

## Original Research Article

# Risk factors for relaparotomy after caesarian section: a study in a tertiary care hospital

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### ABSTRACT

**Background:** Caesarian section (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. Usually it is performed when the condition of the patient is too critical to withstand the risk of anaesthesia and repeat operation.

**Methods:** Detailed demographic data was collected from the patients such as age, parity, indication for primary caesarian section, indications for relaparotomy and the interval between the two surgeries.

**Results:** Most of the women were in the age group of 20-35 years with 1 case being 38 and most of them were multiparous except 3 for whom this was the first parity. Atonic post-partum haemorrhage was the most common indication for relaparotomy followed by traumatic postpartum haemorrhage and rectus sheath hematoma. Most of the surgeries took place within the first 24 hours of the primary surgery.

**Conclusions:** Since there is a high rate of indications for relaparotomy, immediate action and careful monitoring of the patient is required post caesarian section.

**Keywords:** Relaparotomy, Caesarian section, Risk factors

### INTRODUCTION

Caesarian section or C-section or CS, is one of the most common operations carried out in daily obstetric practice. Especially, with the improvement in the techniques, safe anaesthesia, safe transfusions and other techniques, the rate of the C-sections over the years have increased considerable, with many women electing to have a CS rather than normal vaginal delivery. With more and more women becoming career minded and increase the age of first pregnancy, CS has become the most preferred mode of delivery.<sup>1</sup> Moreover, caesarian section is an effective way to circumvent maternal and foetal complications.<sup>2</sup>

There has been a dramatic rise of caesarian section over the years in many countries in some cases upto 25%.<sup>3</sup> In Europe, the operations have risen seven and a half fold from 3.3% in 1967 to 25% in 1995.<sup>4</sup> In some places in Asia, cesarean section rate is 8%.<sup>5</sup>

This rise of CS has been attributed to many causes such as pregnancy after 35 years and maternal requests. Also changes in maternal characteristics such as increase in obesity and diabetes are also a few other reasons. The obstetric practices such as labor induction and epidural anesthesia all have contributed to the rise in the rate of CS rate.<sup>6</sup>

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. This is many times considered as a event of a near miss maternal mortality.<sup>7</sup> Usually it is performed when the condition of the patient is too critical to withstand the risk of anesthesia and repeat operation. The decision requires a good clinical judgment and it is the last resort to save a mother's life.<sup>8</sup>

Risk factors for relaparotomy may be Prolonged rupture of the membrane (>24 hours), chorioamnionitis, excessive number of digital vaginal examination, prolonged labour (>12hours), preeclampsia, intra partum and postpartum anemia, poor nutrition, low socioeconomic condition. Risk further increases in women who attempted vaginal birth but had an emergency caesarian section due to other problems.<sup>5</sup>

This study was conducted to identify the risk factors associated with relaparotomy among the women undergoing caesarian sections.

## METHODS

This prospective study was conducted by the departments of surgery and gynecology of Shadan Institute of Medical Sciences and Research Institute over a period of two years and four months on 578 mothers who went in for caesarian delivery.

After clearing from the institutional ethical committee and obtaining the informed consent from the patient or the relatives, this study was carried out. Detailed demographic data was collected from the patients such as age, parity, indication for primary caesarian section, indications for relaparotomy and the interval between the two surgeries. Transfusions, total hospital stay and the outcome details were also collected.

Relaparotomy done within 60 days of caesarian section were included into the study. All C-sections, whether elective or emergency were included. Patients who had a C- section elsewhere and referred to our hospital for a relaparotomy were also included in the study.

All gynaecological surgeries and normal deliveries were excluded from the study. Relaparotomy performed after 60 days with indications other than complications from the primary surgery was excluded from the study.

## RESULTS

A total of 578 Caesarian sections were done in our hospital and 21 relaparotomies were performed. Out of the 21 relaparotomies, 13 were referred from nearby smaller hospital and 8 had C sections performed in our hospital. The total incidence of relaparotomies was 3.6% and incidence among the sections conducted in our hospital alone was 1.4%.

Though in general, most of the women elected to have a Caesarian section delivery rather than normal vaginal delivery, 19 of the patients on whom the relaparotomy was conducted had an emergency C- section. Most of the women were in the age group of 20-35 years with 1 case being 38 and most of them were multiparous except 3 for whom this was the first parity. Out of the 18 multiparous women, 11 of them had a previous caesarian section in at least 1 pregnancy (Table 1).

**Table 1: Indications for caesarean.**

Indications	Number	Percentage
Earlier CS	11	52.4%
Obstructed labour	2	9.5%
Prolonged labour	5	23.8%
Placenta previa	3	14.3%
Hypertension	5	23.8%
Fetal distress	8	38.1%

Atonic post-partum hemorrhage was the most common indication for relaparotomy with 9 patients (42.9%). 4 (19.1%) patients had traumatic postpartum hemorrhage with 3 (14%) with rectus sheath hematoma (Table 2).

**Table 2: Indications of relaparotomy.**

Indications	Number	Percentage
Atonic PPH	9	42.9%
Traumatic PPH	4	19.1%
Rectus sheath hematoma	3	14.3%
Burst abdomen	1	4.8%
Peritonitis	1	4.8%
Infection	2	9.5%
Adhesions	1	4.8%
Death	2	9.5%

Most of the surgeries took place within the first 24 hours of the primary surgery, with only one case being after 72 hours.

**Table 3: Time interval between the primary surgery and relaparotomy.**

Time interval	Number	Percentage
<24 hours	17	80.9%
24-72 hours	3	14.3%
>72 hours	1	4.8%

There were 2 (9.5%) maternal deaths as a result of complications.

## DISCUSSION

Caesarean section is a major abdominal operation with high chances of complications to the mother including hemorrhage, infection and injury to other organs. Post caesarian complications are many times associated with

high rate of morbidity and mortality. We had a death rate of 9.5% among the women who went in for relaparotomy.

The total incidence of relaparotomy among the patients was 3.6% with 1.4% from our hospital among the caesarian section women. This incidence was pretty high which was in accordance to studies such as Ragaab et al, who reported an incidence of 1.04%.<sup>1</sup> Most of the other studies showed an incidence of less than 1%. In a study by Levin et al, the rate of relaparotomy was 0.2% while in another study by Shiri Shinar et al it was 0.4%.<sup>9,10</sup> This was even lesser in a study by Gedikbasi with 0.12%.<sup>11</sup> In a study in India, the incidence was 0.33%.<sup>12</sup>

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 was similar to another study by Ahmed Khan et al, the age group was also the same, while in a study by Biswas et al, the mean age of the patients was 25 years with the range being 15 to 35 years.<sup>7,13</sup>

85.7% of the women were multiparous, some with a parity of above 3. Only 3 women were pregnant for the first time. 90.5% of the women who had undergone relaparotomy had an emergency C-section. Only 2 of them had elective CS. Our study was in concordance with a study by Sean et al, who reported an incidence of 95.5% of the women who underwent CS requiring relaparotomy.

Seal et al reported that, of these 66 cases requiring relaparotomy following cesarean delivery, 63 (95.5%) had an emergency caesarian delivery.<sup>6</sup>

The main indication for caesarian section was an earlier CS (52.4%). Fetal distress (38.1%), prolonged labour (23.8%) and hypertension (23.8%) were other risk factors. In a similar study by Ahmed Khan et al, failure to progress to labour was the most common risk factor accounting for 29.6% of the cases. Other causes were fetal distress (22.2%), previous CS (22.2%) and placenta previa (14.8%). In another study by Biswas et al, the commonest indication of CS was prolonged labour and fetal distress (40%). In a study in Ghana, the commonest indication of CS was cephalo-pelvic disproportion and obstructive labour.<sup>14</sup> In accordance to our study was a study by Rather et al, who also reported earlier CS to be the major risk factor for a CS (30.88%) followed by fetal distress (17.64%).

Atonic post-partum hemorrhage was the most common indication for relaparotomy in our study followed by traumatic PPH and rectal sheath hematoma. In the study by Rather et al, parietal wall hematoma was the commonest finding, with Atonic PPH being only the second most common case. Sepsis was another important cause for relaparotomy, while we didn't find any case of sepsis during our study period. In that study the most

common risk factors for sepsis were obesity and ruptured membranes.<sup>15</sup>

There were 2 deaths in our study which accounted for about 9.5% of the cases after relaparotomy, which was very high. In other studies also, the incidences of deaths were below 15%.<sup>11,13,15</sup>

## CONCLUSION

Caesarian section is one of the 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 a relaparotomy, the patients treated immediately and monitored carefully.

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