



RELAPAROTOMY AFTER CAESAREAN SECTION AT A TERTIARY CARE HOSPITAL IN SOUTH INDIA

Obstetrics & Gynaecology

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ABSTRACT

Background: Relaparotomy is a rare complication after a primary surgery associated with increased morbidity and mortality. This study is to establish the incidence of post caesarean laparotomy and analyse the indications, management, risk factors and outcome of relaparotomy.

Methods: This is a retrospective observational study in a tertiary care centre in south India from June 2019 to May 2020.

Result: There were a total of 6249 cases of caesarean section done in our institution during the study period. 33 cases of relaparotomy were identified accounting for 0.5% of the total. Majority of cases, 28 (84.8%) followed emergency surgery. The most common indication for primary surgery was fetal distress 8 cases (24.2%). Relaparotomy was done within 48 hours after caesarean section 17 cases (51.5%). Majority of patients required relaparotomy in view of hemorrhage of which intraperitoneal hemorrhage ranked first 22 cases (66.6%) followed by atonic postpartum hemorrhage 5 cases (15.1%). Hysterectomy was needed in 12 cases (36.3%). Most of these patients, 14 cases (42.4%) required ventilatory support in the postoperative period. There were 3 cases of maternal death (9.09%). 4 cases (12.1%) developed multiorgan failure. 3 cases (9%) had disseminated intravascular coagulation.

Conclusion: Decision for relaparotomy after primary surgery is a real challenge. Outcome of relaparotomy is influenced by the indications of relaparotomy, postoperative condition of the patient, comorbid illness etc. Assuring meticulous hemostasis before closure of abdomen and maintaining strict asepsis during surgery will definitely reduce the incidence of relaparotomy.

KEYWORDS

Relaparotomy, Haemorrhage, Sepsis.

1. INTRODUCTION

Most common obstetric surgery carried out in daily practice is cesarean section. The frequency of cesarean section is persistently increasing throughout the world due to many factors like pregnancy after 35 years, maternal request, obesity, diabetes, practice of labour induction etc. In our institution the average rate of cesarean section during our study period was 55%. Relaparotomy is one of the rare but important complication in postoperative period associated with increased morbidity and mortality. Relaparotomy refers to laparotomy performed within 60 days of primary surgery.

2. AIM

The aim of the study is to establish the incidence of post caesarean laparotomy and analyse the indications, management, risk factors and outcome of relaparotomy.

3. METHODS & MATERIALS

This is a retrospective study conducted in the department of obstetrics and gynaecology in Government Theni medical college hospital, Theni, Tamil Nadu, South India from June 2019 to May 2020.

Selection criteria include all cases who underwent relaparotomy after cesarean section during study period were included in the study. Total number of cesarean deliveries were 6249 and on reviewing records, 33 cases of relaparotomy were identified giving the incidence of 0.5%. In 5 cases (15.2%), the primary surgery was elective, while in majority of cases 28 (84.8%) they followed emergency primary surgery (Table-1)

Table 1: Status of surgery

S.no	Status of surgery	No. of patients	Percentage
1.	Elective	5	15.2%
2.	Emergency	28	84.8%

Majority of cases 24 (72.7%) had undergone primary surgery elsewhere and referred to our hospital for expert management and only 9 (27.2%) had primary surgery in our hospital itself (Table-2).

Table 2: Status of referral

S.no	Status of referral	No. of patients	Percentage
1.	Referred from elsewhere	24	72.7%
2.	Intramural	9	27.3%

Most common indication for relaparotomy was hemorrhage seen in 30 patients (90.9%) which presented in the form of intraperitoneal hemorrhage in 22 cases (66.6%), postpartum hemorrhage in 5 cases (15.11%) and rectus sheath hematoma in 3 cases (9.09%). Second common indication for relaparotomy was pelvic infection in 3 cases (9.09%) (Table-3)

Table 3: Indications for laparotomy

S.no	Indication for laparotomy	No. of patients	Percentage
1.	HEMORRHAGE	30	90.9%
	(a) Intraperitoneal hemorrhage	22	66.6%
	(b) Postpartum hemorrhage	5	15.5%
	(c) Parietal hematoma	3	9.09%
2.	PELVIC INFECTION	3	9.09%

Relaparotomy was done in 48 hours in 27 cases (81.9%). 2 cases (6.1%) underwent relaparotomy within a week and 4 cases (12%) in 8 to 14 days (Table-4)

Table 4: Time interval between primary surgery and relaparotomy.

S.no	Duration after primary surgery	No. of patients	Percentage
1.	Less than 48 hours	27	81.9%
2.	Less than 1 week	2	6.1%
3.	Greater than 1 week	4	12%

The main indications for the primary cesarean section in the study period were presumed fetal distress in 8 patients (24.2%) followed by nonprogression of labour in 5 cases (19%), preeclampsia and its complication in 3 cases (9.09%). 4 cases (12.1%) had antepartum hemorrhage, placenta previa and abruptio placenta each 2 cases. Repeat cesarean section was the primary indication in 3 cases (12.1%). 2 cases had undergone cesarean hysterectomy in the primary surgery (Table-5).

Table 5: Indications of primary surgery

S. no.	Indications of primary surgery	Number of cases	Percentage
1.	Fetal distress	8	24.2%
2.	Nonprogression of labour	5	15.1%
3.	Failed induction	5	15.1%
4.	Obstructed labour	4	12.1%

5.	Preeclampsia and its complications	3	9.09%
6.	Antepartum hemorrhage	4	12.1%
7.	Repeat cesarean section	3	9.09%

The cases were also analysed for the procedure performed during relaparotomy. The main surgical procedure done during relaparotomy was hysterectomy in 13 cases (39.3%). This was done alone in 11 cases (33.3%) and in combination with ligation of anterior division of internal iliac artery in 2 cases (6.1%). Other procedures were hemoperitoneum drainage followed by religation of vault done in 2 cases (6.1%). Exploration, evacuation of parietal hematoma with ligation of bleeding vessel was done in 4 cases (12.1%). Drainage of broad ligament hematoma in 6 cases (18.2%). Bladder rent repair done in 1 case (3.03%). Hemoperitoneum drainage followed by ligation of bleeding vessels in 3 cases (9.1%). Combination of procedures were done in many cases (Table-6)

Table 6: Procedure during relaparotomy

S.no	Procedure done during relaparotomy	No. of patients	Percentage
1.	Hysterectomy alone	11	33.3%
2.	Hysterectomy combined with ligation of anterior division of internal iliac artery	2	6.1%
3.	Drainage of hemoperitoneum and religation of vaginal vault.	2	6.1%
4.	Exploration, evacuation and ligation of bleeding vessel in parietal hematoma	4	12.1%
5.	Drainage of broad ligament hematoma	6	18.2%
6.	Hemoperitoneum drainage with ligation of bleeding vessel	3	9.09%
7.	Bladder rent repair	1	3.03%
8.	Drainage of abscess and peritoneal lavage	3	9.09%

All cases of relaparotomy were admitted in maternal intensive care unit. Complications included massive blood transfusion in 14 cases (42.4%), disseminated intravascular coagulation in 10 cases (30.3%), febrile complication and sepsis in 9 cases (27.4%), acute renal failure in 4 cases (12.1%), acute respiratory distress syndrome in 1 case (3.03%) and maternal mortality in 4 cases (12.1%). Multiple complications occurred in same patients (Table-7)

Table 7: Complications in relaparotomy

S.no	Complications	No. of patients	Percentage
1.	Massive transfusion	14	42.4%
2.	Disseminated intravascular coagulation	10	30.3%
3.	Febrile complication with sepsis	9	27.2%
4.	Acute renal failure	4	12.1%
5.	Acute respiratory distress syndrome	1	3.03%
6.	Maternal mortality	4	12.1%

4.RESULTS

There were a total of 6249 cases of caesarean section done in our institution during the study period. 33 cases of relaparotomy were identified accounting for 0.5% of the total. Majority of cases, 28 (84.8%) followed emergency surgery. The most common indication for primary surgery was fetal distress 8 cases (24.2%). Relaparotomy was done within 48 hours after caesarean section in 17 cases (51.5%). Majority of patients required relaparotomy in view of hemorrhage of which intraperitoneal hemorrhage ranked first 22 cases (66.6%) followed by atonic postpartum hemorrhage 5 cases (15.1%). Hysterectomy was needed in 12 cases (36.3%). Most of these patients, 14 cases (42.4%) required ventilatory support in the postoperative period. 4 cases (12.1%) developed multiorgan failure. 3 cases (9%) had disseminated intravascular coagulation. There were 4 cases of maternal death (12.1%).

5.DISCUSSION

In current study, it was difficult to estimate the rate of relaparotomy in our institute. 72.7% cases in our study had primary surgery elsewhere for which we do not have real estimate. Only 9 cases were intramural giving rate of 0.1% which is consistent with previous reports. One study from Egypt by Ahmed Raagab et al shows a high rate of 1.04%¹. Our results are consistent with studies by Seal et al and Levin et al^(2,3).

In our study among 33 cases requiring relaparotomy only 5 cases (15.1%) had an elective primary surgery while relaparotomy was done following an emergency primary surgery in majority 28 (84.8%) of cases. This correlates with the study by Seal et al where 95.5% cases followed emergency cesarean section².

The principle indication of relaparotomy after caesarean section in our study was hemorrhage in 30 patients (90.9%) manifesting as either intraperitoneal hemorrhage 22 cases (66.6%), postpartum hemorrhage 5 cases (15.1%) and rectus sheath hematoma in 3 cases (9.01%). Second common indication was pelvic infection in 3 cases (9.09%).

Similar observations were seen in other studies too. In a study by Srivastava et al, hemorrhage, hematoma and postpartum hemorrhage were the most common indications for relaparotomy in 9 cases (63.15%)⁴. In a study by Sak et al bleeding and hematoma (70.8%) were the most common indications of relaparotomy followed by postpartum hemorrhage (10.6%) and abscess (8.8%)⁵. Study by Levin et al showed major indications of relaparotomy to be intraabdominal bleeding (50%) followed by uncontrolled postpartum hemorrhage (35.7%), infection (10.7%) and abdominal wall bleeding (3.6%)³.

Study by Ahamedkhan N B et al showed main cause for relaparotomy to be intraperitoneal hemorrhage (44.44%) followed by postpartum hemorrhage (33.33%), rectus sheath hematoma (7.4%), broad ligament hematoma (7.4%) which closely correlates with our study⁶. In a study by Seal SL et al postpartum hemorrhage (42.4%) and rectus sheath hematoma (27.3%) were leading cause of relaparotomy⁷.

The main surgical procedure performed during relaparotomy in current study was hysterectomy alone in 13 cases (39.3%) and combined with ligation of anterior division of internal iliac artery in 2 cases (6.1%). In a study by Biswas SP et al major procedure done during relaparotomy was hysterectomy (38.18%)⁷. In a study by Ahamedkhan N B (77.78%) of patients required hysterectomy⁶.

Emergency surgery was a major risk factor in the cases needing relaparotomy in present study as also in other studies (84.8%). In a study by Biswas et al 70.9% and another study by Ahamedkhan N B et al 85.19% patients were operated for emergency indications primarily^(7,6).

Bleeding can occur from hypogastric, epigastric, uterine arteries or even uterine incisions. It is essential to achieve proper hemostasis to ensure a safe and successful surgery. It is also important to be careful about bleeding during transverse cutting and suturing of lateral extensions of rectus sheath. Bleeding points on the under surface of the rectus sheath should always be checked and secured to prevent rectus sheath hematoma⁽⁷⁾. Sometimes bleeding can be present along the uterine incisions especially at uterine angles due to loose knot or loose sutures. Proper haemostasis during repair of uterine incisions should be ensured. A careful surgical approach keeping in mind these practices would help to reduce incidence of relaparotomy due to hemorrhage.

There is a wide variety of maternal complication reported in different studies. In the current study most common complication was massive blood transfusion (42.4%) followed by febrile complications with sepsis (27.2%). This correlates with the study by Reham et al⁸. 4 maternal deaths were reported in our study 12.1%. A study from Bangladesh by Khan et al showed a case fatality rate of 18.5%, while a study by Reham et al showed 25%^(6,8). Two studies from India showed a rate of 12.76% and 15.38%^(9,10), while no death was encountered in a study by Lurie et al⁽¹¹⁾. This wide variation is due to variable availability of safety procedures, adequate blood components, skilled personals, facilities for rapid transfer of complicated cases.

6.CONCLUSION

In this study, the incidence of relaparotomy after caesarean section was 0.5%. The most common indications for relaparotomy following caesarean section were fetal distress, non progression of labour, failed induction. The main indications for relaparotomy with hysterectomy were intraperitoneal hemorrhage and postpartum hemorrhage. In this study, relaparotomy after caesarean section was associated with case fatality rate of 12.1%.

Decision for relaparotomy after primary surgery is a real challenge. Outcome of relaparotomy is influenced by the indications of

relaparotomy, postoperative condition of the patient, comorbid illness etc. Assuring meticulous hemostasis before closure of abdomen and maintaining strict asepsis during surgery will definitely reduce the incidence of relaparotomy.

Recommendations to decrease the incidence and complications of relaparotomy are to decrease the rate of caesarean section, strict postoperative monitoring of caesarean section patients for early detection of complications with clear guidelines to manage them. Early diagnosis and timely referral to tertiary health care, proper precautions to ensure haemostasis and asepsis, taking calculative decision before embarking on relaparotomy can go a long way to decrease the incidence of relaparotomy.

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