¹⁷ also revealed similar finding. It was observed that, Majority of cases (79.3%) underwent emergency cesarean section. Only 20.7% cases had elective cesarean section.

In current study found that the Fetal Distress was most common indication for LSCS in present study contributing 23 cases followed by Prolonged Labor 14 cases, Hypertensive disorders 12, Breech 08, Placenta previa 7, Oligohydraminos 6, Obstructed Labor 5, Abruptio 5, Severe anemia 3 and Transverse Lie in 3 patients respectively. A similar study by Desai G *et al.*¹⁹ revealed that, Previous caesarean section, foetal distress and malpresentation of the foetus (Breech and Transverse Lie) were the most common clinical indication for caesarean section.

Similar findings were seen in study by Festin MR *et al.*²⁰ and Aminu M *et al.*²¹ Another study by Yadav S *et al.*²² revealed that, Fetal distress was the commonest indication as 119 (25.1%) 105 (22.2%) patients had history of cesarean section in last pregnancies. Among preexisting obstetric indications hypertensive disorders of pregnancy contributed to LSCS in 87 (18.3%) patients, 39 (8.2%) had ante partum eclampsia. Antepartum hemorrhage (APH) was the indication of surgery in 46 (9.7%) among them placenta previa was found in 31(6.5%) cases. Malpresentation was the sole indication in 26 (5.4%). Findings of this study are consistent with present study.

In current study Surgical site infection was most common complication in patients with caesarean section contributing 17 cases followed by Post partum haemorrhage 8 cases, Injury to bladder and intestine 2, Thromboembolism found in 1 case. A study by Yadav S *et al.*²² revealed that, post-partum hemorrhage was most commonly met complication contributing in 41 (8.6%). 65 (13.7%) patients had wound discharge post operatively. Extension of uterine incision occurred in 15 (3.2%) cases and 1 case had urinary bladder injury for which immediate bladder repair was done. A study by Dahlgren LS *et al.*²³ also revealed consistent finding. It was seen that, surgical site infections was most common complications. Another studies by Liu S *et al.*²⁴ and Allen VM *et al.*²⁵ observed that, Intraoperative complications like injury to bladder was associated with LSCS.

In current study shows Association between hypertensive disorders in pregnancy and complications among study subjects was studied in current study. proportion of complications was significantly high in subjects Hypertensive disorders contributing 57.14 % as compared to those with without hypertensive disorders (42.85%). A statistical significant association was seen between hypertensive disorders in pregnancy and complications in caesarean delivery. [p<0.05]

similar finding observed in the study by Allen VM *et al.*²⁵

Conclusions

Maternal age, multiparity, preterm delivery, inadequate ANC care, anaemia, hypertensive disorders, antepartum haemorrhages and malpresentations were factors associated with complications in caesarean section.

Fetal Distress was most common indication for LSCS in present study followed by prolonged Labor, Hypertensive disorders, malpresentations, antepartum haemorrhage, obstructed labor and previous LSCS. Surgical site infection was most common complication in patients with caesarean section followed by post partum haemorrhage, Injury to bladder and intestine and thromboembolism.

Recommendations

Use risk assessment tools during the antepartum, intrapartum, and postpartum periods to identify women giving birth by cesarean who are at increased risk for hemorrhage, surgical site infections, and venous thromboembolism.

Prepare for an obstetric hemorrhage through unit-based drills that use a rapid response team, access to vital resources, a hemorrhage supply cart, medications, and activation of an obstetric massive blood transfusion protocol that includes coordination with the blood bank.

Reduce risk of a surgical site infection when following an evidence-based safety bundle including vaginal cleansing, skin preparation, timely antibiotic administration, and maintenance of thermoregulation.

Use interventions such as early ambulation, adequate hydration, and pneumatic compression devices to reduce risk of venous thromboembolism. Review the enhanced recovery after cesarean protocol and adopt it as part of routine care for women having cesarean birth.

Use the AWHONN evidence-based guideline of perioperative care of the pregnant woman to update unit policies and practices. Educate women about early warning signs and potential complications of a cesarean birth as part of their hospital discharge teaching. Consider using the AWHONN post birth warning signs handout for all women giving birth.

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