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To Study Correlation of Indication in Previous Caesarean Section to Intraoperative Adhesions

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Introduction: *caesarean section is an important and common surgical procedure which is often required to save lives of mother and baby. The WHO recommends that they should be done based on medical need. The incidence is rising in most parts of the world with an increase in number of " previous caesarean section ". In US caesarean section rates have increased from over 20% in 1996 to 33% in 2011. The WHO officially withdrew its previous recommendation of a 25% caesarean section rate in June 2010.Their official statement read,"There is no empirical evidence for an optimum percentage,what matters most is that all women who need caesarean sections receive them ". Conventionally caesarean sections are classified as being either an elective or an emergency operation.*

Objective:*To study intraoperative findings in cases of previous LSCS and to find association between indication of previous LSCS and intraoperative findings.*

Methods:*This is an observational study of cases of repeat LSCS in tertiary care teaching hospital.*

Result:*A total of 60 cases of previous LSCS were observed. Out of 60 cases adhesions between parietal peritoneum and anterior wall of uterus were present in 9(15%) cases. Adhesions between bladder and uterus with inaccessibility of LUS was present in 6(10%) cases. Adhesions of gut and omentum to uterus was present in2(3.3%) cases. In total adhesions were present in 17(28.2%)cases. Of these 17 cases, 5 cases of adhesions were present in CS where the indication of previous CS was FD/MSL.*

There were 12 cases of adhesions where emergency LSCS was done for indication such as FD ,APH, Ecclampsia .

Conclusion: *Variation in adhesion formation is associated with emergency LSCS indication. In multiple ceasarean group adhesions are more.*

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I. Introduction

Caesarean section dates from antiquity and now is the commonest obstetric operative procedure.The incidence of caesarean section is rising in most parts of the world. Conventionally caesareansections are classified as beingeither an elective or emergency operation. Elective caesarean section is most commonly arranged ahead of time for medical indications which have developed before or during the pregnancy ,the need for delivery is not urgent. Emergency caesarean section is done where a vaginal delivery was planned initially, but an indication for caesarean delivery has since developed. In United State caesarean section rates have increased from over 20% in 1996 to 33% in 2011. The indications however are under speculation. The caesarean section rates were higher in women with previous caesarean section(70.8%) and with breech presentation(89.8%)[1]

In medical colleges and teaching hospitals in India the overall rate for caesarean deliveries is 24.4%[2]. Caesarean section is safe but like any laparotomy has risk of developing adhesions and scar tissue. Adhesions are defined as abnormal fibrous connection between two anatomically different surfaces. Adhesiogenesis is culmination of increased extracellular matrix production associated with diminished matrix degradation, combined with decreased fibrinolytic activity. Physiological changes in pregnancy favour decreased fibrinolysis with an increased propensity for adhesion development. It has been hypothesized that adhesions develop as a response to hypoxia. Tissue injury results in bleeding and leakage of lymphatic fluid alongwith histamine resulting in accumulation of red and white blood cells, platelets and clotting factors to form fibrin clot. As normal healing is accomplished tissue plasminogen activator (tPA) removes the clot. With reduction in fibrinolytic activity that occurs in association with tissue hypoxia, the fibrinous mass persists to form adhesions. Although causation is often difficult to prove adhesions result from surgical trauma.Controversies still exist about adhesion formation after previous caesarean section concerning closure of the peritoneum, both with reasonable theories. Some studies showed that peritoneal healing occurs by simultaneous multi site repair as the result of migrating mesothelial cells with mesothelial matrix formation without the need for repositioning of the peritoneum, and peritoneal closure would lead to foreign body reactions to the suture material, ischaemia, tissue necrosis and

inflammation. Hence, without closure of peritoneum, there will be less adhesion formation. However, it takes 6 weeks for the post partum uterus to return to normal size and position completely whereas peritoneal healing occurs within 3-5 days after caesarean section. Hence, the enlarged post partum uterus may act as a mechanical desruptive barrier for the routine mesothelial matrix formation of peritoneal healing, particularly when the enlarged uterus is in direct contact with the anterior abdominal wall when the peritoneum is left open.

Duringsurgery ,to minimisepost a operative complications,such as formation of adhesions,some principles should be followed such as- gentle handling of tissues,using powder free gloves,bleeding control,optimum use of suture,keeping tissues moist and infection prevention. However,despite such measures adhesion formation is a recognised complication of any a pelvic or abdominal surgery.This scarring and adhesion formation is known to increase the major complications rate from 4.3% to 12.5% depending upon the number of previous caesarean sections[3]. Intra peritoneal adhesions have on incidence of 5.5% to 42.5%[4] The present study is conducted to see adhesions between anterior wall of uterus and parietal peritoneum, adhesion of bladder and adhesions of gut and omentum to uterus in cases of repeat caesarean section . The aim of the study is to see if indication of caesarean , whether elective or emergency , in context of procedure, has any bearing on adhesion formation.

II. Material & Methods

This is an observational study conducted at a tertiary care teaching hospital associated with SMS Medical College ,Jaipur. In this study a total of 60 cases of repeat caesarean section were included. Women having other abdominal surgeries were excluded. Along with history note was made regarding number and indication of previous LSCS. Intra operative findings such as adhesions between anterior wall of uterus and parietal peritoneum, adhesions of omentum and gut to uterus and bladder adhesion to uterus were noted. Indication of present cesarean section was also noted.The collected data was tabulated and analysed .

III. Results

Table:1-Association of indication of previous LSCS with adhesion formation

Indication in previous LSCS	Cases with adhesion Of parietal peritoneum	Cases with adhesion Of gut & omentum	Cases with adhesion of bladder	Total
Failed induction			1	1
FD/MSL	4		1	5
APH	1	1	1	3
GHT	2	1	2	5
Previous lscs	2		1	3
Total	9	2	6	17

Table:2- Number of previous LSCS

No. of previous LSCS	Cases (n-60)
Previous 1 cs	54
Previous 2 cs	6
Previous 3 cs	Nil

Table :3- Indication of LSCS in previous pregnancy

Indication	Number (n-60)
CPD	4
PROM	6
FD/MSL	12
GHT/Eclampsia	4
CAN	3
Post datism	1
APH	1
Breech/Transverse	9
Failed induction	18
Previous cs	2

IV. Result

A total of 60 cases of previous LSCS were observed. Adhesions were present in 17(28.8%) cases. Out of 60 cases adhesions between parietal peritoneum and anterior wall of uterus were present in 9(15%) cases. Adhesions between bladder and uterus with inaccessibility of LUS was present in 6(10%) cases. Adhesions of gut and omentum to uterus were present in2(3.3%) cases. In total adhesions were present in 17(28.2%)cases. Of these 17 cases, 5 cases of adhesions were present in CS where the indication of previous CS was FD/MSL.

There were 12 cases of adhesions where emergency LSCS was done for indication such as FD ,APH, Ecclampsia .These emergency indications had higher probability of fast surgical approach. In cases where indication of previous CS was elective such intra operative findings were present in 4(6.6%) cases.
There were 54 cases of previous one caesarean ,6 cases of previous two caesarean and none of previous three caesarean section. As the number of caesareans increases as in previous 2 cs adhesions increase. Out of 6 cases of previous two caesarean 3(50%) had adhesions.

V. Discussion

Caesrean section incidence largely replaced difficult vaginal deliveries. Indications quite often overlap both maternal as well as fetal interests. Previous cesarean section has come up as a contributor to list of indications. The process of adhesion formation begins almost immediately after caesarean section. Repeat caesarean section is related with increased maternal complications. Adhesions may increase the risk of ectopic pregnancy and infertility by linking the tubes,bowel obstruction and chronic pelvic pain. There are increased chances of adhesion formation with each caesarean section[5,6]. With increasing number of caesarean section the adhesion rateas well as intensity increases. In present study in multiple caesarean group adhesions were present in 50% cases. The study by Niesenblat V.show dense adhesions(46.1%) in multiple caesarean group[3].

In our study 17(28.2%) cases of previous CS had adhesions out of which 12(20%) cases had emergency section for indications such as FD, APH, Ecclampsia. In cases with other indications where elective CS was done such adhesions present in 4 (6.6%) cases. In present study most common adhesions were of parietal peritoneum with anterior surface of uterus 9(15%)and bladder to uterus 6(10%).Adhesions of gut and omentum were less2(3.33%). In study by P. Sinha et al the most common adhesion was between parietal peritoneum and anterior wall of uterus present in (30%)and bladder to uterus in (30%)[7]. In another study by Mahale et al intraperitoneal adhesions were seen in 25.43% cases,most common adhesion was between bladder and uterus(32%) and parietal peritoneum to uterus(19%)[8] .A meta-analysis comparing adhesions based on three qualified RCT's concluded that closure of peritoneum had the advantage of reduced adhesion formation 9. Although not much explored there is need of further study and discussion to ascertain role of factors such as fast surgical approach for a better maternal and fetal outcome in emergency indication.

VI. Conclusion

Chances of developing adhesions increases with multiple caesarean deliveries. Second and subsequent operations on women with abdominal adhesions are more likely to result in prolonged operation,injury to bowel and bladder and more blood loss. Surgical techniques for caesarean section that employ minimal organ manipulation reduce the likelihood of adhesions. Variation in adhesion formation is associated with emergency LSCS indication wherein the indication covers immediate threat to life of woman or fetus, requiring hasty delivery. There is need to further evaluate and discuss hypothetical contributory role of fast surgical approach in such cases for a better fetal and maternal outcome.

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