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**J Vasantha Lakshmi**
Post Graduate, Department of Obstetrics and Gynaecology, Government Maternity Hospital, Srivenkateswara Medical College, Tirupati, Andhra Pradesh, India

**C Anuradha**
Associate Professor, Department of Obstetrics and Gynaecology, Government Maternity Hospital, Srivenkateswara Medical College, Tirupati, Andhra Pradesh, India

**M Rishitha**
Post Graduate, Department of Obstetrics and Gynaecology, Government Maternity Hospital, Srivenkateswara Medical College, Tirupati, Andhra Pradesh, India

**Corresponding Author:**
**C Anuradha**
Associate Professor, Department of Obstetrics and Gynaecology, Government Maternity Hospital, Srivenkateswara Medical College, Tirupati, Andhra Pradesh, India

# Intra-operative complications in repeat cesarean sections

**J Vasantha Lakshmi, C Anuradha and M Rishitha**

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**Abstract**
**Aims and Objectives:** To study the intra-operative complications in repeat Cesarean sections.
**Methodology:** This is a prospective observational study at Government Maternity Hospital, Tirupati randomly taking 200 women with repeat cesarean sections, excluding women with a history of other abdominal surgeries, intra operative complications were noted and the data is analysed using SPSS software.
**Results:** Out of 200 cases 117 had one, 22 had two and 1case had three prior cesarean sections out of which 43% showed intra-operative complications, most common complications being adhesions (83.72%), thinned out lower uterine segment (37.2%), hemorrhage (10.9%), abnormal placentation (8.13%), extension of the uterine incision (6%), scar dehiscence (4.65%), bladder injury (1.2%).
**Conclusion:** women undergoing repeat cesarean sections have a risk of increased morbidity due to increased intraoperative complications. To avoid this one should keep the cesarean section rate at reasonable limit with appropriate surgical techniques and to limit primary cesarean section rate.

**Keywords:** Cesarean sections, repeat cesarean sections, adhesions, scar dehiscence

## 1. Introduction
Cesarean delivery defines the birth of a fetus via laparotomy and then hysterotomy [1]. Cesarean section (CS) is most common obstetric surgery performed worldwide to save life of pregnant patient as well as fetus with a continuously increasing incidence for the last two decades giving the women, an obstetrical status of "previous cesarean section". However, CS are associated with increased risk of maternal and perinatal morbidity and mortality. It is associated with PPH, sepsis, peripartum hysterectomy in present pregnancy and adherent placenta, uterine rupture and death in future pregnancies [2].
Consistent increase has been observed in the rate of Caesarean section deliveries in most of the developed countries and in many developing countries, including India, over the last few decades. An analysis of the National Family Health Survey data shows that the rate of this form of delivery in states like Kerala, Goa, Andhra Pradesh, West Bengal and Tamil Nadu is alarmingly high. States with high institutionalized births have an increased rate of C-section deliveries.
After any laparotomy, it is fairly common to develop scar tissue, adhesions and bladder extension, C-section holds no exception to this. Multiple cesarean deliveries are associated with more difficult surgeries with increased blood loss. The risk of major complications increase with cesarean delivery number [3]. Scaring and adhesion formation is known to cause increase in the complications depending up on the number of previous cesarean section.
As with all types of abdominal surgeries, a Caesarean section is associated with risks of postoperative adhesions, incisional hernias (which may require surgical correction) and wound infections. The risk of the surgery may be increased due to a number of factors. Along with risk of anesthesia, intra operative risks like blood loss requiring blood transfusion due to various causes like adhesions, extension of uterine incision, adherent placenta. Risk of previous scar dehiscence, uterine rupture, thinning of lower uterine segment, organ injuries like bowel and bladder injury. The risk of placenta accreta, a potentially life- threatening condition, is increased after two Caesarean sections, along with this is a similar rise in the risk of emergency hysterectomies at delivery [4].
The present study aims at knowing the intra-operative difficulties encountered by an obstetrician in a repeat C-Section.

**2. AIMS and Objectives:** To study the intra-operative complications in a repeat Cesarean section.

**3. Material and Methods**

A hospital based, prospective study includes 200 women who had undergone previous one or more Cesarean sections.

**3.1 Source of Data:** Women undergoing repeat cesarean section at, Sri Venkateswara Medical College, Tirupati.

**3.2 Study Design:** Hospital based prospective study.

**3.3 Study place:** Government Maternity Hospital, Tirupati.

**3.4 Study Period:** From approval of Ethical Committee to a period of one month.

**3.5 Sample size:** 200.

**3.6 Inclusion Criteria**

All women who have undergone one/more cesarean section irrespective of age and parity.

**3.7 Exclusion Criteria**

All women who have undergone other abdominal surgeries.

**3.8 Procedure of Study**

This is a hospital based prospective observational study with a sample size of 200 repeat cesarean cases. Patients were selected according to the inclusion criteria. Case histories of repeat cesarean deliveries were studied and the data was recorded. Complications that were encountered while operating a repeat cesarean section were meticulously noted and analyzed for type and incidence of the intraoperative problems. The observed intra-operative problems were analyzed and categorized in relation to age, parity, number of C-section, indication for C-section.

- The routine investigations like Hemoglobin percentage, Blood grouping and Rhesus typing, Urine for albumin, sugar and microscopy, were done.
- As and when required special investigation including ultrasound were done.
- On admission, gestational age ass confirmed by available parameters.
- Per-abdominal examination was done

1. To know the gestational age by fundal height.
2. For uterine activity.
3. For signs of threatened rupture of uterus.
4. Presentation, lie, position of the fetus, if vertex presentation whether it is engaged or palpable per abdomen.

- In per vaginal examination dilatation and effacement of cervix, position and station of presenting part, presence or absence of caput and moulding if present its grading, colour and smell of the liquor, pelvic assessment and test for cephalopelvic disproportion were done carefully.
- The decision for cesarean section was taken based on clinical evaluation of progression of labor, fetal condition, station and its position (in pelvis), maternal condition and patients not willing for VBAC (vaginal birth after cesarean section)
- The nature of anesthesia was left to the decision of anesthetist.
- All the intraoperative details will be noted and complications were managed promptly.
- The post-operative period was monitored and all complications were managed promptly.
- Patients with uneventful post-operative period were discharged after the 6th post-operative day on discharge a summary card was given and post-operative checkup, after 6 weeks is advised.
- All cases were advised a mandatory hospital delivery in successive pregnancy.

**4. Results**

Out of 200 cases studied 114 cases of repeat C- sections did not show any complications (57%)., and remaining 86 cases showed a variety of complications (43%).

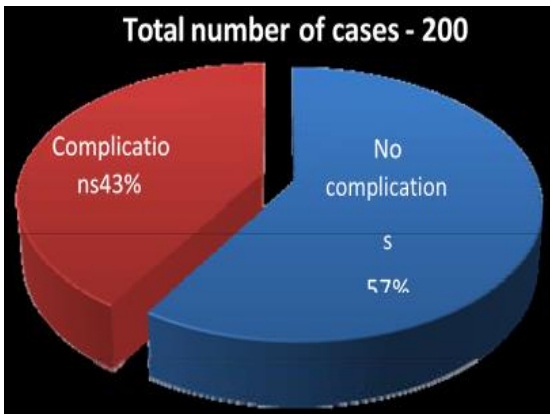


**Fig 1:** Cases with intraoperative copmlications

Out of 200 cases of repeat C-sections studied, 177 cases had undergone 1 previous C-sections (88.5%), 22 cases had undergone 2 previous C-sections (11%), 1 case had undergone 3 previous C-sections (0.5%).

**Table 1:** Number of previous ceseaserean section

| No of previous C-Sections | No. | Percentage |
|---|---|---|
| 1 | 177 | 88.5 |
| 2 | 22 | 11.0 |
| 3 | 1 | 0.5 |
| Total | 200 | 100 |

In our study the age group of cases which underwent C-section was between 18 to 35yrs, with a mean age group of 24.23yrs. The highest prevalence of previous C-section was seen in age group 20-29yrs, which accounted for (93.5%).

**Table 2:** Age wise distribution of previous cesearean section

| Age Distribution | No. of Patients | Percentage |
|---|---|---|
| <20yrs | 1 | 0.5 |
| 20-29 years | 187 | 93.5 |
| 30-35 years | 12 | 6 |

Highest incidence of intra –operative complications was seen in the age group 20-29yrs (44.4%), and the most common type of complications we came across were adhesions (41.1%), thinned out lower uterine segment (17.11%), hemorrhage (4.81%), Placenta previa (3.7%), extension of the uterine incision (2.67%), scar dehiscence (2.13%), bladder injury(0.53%). There were no cases of scar rupture, bowel injury, and cesarean hysterectomy in the study population.

**Table 3:** Types of complications in different age groups

| AGE | | | | | | |
|---|---|---|---|---|---|---|
| | < 20yrs | | 20-29yrs | | 30-35yrs | |
| | No. of | % cases | No. of | % cases | No. of | % cases |
| Adhesions | 0 | 0 | 77 | 41.1 | 3 | 75 |
| Hemorrhage | 0 | 0 | 9 | 4.81 | 0 | 0 |
| Placenta previa | 0 | 0 | 7 | 3.7 | 0 | 0 |
| Extension uterine | 0 | 0 | 5 | 2.67 | 0 | 0 |
| **Incision** | | | | | | |
| Bladder injury | 0 | 0 | 1 | 0.53 | 0 | 0 |
| Injuries to newborn | 0 | 0 | 3 | 1.60 | 0 | 0 |
| Thinned out LUS | 0 | 0 | 32 | 17.11 | 0 | 0 |
| Scar dehiscence | 0 | 0 | 4 | 2.13 | 0 | 0 |

**Table 4:** Relation between the no. of repeat cesarean sections with incidence of complications

| No previous CS | No. of Cases | No. of complications | Percentage |
|---|---|---|---|
| 1 | 177 | 67 | 37.8% |
| 2 | 22 | 18 | 81.8% |
| 3 | 1 | 1 | 100% |
| Total | 200 | 86 | |

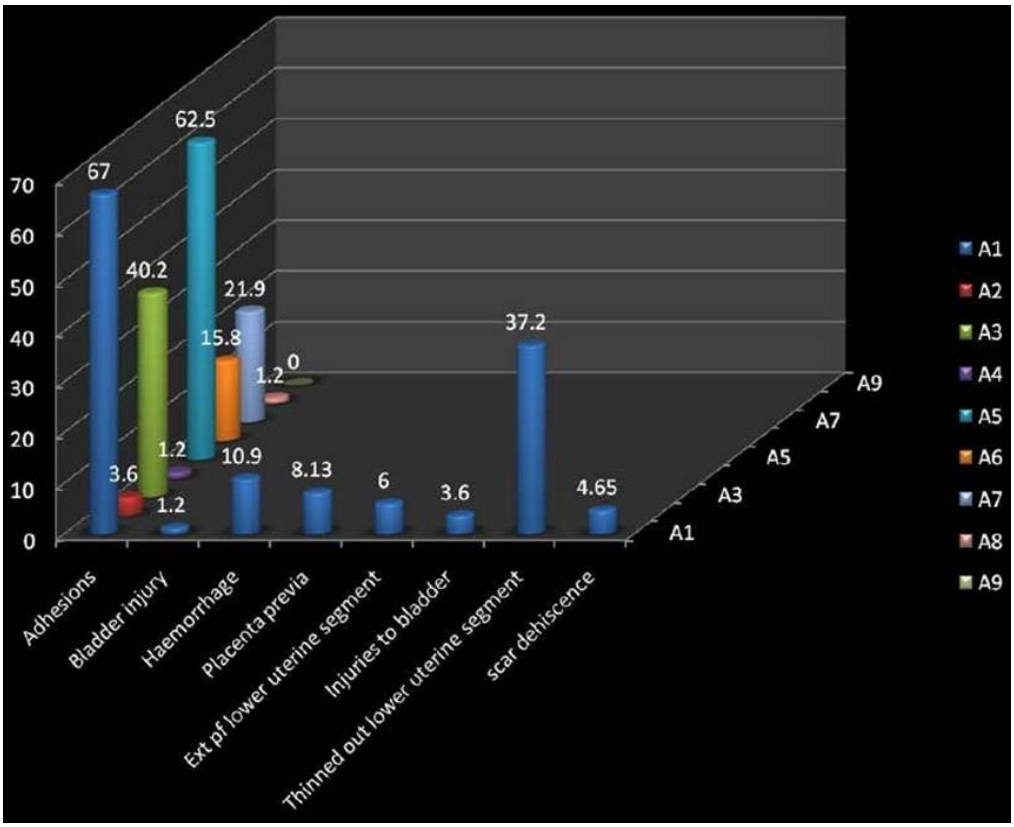


**Fig 2:** Varieties of complications encountered intra- operatively

Out of 200 cases,114 cases of repeat Cesarean sections did not show any complications (57%), and remaining 86 cases showed a variety of intra-operative complications encountered (43%), and the most common type of complications come across were 72 cases of adhesions (83.72%), 32 cases of thinned out lower uterine segment (37.2%), 9 cases of hemorrhage (10.9%), 7 of cases placenta previa (8.13%), 5 cases of extension of the uterine incision (6%), 4 cases of scar dehiscence (4.65%), 1 case of bladder injury(1.2%), 3 cases had injuries to the newborn (3.6%) intra-operatively. There were no cases of scar rupture, bowel injury, and cesarean hysterectomy in the study population.

Out of 72 cases with various combinations of adhesions, 15 cases had the most common combination of adhesions which was between parietal peritoneum, anterior surface of uterus and the omentum (20.8%) and 37 cases had combinations of parietal peritoneum and anterior surface of uterus alone (51.3%).

## 5. Discussion

The relative safety of cesarean section deliveries and its perceived advantages relative to vaginal delivery has resulted in a change in the perceived risk benefit ratio, which has accelerated the acceptance for cesarean section [151]. Although, the operation is now safer than in the past because of improvements in anesthesia, antibiotics and blood transfusion services, a cesarean section still carries a significant risk to the mother compared to a normal vaginaldelivery [152].

### Incidence of Complication in Repeat Cesarean Section

Cesarean section (CS) is the most common obstetric operative

procedure worldwide with a continuously increasing incidence for the last couple of decades, giving the women, an obstetric status of "previous cesarean section". The raising CS rates add to potential complications especially during a repeat cesarean section.

An analysis of the National Family Health Survey data shows that the rate of this form of delivery in states like Kerala, Goa, Andhra Pradesh, West Bengal and Tamil Nadu is alarmingly high. States with marked demographic transition as well as high institutionalized births have an inflated rate of C-section deliveries.

In our study incidence of C-section was around 30%, among them repeat C- section accounting for 42.5%. In a study conducted by Farkhundah Khursheed, Pushpa Sirichand and Nasreen Jatoiincidence of repeat cesarean section contributed to 36.5% of all cesareans performed [5]. In some studies, the incidence of women with previous cesarean section was around 50%[6]. Our study sample size was limited to 200 cases of repeat cesarean sections.

**Relation between Age and Complications Encountered During Repeat LSCS**

Incidence of intra-operative complications in repeat C/S increases with increasing maternal age. Among the complications adhesions and abnormal placentation has been frequently observed, which has been justified in many studies [7]. Frequency of placenta previa was found to be higher in women aged 35 years and above (51.27%) in a study conducted by Jillani K, Shaikh F, Siddiqui SM, Siddiqui MA [7], furthermore this has been justified by Zhang.J, Savitz. D who showed that women aged 34 years or older had 2-3 times more incidence of placenta previa in relation to women less than 20 years of age [7]. In the present study, maximum number of complications occurred between 20-29 years of age group (44.4%) followed by 30-35 years age group (25%), this statistical difference i.e. higher incidence of complication in the age group between 20-29 years is probably due to early marriages, early conception, short intervals between subsequent pregnancy (mean interval 1-1 ½ years), high prevalence of illiteracy and poverty among people of this part.

**Relation between Complication and Number of Previous Cesarean Section**

Multiple cesarean sections predispose to an increased risk of severe dense adhesions, scar dehiscence, uterine rupture, abnormal placentation, significant hemorrhage, bladder injuries and cesarean hysterectomies. In a study conducted by Farkund, showed that incidence of complications were more in women with 2 previous cesarean sections, were in the most common complications was dense adhesions (35.5%), followed by thinned out lower uterine segment (16.6%), ruptured uterus (1.1%) and bladder injury (1.1%). But incidence of abnormal placentation was more with 3 or more cesarean sections (2%) as compared with previous 2 cesarean sections [8].

In our study, higher incidence of complications was found in women who underwent previous three cesarean section (100%), and adhesions was most when compared with primary cesarean delivery and that percentage of women with adhesions increased with each subsequent cesarean delivery. A large Canadian retrospective cohort study reported similar findings [9]. In the present study adhesions accounted for 83.72% of complication among that the most common type of adhesion was observed between A1-63.9% (parietal peritoneum and anterior surface of uterus) and A5-59.3% (omentum and uterus), Which was managed by adhesiolysis in 96.3% of the cases and in some cases incision was taken higher up (15.6%). Majority of these cases were associated with excessive bleeding due to increased operating time and increase in raw surface area following adhesiolysis.

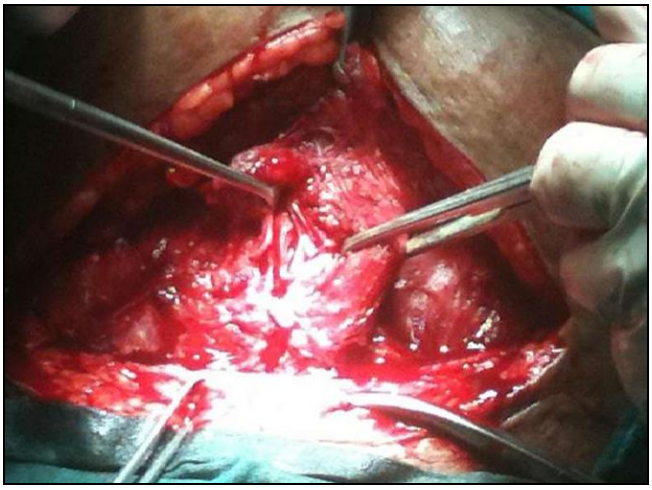

**Fig 3:** Abdominal wall adhesions in previous 2 C-sections.

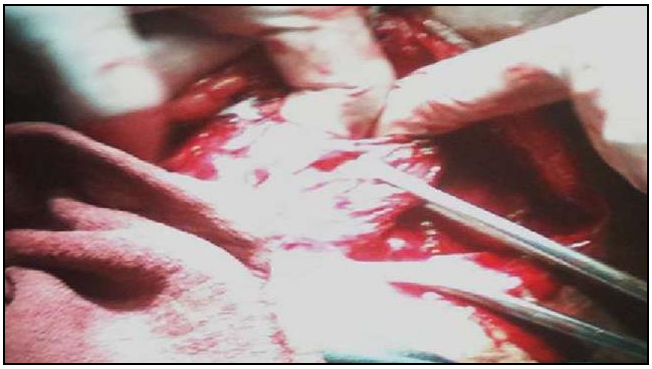

**Fig 4:** Difficulty in opening the abdomen.

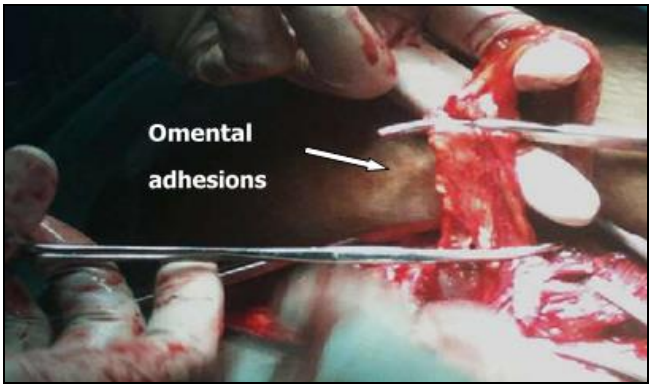


**Fig 5:** Omental adhesions with anterior surface of the uterine wall.

**Cesarean Section and Hemorrhage**

The rates of excessive bleeding after cesarean delivery are generally low, but do appear to increase as the number of previous cesarean delivery increases [10]. The reasons for excessive blood loss after cesarean delivery include uterine atony, adhesions, placenta acreta and trauma. In a study from Israel, 3or more cesarean deliveries was associated with significantly greater rates of excessive blood loss (i.e. blood loss more than or equal to1000ml or transfusion more than or equal to 2liters of blood) than second cesarean delivery [11]. Silver *et al.* [12] observed that, among women who delivered by cesarean delivery without labor, the risk of transfusion of more than or

equal to 4 units of red blood cells was associated with significantly with increased number of cesarean deliveries and was seen among 10% of women with more than 5 previous cesarean deliveries [12]. In our study 10.5% of the cases had hemorrhages on table due to adhesions, abnormal placentation and extension of uterine incision.


**Fig 6:** Excessive bleeding due to placenta previa.

**Bladder Injuries**

Injury to the bladder which is significantly more frequent at repeat cesarean delivery is an uncommon complication that is likely to be caused by adhesions. The incidence of bladder injury that was assessed in a cohort study of 14,757 cesarean deliveries performed at a larger academic center in Rhode Island over a 7 year period was found to be 0.28% [13]. Women who underwent a repeat cesarean delivery were almost 4 times likely to experience a bladder injury at delivery, than in women who underwent primary CD.

**Thinned out Lower Uterine Segment**

In a study conducted in 240 repeat cesarean section by Khursheed F, Sirichand P, Jatoi N observed that there was a high incidence of extremely thinned out lower uterine segment (16.6%) in women with previous two sections as compared to women with previous one cesarean section (8.7%) and 8. 3% in previous 3 cesarean section [5]. In our study 37.2% of the study group had thinned lower uterine segment.

**Fig 7:** Thinned out lower uterine segment.

**Scar Dehiscences**

In a study conducted in 240 repeat cesarean section by Khursheed F, Sirichand P, Jatoi N observed that scar dehiscence was seen 7.8% of women with previous one cesarean section, 4.4% with previous two cesarean section and 5.5% in previous 3 cesarean section [5]. Although it was found in other studies that incidence of scar dehiscence and rupture of previous uterine scar was increased with the increased number of cesarean section [14], however in this study increased frequency of scar dehiscence and scar rupture was not observed frequently. The incidence of scar dehiscence was seen 4.6% of the cases, which were asymptomatic and an incidental on table finding.

**Uterine Rupture**

A Norwegian study found that women with previous cesarean section had a risk of uterine rupture which was 8 times higher after a trial of labor than at a repeat elective cesarean section, they also showed that induction of labor using prostaglandins was associated with highest risk of uterine rupture [15].

There were no cases of uterine rupture, bowel injury, cesarean hysterectomy in present the study population because most of these cases were taken elective or taken with a short trial of labor with high level of intra-partum monitoring.

## 6. Conclusion

Cesarean section is one of the most commonly performed operations worldwide there is an epidemic of rising Cesarean section rates over the past few decades, good practice requires us to exhibit our judgment, based as far as possible on evidence-based medicine to decide when the cesarean section operation is necessary.

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.

A variety of intra-operative complications such as abnormal placentations, 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.

Although causation is often difficult to establish, some of these complications are likely associated with surgery induced adhesions. Implementation of appropriate surgical techniques should be considered in women who undergo CD, particularly among women likely to have repeated surgical procedures. Further clinical studies are needed to evaluate not only the effects of surgical techniques, and intra- operative management but also to investigate their effects on peri-operative morbidity that is associated with cesarean section. The best technique to reduce the multiple potential risks of repeat cesarean section is to reduce the rates of primary and repeat cesarean sections whenever possible.

## References

1. Cunningham FG *et al*. cesarean delivery and peripartum hysterectomy, Williams Obstetrics 25th edition, Mac Graw Hill, New York, 2018, 844-862.
2. Sancheeta Ghosh KS, James. Levels and Trends in Caesarean Births: Cause for Concern?, Economic& Political Weekly EPW. 2010; XLV:(5).
3. Nisenblat V, Barak S, Griness OB, Degani S, Ohel G, Gonen R. Maternal complications associated with multiple cesarean deliveries. Obstet Gynecol. 2006; 108(1):21-6.
4. Gary Cunningham F, Normal F, Gant, Kenneth J, Leveno *et al*. Caesarean Delivery andpostpartum hysterectomy. Chapter-23, Text book of Williams's obstetrics, 21st Edn., New York; McGraw Hill, 2001, 538-55.
5. Intraoperative Complications Encountered in Patients with

Repeat Cesarean Section Farkhundah Khursheed, Pushpa Sirichand and Nasreen JLUMHS Jatoim. 2009; 8(1).
6. Leitch CR, Walker JJ. The rise in cesarean section rate: the same indication but a lower threshold. Br J Obstet Gynaecol 1998; 105(6):621-6.
7. Jillani K., Shaikh F, Siddiqui S, Siddiqui M. Repeated cesarean sections: A risk factor for rising rate of placenta previa. Gynaecology and Obstetrics. 2010; 16(3):409-412.
8. Mahale Arun Ramkrishnarao, Ghodke Ujwala Popat, Bhingare Prashant Eknath, Sakhare Anil Panditrao. Intra-operative difficulties in repeat cesarean sections-A study of 287 cases. J Obstet Gynecol India. 2008; 58(6):507-510.
9. Lyell DJ. Adhesions and perioperative complications of repeat cesarean delivery. Am J Obstet Gynecol, Epub. 2011; 205(6):S11-8.
10. Guise JM, Eden K, Emeis C *et al*. Vaginal birth after cesarean: new insights. Evidence report/technology assessment no. 191. (Prepared by the Oregon Health & Science University Evidence-based Practice Center under contract no. 290-2007–10057-I). Agency for Healthcare Research and Quality publication no. 10-E001. Rockville, MD: Agency for Healthcare Research and Quality, 2010.
11. Nisenblat V, Barak S, Griness OB, Degani S, Ohel G, Gonen R. Maternal complications associated with multiple cesarean deliveries. Obstet Gynecol. 2006; 108:21-6.
12. Silver RM, Landon MB, Rouse DJ *et al*. Maternal morbidity associated with multiple repeat cesarean deliveries. Obstet Gynecol 2006; 107:122:6-32.
13. Phipps MG, Watabe B, Clemons JL, Weitzen S, Myers DL. Risk factors for bladder injury during cesarean delivery. Obstet Gynecol. 2005; 105(1):156-60.
14. Weerawetwat W, Burnan Wanich S, Kanawong M. Closure vs non- closure of the visceral and parietal peritoneum at cesarean delivery: 16 years study. J Med Assoc Thai. 2004; 87(12):1007-11.
15. BJOG. Risk of uterine rupture after previous c section, 2010.