Original Research Article

Study of intraoperative complications in lower segment caesarean section at tertiary care hospital

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Abstract

Background: The caesarean delivery rate has increased substantially over the past few years. Intraoperative morbidities such as uterine incision extensions, adhesions, thinned lower uterine segment, advanced bladder, extension of uterine incision, scar dehiscence, excess blood loss, uterine rupture, bladder injury and caesarean hysterectomy are noted in patients underwent caesarean deliveries. Present study was aimed to study various intraoperative complications encountered during cesarean section at our tertiary hospital. **Material and Methods:** Present study was descriptive study conducted in patients posted for LSCS, had intraoperative surgical complication (e.g. as uterine incision extensions, adhesions, thinned lower uterine segment, advanced bladder, extension of uterine incision, scar dehiscence, excess blood loss, uterine rupture, bladder injury, caesarean hysterectomy). **Results:** During study period total 1790 patients underwent caesarean section (CS) in our hospital. Intraoperative complications were noted in 81 (4.52%) patients. Incidence of Intraoperative complications were more in repeat CS (5.20%) as compared to primary CS (2.46%) and difference was statistically significant. Maternal Age (years) and Gestation Age (weeks) were comparable in both groups and difference was not statistically significant. While time taken for surgery (mins) and approximate blood loss (ml) were more in repeat CS as compared to primary and difference was statistically significant. In primary CS, complications encountered were extension of uterine incision (63.64 %), excess blood loss (45.45 %) and caesarean hysterectomy (9.09 %, in central placenta previa). While, in repeat CS, complications encountered were adhesions (68.57 %), extension of uterine incision (21.43 %), excess blood loss (20 %), advance bladder (15.71 %), uterine dehiscence (12.86 %), caesarean hysterectomy (5.71 %), placenta accreta (4.29 %) and bladder injury (2.86 %). All placenta accrete were diagnosed intraoperatively, otherwise we routinely operate them through classical caesarean section followed by hysterectomy. No bowel injury, maternal mortality related to intraoperative complications was noted. **Conclusion:** A variety of intra-operative complications such as abnormal placentation, intra-operative hemorrhage, and increased incidence of adhesions, scar dehiscence, bladder injuries were noted, and these were more in women with more no of cesarean sections.

Keywords: intraoperative complications, LSCS, adhesions, repeat LSCS.

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INTRODUCTION

The caesarean delivery rate has increased substantially over the past few years due to multiple reasons such as older maternal age, defensive obstetric practice, maternal request for a CS, and medico-legal concerns.[1] India has also experienced increases in cesarean delivery rates similar to those observed in the rest of the world. Based on our calculations, cesarean delivery rates have more than doubled in India as a whole, from 8%in 2005 through 2006 to 17%in 2015 through 2016.[2] Although cesarean delivery can be a life-saving surgery, this procedure should be

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performed only when medically indicated, as complications that have adverse consequences for the mortality and morbidity of both the mother and the newborn are well documented in the literature.[3,4] Intraoperative morbidities such as uterine incision extensions, adhesions, thinned lower uterine segment, advanced bladder, extension of uterine incision, scar dehiscence, excess blood loss, uterine rupture, bladder injury and caesarean hysterectomy are noted in patients underwent caesarean deliveries. Present study was aimed to study various intraoperative complications encountered during cesarean section at our tertiary hospital.

MATERIAL AND METHODS

Present study was descriptive study conducted in department of obstetrics and gynaecology, XXX Medical College and hospital, XXX. Study duration was of 1 year (between January 2020-January 2020). Institutional ethical committee approval was taken.

Inclusion criteria

- Patients posted for LSCS, had intraoperative surgical complication (e.g. as uterine incision extensions, adhesions, thinned lower uterine segment, advanced bladder, extension of uterine incision, scar dehiscence, excess blood loss, uterine rupture, bladder injury, caesarean hysterectomy).

Exclusion criteria

- Patients with history of previous abdominal surgeries other than caesarean section.
- Cases presenting with rupture uterus.

After completing surgery in study patients, details such as age, parity, detailed obstetric history, course of present pregnancy, indication of previous caesarean, antenatal, intra and post-operative complications in previous pregnancy, any history of surgical procedure like D and C, findings of physical and obstetric examination, investigations (ultrasonography especially for placental localization) were noted. Surgical findings, additional procedures, complications were noted. All data was collected and compiled in Microsoft excel and analysed using SPSS software version 21. The quantitative data was represented as their mean ± SD. Categorical and nominal data was expressed in percentage. Chi square test was applied for qualitative type if data and t test for quantitative type of data for statistical analysis. $p < 0.05$ was considered statistically significant.

RESULTS

During study period total 1790 patients underwent caesarean section (CS) in our hospital. Intraoperative complications were noted in 81 (4.52%) patients. Incidence of Intraoperative complications were more in repeat CS (5.20%) as compared to primary CS (2.46%) and difference was statistically significant. Maternal Age (years) and Gestation Age (weeks) were comparable in both groups and difference was not statistically significant. While time taken for surgery (mins) and approximate blood loss (ml) were more in repeat CS as compared to primary and difference was statistically significant.

Table 1: Comparison of Baseline variables among both groups

Variable	Primary CS (n=11) (Mean ± SD)	Repeat CS (n=70) (Mean ± SD)	p- value
Maternal Age (years)	23.61 ± 5.1	25.13 ± 3.4	0.54
Gestation Age (weeks)	38.6 ± 2.7	38.1 ± 2.8	0.63
Time taken for Surgery (mins)	54.29 ± 23.2	63.23 ± 19.62	0.032
Approximate Blood Loss (ml)	422.54 ± 73.2	456.38 ± 81.8	0.041
Incidence of intraoperative complications	2.46%	5.20%	0.028

Most common indication in Primary CS were second stage arrest (36.36 %), placenta previa (27.27%), obstructed labour (18.18%), cephalopelvic disproportion (9.09%) and malpresentation (9.09 %). While most common indication in repeat CS were scar tenderness (45.71 %), fetal distress (15.71 %), placenta previa (14.29 %), cephalopelvic disproportion (10 %), malpresentation (8.57 %), second stage arrest (4.29 %) and obstructed labour (1.43 %).

Table 2: Indication of caesarean section:

Indication	Primary CS (n=11) (%)	Repeat CS (n=70) (%)
Scar tenderness	0	32 (45.71 %)
Fetal distress	0	11 (15.71 %)
Placenta previa	3 (27.27 %)	10 (14.29 %)
CPD	1 (9.09 %)	7 (10 %)
Malpresentation	1 (9.09 %)	6 (8.57 %)
second stage arrest	4 (36.36 %)	3 (4.29 %)
Obstructed labour	2 (18.18 %)	1 (1.43 %)

In primary CS, complications encountered were extension of uterine incision (63.64 %), excess blood loss (45.45 %) and caesarean hysterectomy (9.09 %, in central placenta previa). While, in repeat CS, complications encountered were

adhesions (68.57 %), extension of uterine incision (21.43 %), excess blood loss (20 %), advance bladder (15.71 %), uterine dehiscence (12.86 %), caesarean hysterectomy (5.71 %), placenta accreta (4.29 %) and bladder injury (2.86 %). All placenta accrete were diagnosed intraoperatively, otherwise we routinely operate them through classical caesarean section followed by hysterectomy. No bowel injury, maternal mortality related to intraoperative complications was noted

Table 3: Complications encountered

Problem encountered	Primary CS (n=11) (%)	Repeat CS (n=70) (%)
Adhesion	0	48 (68.57 %)
Extension of uterine incision	7 (63.64 %)	15 (21.43 %)
Excess blood loss	5 (45.45 %)	14 (20 %)
Advance bladder	0	11 (15.71 %)
Uterine dehiscence	0	9 (12.86 %)
Caesarean hysterectomy	1 (9.09 %)	4 (5.71 %)
Placenta accreta	0	3 (4.29 %)
Bladder injury	0	2 (2.86 %)

DISCUSSION

Caesarean section is a surgical procedure, with potential complications for both mother and child. Apart from the intraoperative risks (i.e., infection, organ injuries, or the need for blood transfusion), many post-partum side effects can occur (thromboembolic complications) and complications relating to later pregnancies (uterine rupture, infertility, or even placental anomalies such as placenta previa, increta, or accreta) are observed.[5,6] During a cesarean delivery women are at an increased risk of injury than they are during a vaginal birth. The risk increases with the increasing number of cesarean sections, parity, early marriages, early conception, short intervals between subsequent pregnancy, undernourishment, inadequate ante-natal checkups, high prevalence of illiteracy and poverty especially in our Indian women. The risk of complications increases with increasing number of cesarean section, the well-known complications are intraabdominal dense adhesions, morbid adherent placenta, uterine dehiscence/ uterine scar rupture with subsequent adverse fetal and maternal outcome , bowel and bladder injury and cesarean hysterectomy.[7,8] In study by Nidhi G,[9] intraoperative morbidities encountered were adhesions (38.33%), advanced bladder (20%), excess blood loss (10%), placenta accrete (1.67%), thinned out scar (5%), bladder injury (1.67%). No cases of uterine rupture, bowel injury or caesarean hysterectomy noted. In a study, 68 cases of previous two lower segment caesarean section were studied, majority of the cases were in 30-34 years age group (39.7%), the maximum number of caesarean sections were done between gestational age of 37-39.6 weeks (47.1%). Intraoperatively adhesions between uterus, anterior abdominal wall and bladder was seen in less than half of the cases i.e., in 42.6% cases, 13 cases had placenta previa and 4 cases had adherent placenta.[10] Due to scarring complication like adhesions, dehiscence, scar rupture, hemorrhage, and injury to adjacent structures are common and their rate may range from 4.3 to 12.5%. [11,12] Also intraperitoneal adhesions have shown to have an incidence of 5.5% to 42.5%.[13] Adhesions are fibrous, band-like structures that form intra-abdominally and are very common surgical sequelae. Although peritoneal adhesions develop in the overwhelming majority of intra-abdominal and pelvic surgery. The incidence of adhesion development increases with the number of CS performed is shown in many studies. The most common adhesions found in the group are between bladder and uterus and also between uterus and omentum.[14] Adhesions give rise to acute morbidity in form of bleeding during surgery, increased duration of surgery and injury to surrounding structures. Hemorrhage is the most frequent complication of the cesarean section during or after the surgical event. However, there is no consensus on the actual incidence, worldwide; it is estimated that around 75% of obstetric hemorrhages occur in cesarean section. Low insertion of placenta, placental acretism, placenta abruption, hypotonia/uterine atony, multiple pregnancy, fetal macrosomia, polyhydramnios, uterine scar, arterial hypertension, multiparity, obesity, chorioamnionitis, prolonged labor, poor technique and prolonged surgical time are most frequent risk factors that are associated with bleeding as a complication of the cesarean section.[15] The rates of excessive bleeding after cesarean delivery are generally low, but do appear to increase as the number of previous cesarean delivery increases. The reasons for excessive blood loss after cesarean delivery include uterine atony, adhesions, placenta accreta and trauma.[16] Scar dehiscence is another important complication. Scar dehiscence in other studies, such as Nazaneen S *et al.*[17] (7.69%), Ramkrishnarao MA *et al.*[18] (6.62%), similar findings were noted in present study. Poorly healed uterine scar might affect the regeneration of the isthmus of uterus and make it thinner, resulting in much thinner lower uterine segment scar in subsequent pregnancy. Thin lower uterine segment scar is likely to rupture during labor. Unsecured prediction of the

integrity of the scarred lower uterine segment during labor appears to be one of the reasons for repeat caesarean sections. Despite the undeniable importance of caesarean procedure, pregnant women and health professionals need to know the maternal risks associated with the different types of deliveries, using the best evidence.[19] A repeat cesarean section should be elective and well planned beforehand wherever necessary to reduce the incidence of intraoperative and postoperative complications. Reduction in number of unnecessary primary caesarean sections and encouraging vaginal birth after cesarean section (VBAC) can also help to reduce intraoperative complications of caesarean section.

CONCLUSION

A variety of intra-operative complications such as abnormal placentation, intra-operative hemorrhage, and increased incidence of adhesions, scar dehiscence, bladder injuries were noted, and these were more in women with more no of cesarean sections. Overall maternal risks are increased in repeat cesarean section, pregnant women and relatives must be informed about the related risks of multiple repeated cesarean sections.

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