

Original research article

A prospective study of maternal morbidity associated with multiple caesarean deliveries in a tertiary care centre in central India

¹Dr. Sujata Tripathi, ²Dr. Anuradha Mishra, ³Dr. Pooja Gangwar, ⁴Dr. Kalpana Yadav, ⁵Dr. Saumya

¹M.B.B.S., M.S. (OBGY), SSMC, Rewa, Madhya Pradesh, India

²M.B.B.S., M.D. (OBGY), Associate Professor (OBGY), SSMC, Rewa, Madhya Pradesh, India

³M.B.B.S., DGO, DNB (OBGY), Assistant Professor (OBGY), SSMC, Rewa, Madhya Pradesh, India

⁴M.B.B.S., M.D. (OBGY), Professor (OBGY), SSMC, Rewa, Madhya Pradesh, India

⁵M.B.B.S., M.S. (OBG), D.N.B. Fellow in Gynae Oncology, Assistant Professor (OBG), ABVGMC, Vidisha, Madhya Pradesh, India

Corresponding Author:

Dr. Saumya (saumyatiwari70879@gmail.com)

Abstract

Introduction: Roll out of comprehensive national program directed towards maternal and neonatal health, change in mindset of health care providers from curative to preventive health service provision leads to prompt availability of referral services in last few years. Overall this changed trend have lead to increased prevalence of C section in India i.e. 17.2% (NFHS 4). This increased incidence is associated with increased incidences of multiple caesarean section. This life saving procedure have its own perils as multiple c section is associated with increased magnitude of maternal morbidity. This prospective study was conducted to study the various maternal morbidity associated with multiple c section in a tertiary care hospital in central India.

Method: Prospective cross sectional study was conducted for 1 year from 1 march 2020 to 28 Feb 2021 at SSMC, Rewa, MP.

Result: There were 100 cases of multiple c section meeting our inclusion and exclusion criteria in study period. Out of 100; 80 were previous 2 section and 20 were of previous 3 c section. In our study, 17% had bladder adhesions, 8% had bowel adhesions, 10% had atonic uterus, 4% had morbidly adherent placenta, 1% had scar rupture and 7% had scar dehiscence. Bladder adhesions, bowel adhesions, morbidly adherent placenta and scar dehiscence cases were significantly higher in three previous LSCS mothers in comparison to two previous LSCS mothers. Incidence of atonic PPH and scar rupture were higher in these multiple c section cases. These multiple c section cases were associated with increased chances of post-operative puerperal sepsis, wound infection, UTI and delayed suture removal.

Conclusion: Because serious maternal morbidity increases progressively with increasing number of cesarean deliveries every effort should be done to reduce incidence of CDMR and c section done for ease of health care providers. Maximum trial of normal labour and decision of c section should be taken as per new ACOG guidelines.

Keywords: Cesarean section, maternal outcome, intra and post op complication, wound infection

Introduction

Cesarean section (CS) is a fetal delivery process through an open abdominal incision (laparotomy) and an incision in the uterus (hysterotomy). The first cesarean documented occurred in 1020 AD, after that, the procedure has evolved tremendously ^[1]. CS is one of the essential comprehensive intrapartum services. CS can be a life-saving intervention for the foetus and mother, or both in certain circumstances including obstructed labour, distressed foetus, obstetric haemorrhage, abnormal presentation, and various other emergency obstetric conditions. An appropriate provision of CS can cause either maternal or neonatal deaths.

Cesarean section is most commonly performed abdominal operations on women in utmost countries. Current prevalence rate of caesarean section in the world is 18.6% and in India is 17.2% (NHFS 4). The incidence of primary LSCS is increasing all around the world, consequently, there is rise in multiple repeat LSCS's with associated complications. Previous LSCS is one of common indication for repeat LSCS in either emergency or elective cases. Various studies have been come to encourage vaginal birth

after cesarean section (VBAC) to reduce maternal morbidity and mortality due to previous LSCS, but overall trend is not encouraging due to maternal complications like scar dehiscence, scar rupture and other conditions [2]. Due to the risk involved of uterine rupture during trial of labor, repeat LSCS is being performed by many obstetricians. Reprise LSCS also contributes to the adding LSCS rate [3].

It is known that multiple cesarean sections are associated with short- and long-term pitfalls for the mother [4, 5, 6]. There are several significant maternal complications like visceral injury, uterine rupture, abnormal placentation, hysterectomy, bleeding and transfusions, severe adhesions, etc., most of which increase with an adding number of repeated cesarean sections. There are also neonatal risks: babies born via multiple reprise cesarean section are more likely to witness breathing difficulties and require admission to neonatal intensive care [5, 7, 8]. Although cesarean section is now safer than it has ever been ahead, there are some knowledge gaps, and there is uncertainty among numerous obstetricians about the risks involved in multiple cesarean sections, especially when the number exceeds two.

Primarily, we aimed at studying the influence of reprise caesarean on maternal outcome in a tertiary centre and also study the influence of reprise LSCS on intraoperative events like intraperitoneal adhesions, condition of the bladder and lower uterine segment, extension of uterine incisions, placenta previa, postpartum haemorrhage (PPH), blood transfusion and postoperative morbidity.

Material & Methods

This is a Prospective, cross-sectional hospital-based study. This study was under taken in Department of Obstetric & Gynaecology in Gandhi Memorial Hospital, associated with Shyam Shah Medical College, Rewa (M.P.). Study duration was 1 year (From 1st March, 2020 to 28th February, 2021) with 100 cases according to inclusion criteria.

Inclusion criteria

1. Singleton pregnancy.
2. Patient with history ≥ 2 previous LSCS.
3. No history of any previous Gynaecological surgery.

Exclusion criteria

1. Multiple gestation.
2. H/o previous gynaecological surgeries.

Scientific and Ethical committee approval was obtained prior to this study. Detailed history was taken from all repeat LSCS mothers. Antenatal period risk factors were noted. Intraoperative events like bowel adhesion, bladder adhesion, atonic uterus etc. were recorded.

Postoperative events like initiation of bowel activity, catheter removal day, suture removal day and postoperative complications such as wound infection, sepsis, fever were recorded.

Results

1. In our study, 80% women had two previous LSCS and 20% women had three previous LSCS.

Table 1: Previous LSCS of the study population

Previous LSCS	Number	Percentage
2	80	80%
3	20	20%

2. In our study, 17% had bladder adhesions, 8% had bowel adhesions, 10% had atonic uterus, 4% had morbidly adherent placenta, 1% had scar rupture and 7% had scar dehiscence.

Table 2: Intra-operative complications in the study

Intra-operative complications	Number	Percentage
Bladder adhesions	17	17%
Bowel adhesions	8	8%
Atonic uterus	10	10%
Morbidly adherent placenta	4	4%
Scar rupture	1	1%
Scar dehiscence	7	7%

3. In our study, bladder adhesions, bowel adhesions, morbidly adherent placenta, and scar dehiscence cases were significantly higher in three previous LSCS mothers in comparison to two previous LSCS mothers. There was no significant difference in cases of atonic uterus and scar rupture among different previous LSCS groups.

Table 3: Comparison of intra-operative complications according to number of previous LSCS

Intra-operative complications	2 previous LSCS (n=80)		3 previous LSCS (n=20)		P value
	Present	Absent	Present	Absent	
Bladder adhesions	4 (5%)	76 (95%)	13 (65%)	7 (35%)	<0.001
Bowel adhesions	1 (1.25%)	79 (98.75%)	7 (35%)	13 (65%)	<0.001
Atonic uterus	7 (8.75%)	73 (91.25%)	3 (15%)	17 (85%)	0.677
Morbidly adherent placenta	0 (0%)	80 (100%)	4 (20%)	16 (80%)	<0.001
Scar rupture	0 (0%)	80 (100%)	1 (5%)	19 (95%)	0.451
Scar dehiscence	2 (2.5%)	78 (97.5%)	5 (25%)	15 (75%)	0.002

4. In our study, postpartum hemorrhage (PPH) was significantly higher in 3 previous LSCS group.

Table 4: Comparison of PPH according to number of previous LSCS

Postpartum haemorrhage	2 previous LSCS (n=80)	3 previous LSCS (n=20)
Yes	6 (7.5%)	11 (55%)
No	72 (92.5%)	9 (45%)

5. In our study, mean suture removal day was significantly higher in 3 previous LSCS group.

Table 5: Comparison of mean suture removal day according to number of previous LSCS

Suture removal day	2 previous LSCS	3 previous LSCS
Mean (days)	10.53	13.30
SD	1.35	3.21

p value 0.001, 2-sample t test

6. In our study, wound infection was significantly higher in 3 previous LSCS group.

Table 6: Comparison of wound infection according to number of previous LSCS

Wound infection	2 previous LSCS (n=80)	3 previous LSCS (n=20)
Yes	4 (5%)	10 (50%)
No	76 (95%)	10 (50%)

P value <0.001, Chi-square test

7. In our study, fever cases were significantly higher in 3 previous LSCS group.

Table 7: Comparison of fever according to number of previous LSCS

Fever	2 previous LSCS (n=80)	3 previous LSCS (n=20)
Yes	2 (2.5%)	4 (20%)
No	78 (97.5%)	16 (80%)

P value 0.015, Chi-square test

8. In our study, puerperal sepsis cases were significantly higher in 3 previous LSCS group.

Table 8: Comparison of puerperal sepsis according to number of previous LSCS

Puerperal sepsis	2 previous LSCS (n=80)	3 previous LSCS (n=20)
Yes	0 (0%)	4 (20%)
No	80 (100%)	16 (80%)

P value <0.001, Chi-square test

Discussion

The study was carried out among 100 women with history ≥ 2 previous LSCS and those with no history of any previous Gynaecological surgery. The present study was conducted to know the influence of repeat LSCS on maternal outcome in a tertiary centre and also study the influence of repeat LSCS on intraoperative events and postoperative morbidity.

In our study, 17% had bladder adhesions, 8% had bowel adhesions, 10% had atonic uterus, 4% had morbidly adherent placenta, 1% had scar rupture and 7% had scar dehiscence. Bladder adhesions, bowel

adhesions, morbidly adherent placenta, and scar dehiscence cases were significantly higher in three previous LSCS mothers in comparison to two previous LSCS mothers. There was no significant difference in cases of atonic uterus and scar rupture among different previous LSCS groups.

Arlier S, *et al.* [94] conducted a study in which among women who have history of two and three CSs, the adhesion rate was 66.3% and 82.1% respectively. Adhesion sites and dense fibrous adhesions increased parallel to the number of subsequent CSs. Ganiga P, *et al.* [95] conducted a study in Mangalore in which most common intraoperative complication was bladder adhesion (18% of cases). In postoperative period febrile morbidity (7%) was common followed by urinary tract infection (2%).

Adhesions are a cause of acute morbidity with bleeding and increased surgery duration and of chronic morbidity with chronic pelvic pain and intestinal problems. An increasing number of CSs increases the adhesion rate as well as intensity. In addition, the adhesions can cause additional increased morbidity directly or with peripheral organ injury. Adhesions concurrent with cesarean birth are also influenced by the surgical technique. The general opinion is that adhesion incidence is within the 46-65% range, depending on the number of cesarean sections. Abnormal placenta development following repeated cesarean birth is concurrent with an increased risk of placenta previa and abruptio placenta in addition to placenta accreta.

In our study, postpartum haemorrhage (PPH) was significantly higher in 3 previous LSCS group. Bowel and bladder activity was significantly delayed in 3 previous LSCS group. Mean suture removal day was significantly higher in 3 previous LSCS group. Wound infection, fever puerperal sepsis cases were significantly higher in 3 previous LSCS group.

Vishwakarma K, *et al.* [96] conducted a prospective study in Madhya Pradesh. In their study, post op maternal complications were significantly more in repeat caesarean section group. Incidence of infectious morbidity was also higher in repeat caesarean group.

Conclusion

In this prospective, cross-sectional hospital-based study, 80% women had two previous LSCS and 20% women had three previous LSCS. Bladder adhesions, bowel adhesions, morbidly adherent placenta, and scar dehiscence cases were significantly higher in three previous LSCS mothers in comparison to two previous LSCS mothers. There was no significant difference in cases of atonic uterus and scar rupture among different previous LSCS groups. Postpartum haemorrhage (PPH), delay in bowel and bladder activity were significantly higher in 3 previous LSCS group. Wound infection, fever, puerperal sepsis cases were significantly higher in 3 previous LSCS group.

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