Volume-1 | Issue-3 | December-2018 | ISSN - 2617-4421 (Print) | ISSN - 2617-7188 (Online) |
East African Scholars Journal of Medical Sciences
(An Open Access, International, Indexed, Peer-Reviewed Journal)
A Publication of East African Scholars Publisher, Kenya
www.easpublisher.com

Original Research Article

Intraoperative Difficulties Encountered in Women Undergoing Repeat Caesarean Section

Dr. Deepa Shanmugham[*1], Dr. Harshini Jayakumar[2], Dr. C. Ramany[3], Dr. Jessy Varghese[4]
[1]Professor, Department of Obstetrics and Gynaecology, Aarupadai Veedu Medical College, Pondicherry, India
[2]Resident, Department of Obstetrics and Gynaecology, Aarupadai Veedu Medical College, Pondicherry, India
[3]Senior Resident, Department of Obstetrics and Gynaecology, Aarupadai Veedu Medical College, Pondicherry, India
[4]Assistant Professor, Department of Obstetrics and Gynaecology, Aarupadai Veedu Medical College, Pondicherry, India

*Corresponding Author
Dr. Deepa Shanmugham
Article History
Received: 04.12.2018 | Accepted: 15.12.2018 | Published: 30.12.2018

Abstract: *Introduction:* The incidence of Caesarean section is on the rising trend with overall rate in teaching hospitals in India being around 25%. *Aim:* To study the incidence and type of intraoperative difficulties encountered by obstetrician in women undergoing repeat Caesarean section. *Materials and Methodology:* This is a prospective study in a tertiary care centre on 200 patients undergoing repeat Caesarean section. Exclusion criteria: Primary Caesarean section, previous history of abdominal surgeries, previous 2 LSCS or more, previous classical caesarean section. *Results:* In our study, 64 subjects showed abdominal wall adhesions, 67 (35.5%) had adhesions of abdominal wall to anterior wall of uterus, 35 (17.5 %) had bladder adhesions, scar dehiscence was observed in 42 (23%) and scar rupture was seen in 1 (0.5 %) subjects. *Conclusion:* Repeat caesarean section is associated with high incidence of morbidity in terms of adhesions or scar dehiscence**.**
Keywords: caesarean section, adhesion, scar dehiscence.

INTRODUCTION

The incidence of Caesarean section is on the rising trend with overall rate in teaching hospitals in India being around 25% (Kambo, I *et al.,* 2002). Caesarean section is the commonest operative procedure. The concern for caesarean section rates is due to rapid increase over the past few decades. The reason for the rising trend is multifactorial: increase in maternal age, lifestyle changes, changing obstetric practices like induction of labour and continuous fetal monitoring, maternal request, relative safety and litigations in medical practice. The ideal rate of caesarean section was put forth by a panel of reproductive health experts at a meeting organised by World Health Organisation in 1985 to be between 10% and 15% (WHO, 1985).

Most of the patients with previous caesarean section undergo repeat caesarean section because of increased complications associated with VBAC (Phelan, J. P.1996, Caughey A.B *et al.,*1999)The risk of intraoperative complications increases with increase in number of caesarean section in a patient. The well-known being adhesions, dehiscence, scar rupture, haemorrhage, and injury to adjacent structures. The surgeon while performing repeat caesarean section will encounter more surgical difficulties due to the distorted anatomy. Data regarding maternal complications during repeat Caesarean section in a centre is of utmost importance to counsel these women before undertaking the procedure. This study was performed to evaluate the incidence and type of intraoperative difficulties encountered in women undergoing repeat Caesarean section.

METHODOLOGY

This prospective observational study was conducted in a tertiary care hospital for a period of 10 months from January 2018 - October 2018 after getting Institutional research and Institutional ethical committee clearance. All consecutive patients who were undergoing repeat Caesarean section were enrolled for the study after getting informed and written consent. An exclusion criterion was primary caesarean section, previous 2 LSCS (Lower Segment Caesarean Section) or more, previous history of abdominal surgery, previous classical caesarean section.

Demographic data of all the study patients was collected. A detailed obstetric history was taken with much elaboration about the previous caesarean section with regard to indication, whether elective or emergency, intraoperative and postoperative complications. A general physical examination along

with obstetric examination was performed in all study patients. A basic antenatal investigation along with ultrasound was done. All the study patients underwent repeat LSCS either elective or emergency. After the procedure, intra operative findings with respect to parietal wall adhesions, bladder adhesions, grading of scar dehiscence, scar rupture were noted in all patients. In addition, intraoperative complications like haemorrhage, angle extension, injury to adjacent structures if any were also noted.

The grading of scar dehiscence clinically as intra operative finding was based upon the classification by Fukuda et al. (1988):

- Grade I - No thinning of lower uterine segment
- Grade II - Thinning and loss of continuity of lower uterine segment but fetal hair not visible
- Grade III - Thinning of lower uterine segment and fetal hair visible or window defect i.e. fetal parts could be seen through lower uterine segment.

The operating time was estimated in minutes from induction of anaesthesia to completion of skin suturing. The results were tabulated in Microsoft excel 2013 and analysed. Data entry and analysis were performed with SPSS ver. 17 (SPSS Inc., Chicago, IL, USA). Demographic and observational data were summarized using descriptive statistics (mean, standard deviation, range, and percentage).

RESULTS

In total, 200 patients were enrolled for the study. The demographic characteristics of the patient are shown in Table I. The mean age of the study patients was 24.44 years and mean Body Mass Index was 24.56. Among the study patients, in 124 women, previous LSCS was done on emergency basis, whereas 76 patients had undergone elective LSCS. In 90 patients, records about previous caesarean section was not available. The average gestational age at which the patients underwent repeat LSCS is 37.44 weeks. The interval between primary caesarean section and repeat LSCS was 3.29 years.

During the study period, 49 patients (24.5%) undergone Elective LSCS whereas 151 patients were posted for repeat caesarean section (75.5%) on emergency basis. Following were the indications for Emergency LSCS: Scar dehiscence (58 patients), Cephalo Pelvic Disproportion in labour (29 patients), Fetal distress (37 patients (18.5%)), Prelabour Rupture of Membranes (9 patients) and Oligohydramnios (18 patients). (Table II)

Following are the intraoperative difficulties encountered by the surgeon: Parietal wall adhesions-64 patients(32%) ,adhesions of uterus to parietal wall-67 patients(33.5%) , bladder to uterus 35patients (17.5%), scar dehiscence of various grades (Grade I-78 patients, Grade II- 38, Grade III- 4 patients), difficult head delivery 7 patients (3.5%) . (Table III) During caesarean section, the most important difficulty was adhesion, which lead to other complications. In our study adhesion between parietal peritoneum and anterior wall of uterus was encountered in 67 patients making the uterine incision site inaccessible resulting in difficult head delivery (7 patients).

The intraoperative complications during caesarean section was haemorrhage (4.5%) and extension of uterine incision at the angle in 8 patients (4%). No patient had injury to adjacent structures like bladder or bowel. 27 patients needed blood transfusion and 4% needed prolonged catheterisation. (Table IV).

Table– I: Demographic Data of Study Patients

Demographic characteristics	Value
Mean Age	24.44068
Mean BMI	24.56757
Previous Obstetric History (Emergency: Elective)	1.6:1 (124:76)
Mean gestational age	37.44 weeks
Mean gravidity	2.44
Mean Interval between primary LSCS and repeat LSCS	3.292308

Table II: Indications for Repeat LSCS

Indication	Number of patients
Elective	49(24.5%)
Emergency	
Scar Dehiscence	58(29%)
CPD in labour	29(14.5%)
Fetal distress	37(18.5%)
PROM	9(4.5)
Oligohydramnios	18(9%)

Table – III: Intraoperative Difficulties Encountered

Intra operative findings	No of patients (%) (n=200)
Parietal wall adhesions	64(32%)
Adhesions of uterus to parietal wall	67(33.5%)
Bladder adhesions	35(17.5%)
Scar Dehiscence	
Grade-I	78(39%)
Grade-II	38(19%)
Grade-III	4(2%)
Difficult Head delivery	7 (3.5%)
Scar rupture	1(0.5%)
Mean Operating time	70 minutes

Table IV: Intraoperative Complications

Intra operative complications	Number of patients (%) n=200
Atonic Haemorrhage	5(2.5%)
Traumatic haemorrhage	4 (2%)
Angle Extension	8(4%)
Injury to adjacent structures	0
Need for blood transfusion	27(13.5%)
Need for prolonged catheterisation	4(2%)

DISCUSSION:

Globally, caesarean births have increased dramatically, over the past two decades (Rashid *et al.*, 2004). Indications quite often overlap both maternal and fetal interests. Previous caesarean section has come up as a contributor to list of indications. Although Caesarean section is apparently now safe in sophistication in anaesthesia and surgery, intraoperative complications and morbidity do occur.

In developing countries where antenatal care seeking rate is poor and reporting at last moment is very high, makes the management of these cases very difficult and is managed on emergency basis by the duty surgeon single handed, leading to complications.

This prospective observational study was conducted in a tertiary care hospital on all repeat caesarean section performed. The various intraoperative difficulties encountered by surgeon were parietal wall adhesions (32%), adhesions of uterus to parietal wall (33.5%), bladder adhesions (17.5%), Scar dehiscence (60%), difficult head delivery (3.5%), and scar rupture (0.5%)

In our study, adhesions between anterior wall of uterus and parietal peritoneum was comparatively very high (33.5%) leading to difficulty in head delivery which can affect the neonatal outcome. A meta-analysis comparing adhesions based on three qualified RCT's concluded that closure of peritoneum had the advantage of reduced adhesion formation(Shi, Z *et al.*,2011). Hence closure of peritoneum during caesarean section can prevent the above said complication. Furthermore, it has been described that presence of severe adhesions can adversely affect the course of subsequent abdominal surgery by increasing the time of operation, the need for blood transfusion and the injury to the

surrounding structures including bowel and ureters. One limitation of our study is absence of previous operative records of majority of patients with previous caesarean section.

A study was done by Shumaila Zia on 519 women in Saudi Arabia to know whether intraoperative complications increases with successive number of Caesarean sections. The study concluded that the risk of severe intra peritoneal adhesions, thinned out lower uterine segment and bladder injury were significantly increased (P<0.001). No significant differences were found in blood loss, duration of surgery, post-operative hospital stay as well as birth weight and Apgar scores of new-borns(Zia, S *et al.*,2014).

In a study by Kushboo et al, adhesions were found in 35%, thinned lower uterine segment in 19%, 5% of patients had PPH with extension of uterine incision being 3%(Kushboo *et al.*,2017).

In a study by Farkhundah et al, dense adhesions were found in 27% cases, extremely thinned-out lower uterine segment was found in 11.6% cases, scar dehiscence was seen in 6.25% cases, ruptured uterus in 1.6% cases, placenta previa in 2.5% cases, morbidly adherent placenta in 0.8% cases, bladder injury occurred in 0.8% cases while fetal demise (due to ruptured uterus) occurred in 1.6% cases (Khursheed *et al.*, 2009).

Joseph et al studied the complication rate associated with repeat C-section. Complications were adhesions in 38%, thinned lower uterine segment in 17%, extension of uterine incision being 3%, PPH in 5%, placenta previa in 3% and placenta accrete in 2 %(Joseph S & Gilvaz S, 2016).

In a prospective observational study by Somani et al, following intraoperative morbidities were encountered – adhesions (1 caesarean section vs. 2 caesarean section – 40.85 vs. 65.96% respectively), thin lower uterine segment (1 caesarean section vs. 2 caesarean section – 21.13 vs. 36.17% respectively), bladder adhesions (1 caesarean section vs. 2 caesarean section – 15.49 vs. 36.17 % respectively) , extension of uterine incision (1 caesarean section vs. 2 caesarean section – 9.86 vs. 19.15% respectively), scar dehiscence (1 caesarean section vs. 2 caesarean section –7.04 vs. 31.91% respectively), excess blood loss (1 caesarean section vs. 2 caesarean section –7.04 vs. 19.15% respectively), 1 case of placenta accreta was found in previous 2 caesarean section - 2.13%) which needed caesarean hysterectomy. Uterine rupture and bladder injury seen in one patient of previous 2 caesarean section. Time taken for surgery was more in repeat Caesarean section group Delivery (Somani, S. S *et al.*,2017).

In a study of P. Sinha et al, on per operative findings in repeat caesarean section, he concluded that most common adhesion was between parietal peritoneum and anterior wall of uterus present in 30%, and bladder to uterus in 30%(Sinha P *et al.*,2016).

A study conducted by Mahale et al, intraperitoneal adhesions were seen in 25.43 % cases, most common adhesion was between bladder and uterus, and parietal peritoneum to uterus in 19% (Ramkrishnarao *et al.*,2008).

The peculiarity of the lower uterine segment, i.e the thin muscle layer and poor vascularization makes it elective place to make incision, and “locus minoris” resistance to rupture of the uterus. Particularly pregnancy at risk are considered and birth after previous caesarean section because of scar tissue that further threatens the area of the lower uterine segment. Scar dehiscence was the other important complication observed in most of the patients in our study (grade II, III- 42 patients, 21%). In our study, we have described scar dehiscence based upon the grading classification by Fukuda (Fukuda *et al.*,1988). However, in other studies, scar dehiscence is defined as window in the lower uterine segment with either membranes bulging or parts of baby visualised (Somani *et al.*, 2017, Sinha P *et al.*,2016.

In a prospective study by Gupta and Sinha (2017), repeat emergency LSCS was done in 862 cases. Scar dehiscence was found in 21 cases (17.5%). Rupture of uterus occurred in 3 cases 2.5%(Gupta *et al.*,2017). In a study done by Ramadan et al on all elective repeat caesarean section (2018), among 588 patients included in the study, 27 cases of uterine scar dehiscence were identified with an incidence of 4.6%(Ramadan *et al.*,2018). This low incidence of scar dehiscence during elective caesarean section can guide us to formulate a protocol to perform elective LSCS on high risk patients.

In a systematic review on patients with multiple caesarean section, uterine wound separation occurred in nine of 435 patients with more than one previous caesarean section compared with 16 of 1206 with a single previous caesarean (2.1 versus 1.3%, not significant).(Asakura, H., & Myers, S. A, 1995)

The study on ultrasound evaluation of uterine scar after caesarean section by Basica et al (2012) showed that scar thickness of 3.5 mm or more, the homogeneity of the scar, scar triangular shape, qualitatively richer perfusion, and scar volume verified by 3D technique upto10 cms attributes to the quality of the scar (Basic, E *et al.*,2012).

A study done by Dr. Nazlima Nargis confirmed that the risk of scar dehiscence was3.33% and that of thin scar was 23.33%. He also stated that if all patients with history of previous one caesarean section would have been subjected to a trial of labour, the scar dehiscence would be much higher than the actual calculation(Dr.Nazlima Nargis)·The dehiscence rate of a lower segment of a transverse uterine scar is 2% to 4%, but a vertical scar is higher. Therefore the strongest predictor of safety of labour after previous caesarean is the location of previous uterine scar [20]..Rageth et al disclosed an elevated risk of uterine rupture in patients who had a history of caesarean delivery and were undergoing trial of labour versus elective repeat caesarean and has been reported to be between 0.2% and 0.1%.(Rageth, J. C *et al., 1999*)

In our study, intra operative complications like haemorrhage was moderate (4.5%) whereas extension of uterine incision was too high (8 patients) which will affect the obstetric future of the patient. (Kushboo,2017, Joseph S *et al.*,2016, Somani, S. S *et al.*,2017)

The need for blood transfusion was too high (13.5%) in our patients in spite of less haemorrhage. This is probably due to high prevalence of anaemia in antenatal patients in our country, since pre operatively the patients are anaemic, not able to compensate the blood loss of delivery leading to the need for blood transfusion. This is comparable to study done by Gupta et al, whereas blood transfusion was needed in 23 cases 19.2 %(Gupta, N. & Sinha, R, 2017).

CONCLUSION:

Repeat caesarean section is associated with high incidence of morbidity in terms of adhesions and scar dehiscence. Proper antenatal care of these patients, timely decision making along with preparedness of the surgeons to face the intraoperative difficulties can minimise the complications associated with repeat caesarean section.

REFERENCES:

1. Kambo, I., Bedi, N., Dhillon, B. S., & Saxena, N. C. (2002). A critical appraisal of cesarean section rates at teaching hospitals in India. *International Journal of Gynecology & Obstetrics*, *79*(2), 151-158.
2. WHO. (1985). Consensus Conference on Appropriate Technology for Birth. *Lancet*, 2, 436-7.
3. Phelan, J. P. (1996). VBAC: Time to reconsider. *OBG Management*, *11*, 62-68.
4. Caughey, A. B., Shipp, T. D., Repke, J. T., Zelop, C. M., Cohen, A., & Lieberman, E. (1999). Rate of uterine rupture during a trial of labor in women with one or two prior cesarean deliveries. *American journal of obstetrics and gynecology*, *181*(4), 872-876.
5. Fukuda, M., Fukuda, K., & Mochizuki, M. (1988). Examination of previous caesarean section scars by ultrasound. *Archives of gynecology and obstetrics*, *243*(4), 221-224..
6. Rashid, M., & Rashid, R. S. (2004). Higher order repeat caesarean sections: how safe are five or more?. *BJOG: An International Journal of Obstetrics & Gynaecology*, *111*(10), 1090-1094.
7. Shi, Z., Ma, L., Yang, Y., Wang, H., Schreiber, A., Li, X., & Lu, W. (2011). Adhesion formation after previous caesarean section—a meta-analysis and systematic review. *BJOG: An International Journal of Obstetrics & Gynaecology*, *118*(4), 410-422.
8. Zia, S., & Rafique, M. (2014). Intra-operative complications increase with successive number of cesarean sections: Myth or fact?. *Obstetrics & gynecology science*, *57*(3), 187-192.
9. Kushboo, Singh S, Karan A.(2017) Intra-op complications: primary versus repeat cesarean section. IOSR-JDMS.16(4):30-4.
10. Khursheed, F., Sirichand, P., & Jatoi, N. (2009). Intraoperative complications encountered in patients with repeat cesarean section. *JLUMHS*, *8*(01), 76.
11. Joseph S, Gilvaz S.(2016) A Comparative Study on Intra Operative Problems during Primary versus Repeat Caesarean Sections. Sch J App Med Sci,4(2A), 303-10
12. Somani, S. S., Sudhir, S., & Somani, S. G. (2017). A study of intra-operative maternal morbidity after repeating caesarean section. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *7*(1), 291-296.
13. Sinha P,Gupta U,Singh J,Srivastava A,Chauhan S.Per(2016).Operative findings in repeat caesarean section. Int J Reprod Contracept Obstet Gynecol;5:1093-6
14. Ramkrishnarao, M. A., Popat, G. H., Eknath, B. P., & Panditrao, S. A. (2008). Intra-operative difficulties in repeat cesarean section: a study of 287cases. *J Obstet Gynecol India*, *58*, 507-10.
15. Gupta, N., & Sinha, R. (2017). Intra-operative uterine scar condition and fetomaternal outcome in patients of previous lower segment caesarean section (LSCS) with scar tenderness. *International Journal of Research in Medical Sciences*, *5*(11), 4911-4914.
16. Ramadan, M. K., Kassem, S., Itani, S., Sinno, L., Hussein, S., Chahin, R., & Badr, D. A. (2018). Incidence and Risk Factors of Uterine Scar Dehiscence Identified at Elective Repeat Cesarean Delivery: A Case-Control Study. Journal of Clinical Gynecology and Obstetrics, 7(2), 37-42.
17. Asakura, H., & Myers, S. A. (1995). More than one previous cesarean delivery: a 5-year experience

with 435 patients. *Obstetrics & Gynecology*, *85*(6), 924-929.

18. Basic, E., Basic-Cetkovic, V., Kozaric, H., & Rama, A. (2012). Ultrasound evaluation of uterine scar after cesarean section. *Acta Informatica Medica*, *20*(3), 149.
19. Dr.Nazlima Nargis, Evaluation of Uterus scar on Repeat Second Caesarean section in patients with previous Caesarean section.,FCPS,MCPS. Gynec and Obstetrics.
20. Yap, O. S., Kim, E. S., & Laros Jr, R. K. (2001). Maternal and neonatal outcomes after uterine rupture in labor. *American journal of obstetrics and gynecology*, *184*(7), 1576-1581.
21. Rageth, J. C., Juzi, C., & Grossenbacher, H. (1999). Delivery after previous cesarean: a risk evaluation. *Obstetrics & Gynecology*, *93*(3), 332-337.