

## Study of surgical difficulties encountered in repeat cesarean sections in comparison with the primary cesarean sections.

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### Abstract

**Objectives:** To study the incidence of and type of surgical difficulties encountered in repeat cesarean sections in comparison with the primary cesarean sections.

**Methods:** An observational prospective study of cases of repeat and primary cesarean sections in a tertiary hospital of a medical college in urban area catering lower middle class population. The case histories and intra-operative findings of all the cases of repeat cesarean section over a period of 24 months were analyzed to know the difficulties that might be because of previous cesarean surgery.

**Results:** Out of the 1307 cesarean that were done during the study period, 637 (48.7%) were repeat sections, out of which, a abdominal wall cicatrization (19.19%) and some degree of adhesions between various intra-peritoneal structures (29.3%) were the chief causes of intraoperative difficulties. This resulted into inaccessibility of lower uterine segment in 6.03% cases. Bladder injury seen in five cases (0.78%), extensive ventrofixation of uterus causing direct entry into outer cavity without clearly defining peritoneal cavity occurred in 1.41% cases. In 7.2% cases take over of surgical procedure by senior obstetrician was necessary.

**Conclusion:** Parietal wall and intra-peritoneal adhesions make repeat cesarean section a difficult procedure. It is prudent more difficulties are encountered during repeat sections and to involve a senior experienced obstetrician in the surgical procedure of repeat cesarean section.

**Keywords:** repeat cesarean section, cesarean section difficulties, and cesarean adhesions.

### I. Introduction:

Cesarean section is the most common surgery performed with over 30% of deliveries occurring via this route. This number is likely to increase given decreasing rates of vaginal birth after cesarean section (VBAC) and primary cesarean delivery on maternal request, which carries the inherent risk for intraoperative complications. Problems escalate in a medical institute where the senior residents alone has to tackle such problems especially when cases land up in odd hours as an emergency. Nowadays prior cesarean section forms a major indication for repeat cesarean section. It is the risk factor for bladder injury at the time of repeat cesarean delivery. This study aims at knowing the surgical difficulties encountered by junior doctors during repeat cesarean section and how important it is to take senior surgeon assistance to encounter the difficulties.

### II. Methods:

This was done prospectively for 24 months from 01-01-2013 to 31-12-2014. The existing methods of performing cesarean procedures were unaffected by the study. Proforma was prepared mentioning the duration, skin incision, difficulties, manner in which the difficulties were tackled etc and the operating surgeon was requested to complete it following each case. The surgeons were requested to note in particular the difficulties they encountered while operating on cases of previous cesarean section. The collected data was analyzed for type and incidence of the intra-operative problems.

### III. Results:

T o t a l b i r t h s i n 2 y e a r s	2	8	3	9
V A G I N A L D E L I V E R Y	1	5	3	2
L S C S	1	3	0	7 ( 4 6 . 0 3 % )
R e p e a t L S C S	6	3	7	( 4 8 . 7 % )

Table no 1 : Problems encountered during primary and repeat cs

S l N o .	Problems encountered	R e p e a t c s	Primary cs
1	Difficult opening of abdomen wall	8	2
2	Abdominal wall cicatrization	1	2
3	Excess bleeding during cutting the rectus muscle	5	3
4	Difficult opening of parietal peritoneum	7	7
5	Unidentifiable UV fold of peritoneum	5	7
6	Advanced bladder	2	3
7	Bladder injury	5	0
8	Wound infection	5	3
9	Duration (min)	5	1

Table 2. Change of skin incision.

Skin incision	No. of cases (%)	Resulting scar
Joel Cohen to Vertical	2 (0.31)	Inverted T/Bow Arrow
Vertical to Joel Cohen	4	Inverted T/Bow Arrow Joel
Joel Cohen to right paramedian	1	Inverted T/Bow Arrow
Right paramedian to Joel Cohen	1	Inverted T/Bow Arrow
T o t a l	4	5 ( 7 . 0 6 % )

Table 3. Intraperitoneal adhesions

S . N o	A d h e s i o n : S t r u c t u r e a n d S t r u c t u r e	No. of cases (%)
1	Parietal peritoneum and anterior surface of uterus	8
2	Parietal peritoneum and bladder	1
3	Parietal peritoneum and omentum	3
4	Parietal peritoneum and bowel	0
5	Omentum and uterus	0
6	Omentum and utero-vesical fold	0
7	Bladder and uterus (dense)	2
8	Bladder and uterus (loose advancement)	1
9	Uterus and small bowel	0
l 0	T o t a l	1

Table 4. Types of uterine incision in past primary and present repeat sections.

S. No.	Previous section/Present section	No. of cases (%)
1	Low transverse/Low transverse	6
2	Low transverse / High transverse	0
3	Low transverse/Inverted T	0
4	Low transverse/Classical	0
5	Classical/Classical	0

In our study, during 24 months, 46.07% of births were by cesarean section (total births 2839, total cesarean sections 1307). Out of total cesarean sections, 637 (48.7%) were repeat cesarean sections and 670 (51.3%) were primary cesarean deliveries. Out of 637, 560(87.9%) cases were of previous one section, 74(11.6%) were of previous two sections and three were of previous three sections. Of the total cases of previous cesarean section, 114 (17.9%) were un-booked and 14 (2.2%) did not possess written medical records of their previous pregnancy or cesarean section. Joel Cohen type of low transverse skin scar indicating the use of Misgav Ladach method for their previous cesarean procedure was observed in 595 cases (93.4%), 41 cases (6.4%) had a midline infra-umbilical scar, and one case (0.15%) had right paramedian scar. Among these cases of previous cesarean section, 229 (36%) weighed 45 kg or less (low maternal body weight) at term in the current pregnancy, 508 (79.7%) women had hemoglobin less than 10 gm%. In 155 cases (24.33%) repeat cesarean section was performed as an emergency procedure. In 96 cases (15%) there was a clear evidence of the need for elective repeat cesarean section, had they reported before the onset of labor. Skin scars were excised in 117 (40.76%) cases. Abdominal wall cicatrization (very bad scars with extensive fibrosis) was seen in 127 (19.1%) cases of the total 637 cases. It was seen in 18 cases out of the total 42 cases of previous vertical incisions, and in 109 cases out of 595 of Joel Cohen type of skin incisions. In 45 cases (7.06%) skin incisions were changed when compared to previous procedure (Table 2), this resulted in inverted T or bow-arrow and rail road type of final scar outcomes. Abdominal wall cicatrization increased surgery duration by causing difficulties in opening abdomen and necessitating scar excision. Intraperitoneal adhesions of varied types were seen in 187 cases (29.3%) out of the total 637 cases. Table 3 shows instances of various intraperitoneal adhesions in these cases. These adhesions not only slowed down the surgical procedure but also necessitated change of the surgeon to a more experienced one. This change to senior obstetrician happened in 89 cases (13.9%) for reasons like separating dense adhesions, controlling blood loss, repair of bladder injury and uterine incision extensions, and difficulties in baby extraction. As shown in table 4, in majority of cases (625) of repeat sections fetal extraction

done low transverse uterine incision, in remaining 12 cases incision changed to high transverse or inverted T shape due to inaccessibility of lower segment and to prevent the lateral uterine extension during extraction . Type of uterine incision in past primary section was confirmed with their discharge summaries. Scar dehiscence and scar rupture was seen in 76 (11.9%) and 8 (1.2%) cases respectively. 271 cases (42.5%) underwent concurrent tubal ligation. 9 cases had very dense and extensive type of adhesions between the anterior surface of the uterus and parietal wall. This prevented access to the free peritoneal cavity and gave a direct entry to the uterine cavity following incision of cicatrized layers of anterior abdominal wall. This happened in two cases of previous midline infraumbilical incisions and in seven cases done previously by Misgav Ladach method. In 46 (7.2%) cases, senior obstetricians assistance was necessary for bladder injury repair, release of adhesions, fetal extraction ,etc.

Table 6: analyzing the stastitcal significance using Null hypothesis

SI No .	Problems encountered	Primary cs	Expected repeat CS values	Observed Repeat CS values	chi square
1	Difficult opening of abdomen wall	1 2	1 2	8 2	4 0 8 . 3 3
2	Excess bleeding during cutting the rectus muscle	3	3	5 3	8 3 3 . 3 3
3	Difficult opening of parietal peritoneum	2	2	7 7	2 8 1 2 . 5 0
4	Wound infection	6	6	5 3	3 6 8 . 1 7
5	Duration( min)	4 1	4 1	5 1	2 . 4 4
	T o t a l				4 4 2 4 . 7 7

**H0 Or Null Hypothesis:**

We expect that there will not be any more problems in repeat sections than primary sections, hence the services of a senior, experienced surgeon is not required during repeat section.

**H1 Or Alternate Hypothesis:**

The more difficulties are encountered during repeat sections and services of a senior surgeon are required during repeat sections.

**Final results**

Chi square 4426.55

Degrees of freedom –

The two tailed p value is less than 0.00001

By conventional criteria, this difference is considered to be extremely statistically significant to reject our null hypothesis.

Hence we conclude more difficulties are encountered during repeat sections and that the services of a senior and experienced surgeon are required during repeat cs.

**IV. Discussion**

Cesarean section is the most common obstetric operative procedure worldwide. The incidence of c-section is continuously increasing for the last couple of decades giving women frequently an obstetric status of “previous cesarean section”. While the crucial, life saving role of cesarean section (CS) in modern obstetrics is obvious, the potential adverse impact of high CS rates is less expressed about raising CS rates and their potential complications especially during a repeat cesarean section in many countries.<sup>1</sup>

Surgical difficulties like cicatrized abdominal scar, difficulty in opening of abdominal wall , Unidentifiable UV fold of peritoneum, advanced bladder, bladder injury, wound infection and other similar difficulties have been mentioned in other studies also<sup>2,3</sup>.As the statistics shows, involving the senior consultant for appropriate cases and at appropriate time would make the task manageable.Dense adhesions, which also have been reported by other investigators<sup>2,3</sup>,not only create difficulties for the surgeon but may also pose an increased risk to the patient by prolonging operation time and by increasing the risk of injury of adjacent organs. Indeed, 9 cases had very dense and extensive type of adhesions between the anterior surface of the uterus and parietal wall. This prevented access to the free peritoneal cavity and gave a direct entry to the uterine cavity following incision of cicatrized layers of anterior abdominal wall.We found following tips were very useful in managing difficult cases;1 Sharp dissection of layers instead of blunt dissection which helps in opening layers easily and provides good exposure to operate. 2 Transverse opening of the parietal peritoneum instead of habitual vertical cut prevents unnecessary bladder injuries.3 Sharp dissection and methylene blue instillation into the bladder during bladder dissection helps in keeping the dissection away from the bladder apart from early detection of the injury.

However, we could not evaluate surgical difficulties among previous single and multiple repeat sections as the number of women who underwent multiple repeat cesarean deliveries is relatively small. Moreover, because of the rareness of major complications such as hysterectomy, bowel injury, our study did not have the power to detect differences for any specific major complications between the groups, even if they existed. In conclusion, with the growing rate of cesarean deliveries worldwide, women should be counseled that the repeat cesarean are bound with surgical difficulties and complications. If available, its imperative to take the senior obstetricians help for better surgical outcome.

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