

High Order Cesarean Section: Is It Associated With More Operative Complications Then Lower Order Cesarean Section

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ABSTRACT

Objective: To detect complications associated with higher order versus lower order cesarean section.

Study Design: Prospective longitudinal study.

Place and Duration of Study: Department of Obstetrics and Gynecology, Combined Military Hospital, Mardan Pakistan, from Mar to Aug 2021.

Methodology: The study was conducted on 210 women, the participants were categorised into two Groups: Group-I (Higher-order), who had undergone fourth and fifth cesarean sections, and Group-II (Lower order), who had undergone second and third Cesarean Sections. The presence of complications were noted in both the Groups.

Results: The frequency of higher and lower-order Cesarean Sections was 75(35.7%) and 135(64.3%), respectively. Mean gestational age and parity were 38.96±0.69 weeks and 3.49±2.12, respectively. Dense omental adhesion was a significantly common complication in both Groups. Scar dehiscence was 35(25.9%) among Group-II. There was no significant association between the high-order cesarean section and its complications.

Conclusion: The higher-order repeat cesarean section was not associated with more intraoperative complications when compared with lower-order cesarean section in our study. Certain factors like maternal age, parity and gestational age affect the intraoperative complications of the cesarean section.

Keywords: Complications, Higher order cesarean section, Lower order cesarean section, Scar dehiscence.

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INTRODUCTION

Multiple caesarean sections are becoming more common due to various factors, some justified and some not, leading to increased maternal morbidity.¹ In the last three decades, the frequency of cesarean section cases has steadily increased globally.² The global prevalence of primary caesarean sections has increased due to extensive monitoring, improvement of anaesthesia, blood transfusion safety, and maternal preferences.³ Multiple caesarean sections are becoming more common as a result of cultural and social pressures to have large families.⁴ Multiple caesarean sections have been linked to an increased risk of placenta previa, uterine scar dehiscence, bladder, bowel, and ureteric injuries, abdominal wall adhesions, and uterine rupture.⁵ Although C-sections are a life-saving mode of delivery for mothers and neonates, with time, it is becoming a trend to avoid the normal delivery modes. Many complications are associated with C-sections in further pregnancies.⁶

Cesarean hysterectomy is the most severe complication of multiple cesarean sections. Deep venous thrombosis, wound infections, urinary tract infections, and post-operative blood transfusions are all complications of multiple caesarean sections.⁷ The bladder injuries and intra-abdominal adhesion density risk in women who underwent three or more cesarean sections had higher bladder injuries and intra-abdominal adhesion density risk compared to a single cesarean.⁸ In another study conducted in Pakistan, the higher and lower-order repeated cesarean section complications were compared, and it found that the risk associated with poor perinatal outcomes is significantly higher in lower-order cesarean sections.⁹ This study aimed to identify the complications associated with higher-order caesarean sections versus lower-order caesarean sections. The complications with C-sections and the factors causing them need to be identified to reduce the morbidity and mortality among pregnant females undergoing repeated C-sections. Proper indications of cesarean sections should be followed to avoid unwanted complications and mortality. In Pakistan, little research work has been done in this sensitive area.

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This research will open the gate for further maternal and neonatal health work.

METHODOLOGY

The prospective longitudinal study was conducted on 210 women admitted for cesarean section in the Department of Gynecology, Combined Military Hospital Mardan, from March to August 2021 after approval from the Ethical Committee (A/28/EC/50/2021). The sample size was calculated by keeping the anticipated population proportion at 16.4%.¹⁰

Inclusion Criteria: Booked patients with regular antenatal checkups and undergoing cesarean section at >34 weeks gestational age were included in the study.

Exclusion Criteria: Patients with co-existing morbidity such as diabetes, hypertension, and severe anaemia were excluded. Patients undergoing elective surgery at <34 weeks gestational age were also excluded from the study.

Two hundred ten (n=210) women admitted for Cesarean section in the Department of Gynecology, Combined Military Hospital, Mardan, were enrolled in the study after informed consent, by convenience sampling. They were categorised into two Groups: Group-I (Higher-order), who had undergone fourth and fifth cesarean sections (CSs), and Group-II (Lower order), who had undergone second and third CSs. Maternal age, gestational age, parity, presence of adhesion, and post-operative days in the hospital, were different parameters gathered on a predesigned proforma. The intra-operative data included; the presence of scar dehiscence, bladder injuries, the status of the cesarean scar, blood transfusion requirement, and omental and bladder adhesions.

Statistical Package for Social Sciences (SPSS) version 23 was used for data analysis. Quantitative variables were described as Mean±SD, whereas qualitative variables were expressed as frequency and percentage. Quantitative and qualitative data were analysed using an independent sample t-test and Chi-square test. All these analyses were carried out with the 5% level of significance.

RESULTS

Of the 210 women, the frequency of higher and lower order C-Section was 75(35.7%) and 135(64.3%), respectively. The overall mean age was 29.93±2.68 years. Gestational mean age and parity were 38.96±0.69 weeks and 3.49±2.12, respectively (Table-I). Out of the 135 patients in lower order (Group-II), the frequency of second and third cesarean sections were 58(42.9%) and

77(57.03%), respectively, whereas, in higher-order Group-I, the frequency of 4th and 5th LSCS were 46 (61.3%) and 29(38.6%) respectively. Dense omental adhesion was a significantly prevalent complication in both Groups (*p*=0.03). The maternal age was significantly related to higher-order cesarean section (*p*=0.001). The intra-operative complications of cesarean section in the studied population are shown in Table-II. Scar dehiscence and omental adhesions were present in both Groups, with 35(25.9%) and 71(52%) in Group-I, respectively.

Table-I: Socio-demographic Details of the Study Population (n=210)

Parameters	Group-I, (n=75)	Group-II, (n=135)
Maternal age (years)	30.61±3.46	29.12±2.65
Parity	4.35±1.98	3.12±2.87
Gestational age (weeks)	37.87±1.21	38.34±0.57
Hospital Stay (days)	3.67±1.67	3.89±0.36

Table-II: Intra-operative Complications Compared in the Study Population (n=210)

Complications	Group-1 (n=75), n(%)	Group-2 (n=135), n(%)	<i>p</i> -value (95% CI)
Bladder Injuries	1(1.3 %)	0	0.01(0.5-5.4)
Emergency C/S	2(2.7%)	8(5.9%)	0.01(0.3-11.2)
Blood Transfusion	3(4%)	1(0.7%)	0.01(0.2-2.1)
Bladder Adhesions	12(16%)	19(14%)	0.09(1-1.8)
Scar Dehiscence	10(13.3%)	35(25.9%)	0.01(1.5-2.2)
Omental Adhesion	41(54.7%)	71(52%)	0.03(0.5-5.2)

The Figure illustrates the frequency of intraoperative complications in higher-order and lower-order cesarean sections. Omental adhesions are the most important complications which are present among both Groups (*p*=0.03).

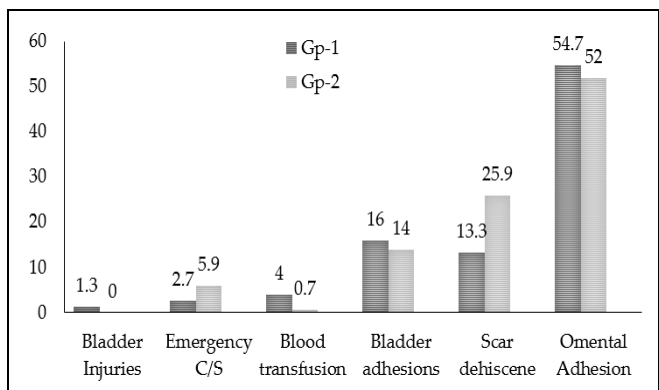


Figure: Intra-operative Complications in Higher Order and Lower Order Cesarean Section (n=210)

DISCUSSION

The prevalence of higher-order C-sections is increasing due to cultural pressures to have large families, particularly in Asian countries, and they are a significant cause of maternal morbidity and mortality.¹¹ In contradiction, we found lower-order c-sections (64.3%). The present study found that the most typical complication in both Groups was omental adhesions. Complications did not require blood transfusion or more extended hospital stays. Uterine scar dehiscence was found more in the low-order cesarean section Group. Furthermore, studies conducted to determine the effects of multiple caesarean sections on future pregnancies yielded contradictory results.^{11,12} A case-series study was conducted on caesarean section patients. Cases were women with bladder injuries during caesarean delivery, and two controls were chosen randomly for each case. It was discovered that 42 bladder injuries were among 14,757 caesarean sections (frequency=0.28%). Cases had a higher rate of prior caesarean delivery than controls (67% versus 32%).¹³ One study concluded that previous caesarean delivery is a risk factor for bladder injury during repeat caesarean delivery, and obstetricians should counsel patients about this risk, especially in the context of rising caesarean section rates.¹⁴ Urinary bladder is an organ that is adjacent to the uterus. Therefore, it is susceptible to intra-operative injury during caesarian, especially in cases of scarred uterus intra-abdominal adhesions, emergency cases, and caesarian hysterectomy.¹⁵ All risk factors increase with increased frequency of caesarian sections. In our study, we encountered only one case of bladder injury in Group-II.

According to a retrospective study, the risk of placenta previa, placenta accrete, uterine dehiscence or rupture, postpartum haemorrhage, blood transfusion, bladder injury and length of hospital stay as well as admission to high dependency unit increased with no previous caesarian deliveries.¹⁶ Future pregnancies of many women are prevented in developed countries through tubes tied following second and third repeated pregnancies.^{17,18} A subsequent CS is thought to be of higher order. Grand multi-parity is common for Pakistani women due to cultural factors, which upsurge the CS's needs.^{19,20}

In the present study, null uterine rupture and maternal mortality were reported. Most women underwent above three times cesarean sections, which significantly contributed to a higher frequency of higher-order cesarean sections. The findings of this study on

the bowel and bladder injuries appear re-liaible with previous investigation.²¹ Regarding ad-hesions in both Groups, no significant difference was found. Considering the findings of our study, in selected patients, especially those with no alive issue or single alive baby, the option of higher order cesarean section should be considered. Restricting the option of other cesarean sections can adversely affect a patient's mental health.

CONCLUSION

The higher-order repeat cesarean section is not associated with more intraoperative complications when compared with lower-order cesarean sections. The maternal age, parity and gestational age are internal factors that also influence the outcome of the cesarean section. Surgical techniques are also essential as an external factor. Females undergoing cesarean section must also be informed of uterine conditions to plan for further pregnancy.

Conflict of Interest: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

UA & SK: Conception, data acquisition, data analysis, drafting the manuscript, approval of the final version to be published.

AAK & AS: Data acquisition, critical review, approval of the final version to be published.

SRK & UY: Study design, drafting the manuscript, data interpretation, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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