

## Relaparotomy after Caesarean Section- A Study In Tertiary Care Hospital

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### I. Introduction

Caesarean section is the most common obstetric operation carried out in daily obstetric practice. In many countries there has been a dramatic rise in the caesarean section rate.<sup>(1)</sup> Complication rate associated with caesarean section is known to be several folds than that of vaginal deliveries.<sup>(3)</sup>

With the improvement of operation technologies, anaesthesia coverage and blood transfusion facilities, safety of caesarean section have increased considerably. The reasons for continued increase in caesarean section rates is because of greater percentage of births among nulliparous women whose average maternal age is rising and maternal request. Also, obesity and diabetes are also a few reasons. Use of continuous electronic fetal monitoring and epidural anaesthesia all have contributed to the rise in the rate of CS rate. Most foetuses presenting as breech delivered as caesarean section. Rate of VBAC has also decreased.

CS is one of the most common reasons for the development of puerperal complications. Most of the women are treated conservatively, but sometimes there is a need for relaparotomy. In some cases, relaparotomy may be considered as a near miss maternal mortality situation<sup>(4)</sup>. Most of the time, relaparotomy is performed when the condition of the patient is too critical to withstand the risk of anaesthesia and repeat surgery. On one hand, it is the last resort to save a mother's life and on other hand, the mother's reproductive capability is sacrificed in most of the cases. The decision requires a good clinical judgement and it is the last resort to save a mother's life.<sup>(5)</sup>

Postpartum haemorrhages following caesarean section, intraperitoneal haemorrhage, septicaemia, rectus sheath haematoma, burst abdomen with sepsis have been encountered as common indications of relaparotomy following caesarean section. The most common risk factor for relaparotomy in our study was previous caesarean pregnancy. There is very little wide scale study on relaparotomy after caesarean section.<sup>(7)</sup> So, our study may help to find out the maternal morbidity & mortality associated with relaparotomy after caesarean section.

### AIM

The aim of this study was to determine the indications, operative findings, management and the outcomes for relaparotomy among the patients who underwent relaparotomy after caesarean section and to suggest the way to improve the quality of care to decrease the maternal morbidity and mortality.

### II. Materials And Methods

This was a retrospective descriptive study done in the obstetrics and gynaecology department of government general hospital, Vijayawada. over a period of 26 months from 1<sup>st</sup> February, 2017 to 30<sup>th</sup> April 2019. During this period, 8589 caesarean deliveries were done in this institute out of total 19017 deliveries. Relaparotomy was done in 17 cases.

### III. Results

From February 2017 to April 2019, a total of 26015 antenatal patients were admitted in department of obstetrics and gynaecology, GGH, Vijayawada. There were a total 8589 caesarean deliveries out of 19017 total deliveries for the period under the study and the caesarean section rate was 45.09%. The incidences of relaparotomy following institutional caesarean section was thus 0.19%. All the patients were house wife. Out of 17, 13 patients were booked cases and 4 were unbooked cases. All the 17 patients belong to low socioeconomic

status. Seven patients had one caesarean delivery before (post caesarean pregnancy) while six had 2 previous caesarean delivery (repeat caesarean pregnancy) in the past. 4 patients had primary caesarean section and total of 16 cases under went caesarean section on emergency basis.

**Table 1 - Indication for caesarean section**

Indication of caesarean section	out of 17	Percentage
1 previous LSCS	7	41.17
2 previous LSCS	6	35.29
Primary emergency LSCS	4	23.52

out of 17 cases indication for caesarean section was 1 previous lscs in case of 41.17% of cases. 35.29% cases it is due to 1 previous lscs. Foetal distress was the indication for primary emergency lscs in case of 23.52% of cases.

**Table 2- Indication for relaparotomy.**

Indication of Relaparotomy	out of 17	percentage
Intraperitoneal haemorrhage	6	35.29
Secondary pph	1	5.88
Giving away of uterine scar	1	5.88
Rectus sheath hematoma	2	11.76
Pelvic abscess	4	23.52
Burst abdomen	3	17.64

Out of total 17 cases 35.29% of cases relaparotomy was done due to indication of intraperitoneal haemorrhage.17.64% of cases were because of pelvic abscess. 3 cases for burst abdomen and 2 cases for rectus sheath hematoma. 1 case for secondary pph and 1 case for total uterine scar repair.

**Table 3- procedure performed during relaparotomy**

Procedure performed during relaparotomy	out of 17	percentage
Hysterectomy	4	23.52
Resuturing uterine wound & Uterine Brace suture	2	11.76
Ligation of bilateral uterine artery & ovarian vessels	2	11.76
Exploration of sub rectus Haematoma, Ligation of bleeding vessels	3	17.64
Tension sutures for repair of anterior abdominal wall & peritoneal toileting	6	35.29
Negative laparotomy	0	

Out of total 17 cases, subtotal hysterectomy was done in 4 cases .resuturing of uterine wound was done in 2 cases. Bilateral uterine artery ligation and ovarian artery ligation done in 2 cases. Peritoneal toileting was done in 6 cases. Rectus sheath hematoma exploration was done in 3 cases. During our total period of study there were no negative laparotomies.

**Table 4-Time interval from caesarean section to relaparotomy**

Time interval from caesarean section to relaparotomy and their indication		
Within 24 hours	out of 17	percentage
Internal haemorrhage:	6	35.29
Pph	1	5.88
Within 10th POD		
Burst abdomen	3	17.64
Rectus sheath hematoma	2	11.76
Previous uterine incision gape	1	5.88
Within 11th to 17th POD		
Pelvic abscess:	4	23.52

Within 24 hrs period of caesarean section indication for relaparotomy were internal haemorrhage and pph most common is internal haemorrhage. Within 7 days of caesarean section most common cause is burst abdomen. After 8<sup>th</sup> pod ,cause for relaparotomy was because of pelvic abscess.

**Table V- Maternal Mortality Rate after relaparotomy**

	out of 17	Percentage
Maternal mortality after relaparotomy	1	5.88

Out 17 cases in our study there was 5.8% of maternal mortality.

#### **IV. Discussion**

Caesarean section is a major abdominal operation with high chances of complications to the mother including haemorrhage, infection and injury to other organs. Postcaesarean complications are many times associated with high rate of morbidity and mortality. In day-to-day obstetric practice we have to deal with postcaesarean complications associated with maternal morbidity and mortality. During our study period, there were a total of 8589 caesarean deliveries and 17 cases required laparotomy following caesarean section. Therefore total incidence of relaparotomy in our study was 0.19%. This incidence very much comparable to rate of 0.2% in study by Levin et al<sup>(1)</sup>. In study by Shiri Shinar 0.4% cases required relaparotomy.<sup>(2)</sup> In study by Raagab AE, incidence was 1.04%.<sup>(3)</sup> In a study by Gedikbasi incidence was 0.12%.<sup>(9)</sup> The rate of relaparotomy following caesarean section in our study was comparable to the other studies quoted. We had a death rate of 5.88% among the women who went in for laparotomy. The total incidence of relaparotomy among the patients was 0.19% from our hospital among the caesarean section women.

In our study, most of the patients were between 20-35 years age which is the normal reproductive age, with many of them being multiparous. This is similar to study by Ahmed Khan et al, the age group was also the same.<sup>(13)</sup> In a study by Biswas SP, the ages of the patient were between 15 and 35 years with a mean of 25 years.<sup>(4)</sup>

94.12% of the women who had undergone relaparotomy had an emergency C-section. Only 1 of them had elective CS. Emergency caesarean section is an important risk factor for relaparotomy. In study by Seal SL, 95.5% had emergency caesarean and 4.55 had elective caesarean section.<sup>(5)</sup> In study by Raagab AE, 95.5% had emergency caesarean delivery.<sup>(3)</sup> In our study 24.6% were primary caesarean sections and 73.4% were repeat caesarean sections.

The most common indication of caesarean section was post caesarean pregnancy 73.4%. Other indications were fetal distress 24.6%. In the study by Biswas SP, the commonest indication of primary caesarean section was prolonged labour and fetal distress in 40%.<sup>(4)</sup> 7 cases (41.1%) had relaparotomy within 24 hours after caesarean section. 6 cases (35.11%) underwent resurgery between 24 hours and 7 days after caesarean section. Hence close observation of cases within 24 hours following caesarean section is very important especially the vital signs, uterine contractility and both vaginal bleeding and intraperitoneal bleeding. In study by Levin et al relaparotomy was done an average of 5 hours after the first surgery. In study by Biswas SP, 32.73% cases were done within 7th postoperative day.<sup>(4)</sup> In study by Raagab AE, relaparotomy was performed within 5.5 hours after the primary procedure.<sup>(3)</sup> In study by Kessous R, 51.2% underwent relaparotomy within 24 hours after caesarean section.<sup>(6)</sup>

As far as the indication of repeat surgery is concerned, 6 cases due to intraperitoneal hemorrhage. 2 cases had rectus sheath hematoma and 4 cases had pelvic hematoma and 1 case had secondary PPH. It is consistent with the results from the previous studies. In study by Levin et al., the main indication for relaparotomy was hemodynamic instability due to suspected intra-abdominal bleeding or uncontrolled PPH.<sup>(1)</sup> PPH was the commonest reason for relaparotomy in study by Biswas SP.<sup>(4)</sup> In study by Seal SL, PPH in 42.4% and rectus sheath hematoma in 27.3% cases were the leading indications for relaparotomy.<sup>(5)</sup> These findings demand special attention to effectively manage primary PPH as well as secondary PPH. Bleeding secondary to uterine atony is preventable by adopting active management of third stage of labour. In the study by Ashwal, PPH was the leading indication of relaparotomy.<sup>(12)</sup>

In our study internal haemorrhage was the leading indication cause of relaparotomy. In the study by Shyamal D, intraperitoneal haemorrhage was found in 48.93%.<sup>(7)</sup> Haemorrhage was common and a leading cause where early relaparotomies were required as reported by different studies. Safe method of suturing the lower uterine segment incision at caesarean section and care during transverse cutting and suturing of lateral extension of rectus sheath are described as procedures to reduce postoperative complications. In the study by Shinar S, the leading indications for relaparotomy were hemodynamic shock and subcutaneous hematoma. Internal haemorrhage was the most common indication for relaparotomy in our study followed pelvic abscess followed by rectus sheath hematoma. Sepsis was another important cause for relaparotomy. In that study the most common risk factors for sepsis were obesity and ruptured membranes.

Hysterectomy was required in a total of 4 cases. In a study by Lurie, only one case required hysterectomy among the eighteen cases studied.<sup>(11)</sup> Ligation of bleeding vessels alone was required in 5 cases. In the study by Gedikbasi, procedures done at relaparotomy were drainage and resuturing of hematoma and resuturing of uterus, bladder repair, total and subtotal hysterectomy etc.<sup>(9)</sup> In the study by Seffah, main surgeries done were hysterectomy, internal iliac artery ligation, debridement and resuturing of uterine incision and secondary suturing of anterior abdominal wall.<sup>(10)</sup>

Regarding postoperative complications, 2 cases (11.7%) developed multiorgan failure and 3 cases (17.6%) required mechanical ventilation. 4 cases (23.5%) had febrile morbidity, There were 1 death in our study which accounted for about 5.8% of the cases after relaparotomy, which was very high.

## V. Conclusion

caesarean section is most common procedures for deliveries. Relaparotomy is done as a life-saving procedure for a near miss fatality of the mother. Since there is a high rate of morbidity and mortality in cases of relaparotomy, the patients treated immediately and monitored carefully. If personnel and adequate blood components are available, relaparotomy should not be delayed for the management of intractable haemorrhage and unstable vital signs after caesarean section.<sup>(8)</sup>

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