

Indications and Risk Factors of Relaparotomy in Gynae and Obstetrics Cases in DMCH

Akther S¹, Hye RA², Paul A³, Chowdhury M⁴

¹Dr. Sharmin Akther, Medical Officer, Department of Obstetrics and Gynaecology, Upazilla Health Complex, Gafforgaon, Bangladesh

²Dr. Rehana Arjuman Hye, Assistant Professor, Department of Obstetrics and Gynaecology, Universal Medical College and Hospital, Dhaka, Bangladesh

³Dr. Annesha Paul, Registrar, Department of Obstetrics and Gynaecology, BRB Hospital, Dhaka, Bangladesh

³Dr. Mashrafe Chowdhury, Registrar, Department of Obstetrics and Gynaecology, US-Bangla Medical College and Hospital, Dhaka, Bangladesh

Corresponding Author: Dr. Sharmin Akther, Medical Officer, Department of Obstetrics and Gynaecology, Upazilla Health Complex, Gafforgaon, Bangladesh

Abstract

Introduction: Relaparotomy is a laparotomy performed within 60 days of the initial surgery. Relaparotomy is a major problem for surgeons and patients as they experience second surgery within a short time period. It challenges the physical and mental endurance of patients.

Aim of the study: The aim of the study was to find out the indications and risk factors of relaparotomy in gynae and obstetrics cases in DMCH.

Methods: A descriptive cross-sectional study was conducted on 30 patients who met the inclusion criteria and were admitted to the Department of Gynecology and Obstetrics, Dhaka Medical College Hospital during the period from July 2017 to December 2017. A purposive sampling technique was used and data were collected through medical records and interviewing the patients. Data were analyzed using SPSS (Statistical Package for Social Science) version 21. Ethical approval was taken by the ethical committee of the DMCH and written consent was taken from the concerned authority and the patients.

Results: The incidence of relaparotomy in Dhaka Medical College & Hospital was 0.95%. Most of the (56.67%) patients were in between 20- 30 years, and most of the (80%) patients were housewives. Most of the patients were from rural areas (50%). Most of the primary cases (64%) were due to obstetrical causes. The commonest obstetrical indication during primary surgery was prolonged labor with fetal distress (13.33%), obstructive labor (13.33%), and APH due to the placenta (10%). The remaining cases (36.67%) were due to some other gynecological causes. Most of the relaparotomy was done within 1-7 days of their primary surgery (30%). Most of the (36.67%) patients needed relaparotomy due to some gynecological causes. Among the other indications, PPH was the leading cause of relaparotomy (30%). The procedures undertaken during of relaparotomy were subtotal hysterectomy (30%), bilateral uterine artery ligation (6.67%), restoring of uterine incision (10%), drainage of blood clot from the undersurface of rectus sheath (3.33%) and peritoneal cavity (6.67%).

Conclusion: Relaparotomy is a life-saving operation after an unsuccessful primary laparotomy. However, serious complications might arise from a cesarean birth, demanding extra surgery for patients. This includes performing routine cesarean sections as well as dealing with any difficulties that emerge during or after the procedure.

Keywords: Relaparotomy, Gynecological, Obstetrics, Indications, Surgery.

Date of Submission: 2-02-2022

Date of Acceptance: 26-03-2022

I. Introduction

Relaparotomy is laparotomy performed within 60 days of the first surgery for the original disease.¹ It is done within 21 days following the main operation. A planned, recurrent, and multi-phased laparotomy to complete the main surgery is not termed a relaparotomy.² Relaparotomy is used to treat post-operative problems, preserve homeostasis, prevent intra-abdominal infection, and delay curative surgery. It is usually performed when the patient is in shock and cannot tolerate anesthesia or repeated surgery.³ This procedure is used in gynecology and obstetrics to control hemostasis, manage infection and repair burst abdomen. It is a lifesaving surgery. Incidence of relaparotomy ranges from 0.5-15% in several study reports.^{4,5} Relaparotomy is associated with previous repeated CS. After CS births, most researchers observed a 0.5–0.7% relaparotomy rate.⁶ Internal hemorrhage, PPH, retained foreign body, incorrect diagnosis during first laparotomy, intra-abdominal pus and urine

accumulation, rectus sheath hematoma, and burst abdomen are all indications for relaparotomy.^{7,8,9} A study in India (2017-2019) shown that 146 (2.58%) patients experienced relaparotomy out of a total of 5684 laparotomies. A dirty wound in the initial laparotomy had the highest conversion rate to relaparotomy (3.21%). The most common reason for relaparotomy (39.52%) was a ruptured abdomen, followed by leakage from a previously sutured location (24.65%), septic peritonitis (6.85%), postoperative hemorrhage (4.79%), intestinal obstruction (2.74%).¹⁰ A research conducted in Lucknow, India has shown that among 19 cases of relaparotomy documented seventeen patients (89.5%) underwent emergency cesarean section, whereas two (10.5%) underwent elective abdominal hysterectomy due to fibroid uterus. The most prevalent reason for relaparotomy was bleeding, which occurred in 12 (63.15%) patients as postpartum hemorrhage in three (15.7%) patients, rectus sheath hematoma in three (15.7%) patients or intraperitoneal hemorrhage in six (31.5%) individuals. The second most prevalent reason for relaparotomy was a ruptured abdomen, which occurred in six (31.5%) patients. In 1 (5.26%) patient, relaparotomy was performed due to bowel damage.¹¹ A study of relaparotomy from January 2012 to December 2014 in a tertiary care institution included 38 patients, 29 obstetric (76.3%) and nine (23.7%) gynecological. Obstetrical indications were 0.55% and gynecological indications were 0.24%. The major causes were suspected intra-abdominal hemorrhage (63.2%), uncontrolled postpartum hemorrhage (23.7%), and suspected abdominal wall bleeding (13.15%). In gynecology, evacuation and curettage were major risks (55.5%). Previous CS 28/29 (96.5%) was in obstetric patient's risk factor. Multiple CS occurred in 13 (46.4%) patients, placenta previa in five (17.85%), and antepartum hemorrhage in four (14.28%). 92.1 % of patients had relaparotomy within 24 hours after the initial surgery.¹² Doctors from all around the country come to Dhaka Medical College Hospital for dealing with obstetric crises. To determine the indications and risk factors for relaparotomy in DMCH the study was conducted.

2. Objectives

General Objective:

- To find out the occurrence of relaparotomy in gynae and obstetrics cases in DMCH.

Specific Objectives:

- To find out indications of relaparotomy in gynae and obstetric cases in DMCH.
- To find out risk factors associated with relaparotomy in gynae and obstetric cases in DMCH.

3. Methods

Between July and December 2017, a descriptive cross-sectional study was conducted on 30 patients who met the inclusion criteria and were admitted to the Department of Gynecology and Obstetrics of Dhaka Medical College Hospital. The technique of purposive sampling was adopted. Data were gathered through medical records and open-ended questionnaire interviews with patients. The record book, datasheet, laboratory examinations, clinical examinations, and operation notes were used to collect data. SPSS (Statistical Package for the Social Sciences) version 21 was used to examine the data. Data were analyzed and presented in tabular format. The DMCH's ethical committee granted approval and the concerned authority and patients provided written consent. The study was conducted in accordance with the guidelines established by the British Medical Research Council. A cross-check was undertaken after each interview to identify and collect any missing data. The guide reviewed completed data sheets regularly and ensured that they were entered into the SPSS program correctly.

Inclusion criteria:

- All the relaparotomy cases of gynae and obstetrics were done within 60 days of primary surgery.
- Cases from DMCH or referred from another center for the sake of complications of the primary surgery.
- Patients were willing to participate in the study.

Exclusion criteria:

- Relaparotomies were done after 60 days of the primary surgery for completeness and the indication for primary surgery.
- Non-obstetric and gynecological cases of the primary case.
- Patients who did not give their consent.

4. Results

Table 1: Socio-demographic characteristics of the patients (n=30)

Patient characteristic	Frequency	Percentage (%)
Age in years		
20-30	17	56.67
31-40	5	16.67
41-50	5	16.67
51-60	2	06.67
61-70	1	03.33
>70	0	
Education		
No Education	15	50.00
Primary	12	40.00
Secondary	2	06.67
Higher Secondary	1	03.33
Occupation of the patient		
Housewife	24	80.00
Service	5	16.67
Day laborer	1	03.33
Others	0	00.00
Monthly income (Taka)		
5000-10000	4	13.33
10001-15000	18	75.00
15001- 20000	3	10.00
>200001	5	16.67
Residence of patients		
Urban	6	23.33
Urban Slum	9	27.67
Rural	15	50.00
Types of primary surgery		
Gynecological	10	36.33
Obstetrical	20	63.67

Table-1 has shown that most of the patients (seventeen, 56.67%) who have gone through relaparotomy were from the age group twenty-thirty. Age groups thirty-one to forty and forty-one to fifty belonged to five patients (16.67%) respectively. Two patients (6.67%) were from the age group fifty-one to sixty and one patient (3.33%) was from the age group sixty-one to seventy. Most of the patients among them (fifteen, 50%) had no education and twelve patients (40%) were primarily passed. The secondary and higher secondary was completed by two (6.67%) and one (3.33%) patient respectively. The majority of the patients were housewives (twenty-four, 80%) and five were service-holder (16.67%). One patient was a day laborer (3.33%). 75% of patients (eighteen) had a monthly income of 10001-15000 BDT and 16.67% (five) patients had above 20000 BDT. Four and three patients had a monthly income of BDT. 5000-10000 and 15001-20000 respectively. 50% (fifteen) of patients lived in rural areas where 27.67% (nine) patients lived in urban slums and 23.33% (six) patients lived in urban areas. The majority of the patients (twenty, 63.67%) had obstetrical primary surgery whereas ten patients (36.33%) had gone through gynecological primary surgery.

Table 2: Incidence of relaparotomy and Indication of primary surgery (n=30)

No. of Primary operation	No. of Relaparotomy	Percentage %
3180	30	0.95
Indication of primary surgery		
Indication	Frequency	Percentage %
Placental abruption	1	03.33
Postpartum atonia	2	06.67
Post-cesarean pregnancy (1CS before)	3	10.00
Repeat CS (> 2CS Before)	2	06.67
Obstructed labor	4	13.33

Prolonged labor with fetal distress	4	13.33
APH with placenta previa	3	10.00
Other gynecological indication	11	36.67

Among 3180 cases, thirty patients (0.95%) had relaparotomy. Before that, they had gone through primary laparotomy where eleven patients (36.67%) had done it due to other gynecological indications. Four patients from each obstructed labor and prolonged labor with distress (13.33%) had laparotomy as the primary indication. Three patients from each post-cesarean pregnancy and APH with placenta previa (10%) had primary surgery. Post-partum atonia and repeated CS were the indications for two patients (6.67%) in the case of laparotomy. Only one patient (3.33%) had to do primary surgery due to placental abruption.

Table 3: Time duration between primary surgery and relaparotomy (n=30)

Indication	Frequency	Percentage (%)
<12 hrs.	4	13.33
12-24 hrs.	4	13.33
1-7 days	9	30.00
>7-14 days	7	23.33
>14-30 days	4	13.33
> 30 days up to 6 weeks	2	06.66

Table-3 has indicated that the majority of patients (nine, 30%) had relaparotomy between one-seven days after the primary surgery, and seven patients (23.33%) had it seven-fourteen days after the laparotomy. Four patients had relaparotomy(13.33%) after less than 12 hours, between twelve to twenty-four hours, and between less than fourteen to thirty days respectively after the primary surgery. Two patients had (6.66%) relaparotomy between thirty days to six weeks.

Table 4: Indication of relaparotomy (n=30)

Indication	Frequency	Percentage (%)
PPH	15	30.00
Foreign body	1	03.33
Internal hemorrhage	2	06.67
Intestinal obstruction	0	00.00
Incorrect diagnosis during 1st time laparotomy	4	13.33
Rectus sheath hematoma	1	03.33
Intra-abdominal collection of pus and urine	2	06.66
Burst abdomen	1	03.33
Gynecological indication	1	03.33

The reasons behind relaparotomy after the primary surgery were several. Among them, fifteen patients (30%) had relaparotomy due to PPH whereas four patients (13.33%) had it due to incorrect diagnosis during laparotomy. Two patients (6.67%) due to internal hemorrhage and intra-abdominal collection of pus and urine had relaparotomy respectively. Foreign body, rectus sheath hematoma, burst abdomen, and gynecological indication were the indicators behind relaparotomy for one patient (3.33%) respectively.

Table 5: Procedures are undertaken during relaparotomy (n=30)

Indication	Frequency	Percentage (%)
Rectus sheath hematoma evacuation	1	03.33
Evacuation of hemoperitoneum	2	06.67
Subtotal hysterectomy	9	30.00
Bilateral uterine artery ligation	2	06.67
Resuturing of uterine incision	3	10.00
Removal of foreign body	1	03.33

Salpingectomy	2	06.67
Tension suture	2	06.67
Repair of burst abdomen	1	03.33
Repair of bladder injury	4	13.33
Ovarian cystectomy(post LSCS)	1	03.33

Table-5 had shown the procedures that had taken during relaparotomy where for nine patients (30%) subtotal hysterectomy was worked. Four patients (13.33%) had to repair their bladder injury during relaparotomy whereas three patients (10%) had resuturing of uterine incision. Two patients (6.67%) respectively had evacuation of hemoperitoneum, bilateral uterine artery ligation, salpingectomy, and tension sutures. Rectus sheath hematoma evacuation, removal of foreign body, repair of burst abdomen, and ovarian cystectomy (post-LSCS) had taken as procedures during relaparotomy for one patient (3.33%) respectively.

5. Discussion

The term "relaparotomy" refers to a laparotomy performed within 60 days of the initial surgery. Relaparotomy is a significant issue for surgeons and patients, as it involves a second surgery in a short period of time. The present study examined the incidence, indications, and risk factors of relaparotomy cases at Dhaka Medical College Hospital. Not only cesarean sections but also other surgical procedures performed in obstetric and gynecological practice were evaluated in this study. The present study shows that the majority of the patients (56.67%) belonged to the age group 20-30 whereas a study conducted in India (2019) shows that the incidence of relaparotomy was highest in the age group 31-40 which is not as same as the present study.¹³ 50% of patients had no schooling at all in this case and 60% of patients belong to income group <Rs.20000 BDT. A study by Thombarapu had shown that most of the patients (77.7%) were belong to the income group <Rs.20000 which is quite similar to this study.¹⁴ The study also shows 63.67% of primary surgery occurred due to obstetrical causes and 36.33% was for gynecological causes. The incidence of relaparotomy was 0.95% in this study whereas a study report in India has 2.58% of relaparotomy incidence.¹⁵ The most common indications of primary laparotomy were prolonged labor and fetal distress and obstructive labor (13.33%) in this study. In three cases, APH was caused by placenta previa (10%). Cesarean pregnancy occurs in 10% of instances, repeat cesarean pregnancy occurs in 6.67% of cases, and placental abruption occurs in 3.33% of cases. The remaining 11 cases (36.67%) were caused by different gynecological conditions. A study by Kumari (2018) showed that most of the primary surgeries occurred due to obstructive labor (32.14%, 28 cases) which is similar to this report.¹⁵ Majority of patients had gone through relaparotomy due to post-partum hemorrhage (PPH, 30%) in the present study which is consistent with research conducted by Rafique et al.¹⁶ and 56.36% in another conducted by Biswas.¹⁷ Additionally, hemorrhagic causes accounted for 6.67 percent of all cases, with internal hemorrhage accounting for 6.67 percent and rectus sheath hematoma accounting for 3.33 percent. The finding is comparable to that of Das et al., who discovered 18.18 percent rectus sheath hematoma and 4.17 percent internal hemorrhage in a study conducted by Saha et al.¹⁸ In a study in India the common cause of relaparotomy was burst abdomen (39.52%)¹⁹ and another study in India shown intraperitoneal hemorrhage (39.2%) as the commonest cause.²⁰ In the current study, 9 cases (30%) of the relaparotomy procedures were subtotal hysterectomy, whereas Alam et al observed 26.6% in their study. In the current study, bilateral uterine artery ligation was performed in two cases (6.67%), uterine incision resuturing in three cases (10%), blood clot drainage from the undersurface of the rectus sheath was performed in one case (3.33%), and peritoneal cavity drainage was performed in two cases (6.67%). This study's findings are comparable to those of Alam et al.²¹ Another study found that 70.8% of relaparotomy were caused by increased bleeding and haematoma.²² The present study reveals most of the relaparotomy (30%) have occurred within 1-7 days of the primary surgery where Shah (2019), found it the most (47.94%) 5-10 days within the primary surgery.²³ Another study of Kumari shown that the time interval between primary surgery and relaparotomy is the most within >8 hrs.-24 hrs.²⁴

6. Conclusion

The current study describes the patients who need relaparotomy and their associated problems in a tertiary care institution. While cesarean birth can be a life-saving procedure, major problems may occur following the procedure, necessitating additional surgery for the patients. Each obstetrician should be sufficiently qualified to execute not just routine cesarean sections but also to deal successfully with any complications that may arise during or following the procedure. All obstetricians must be proficient enough to execute not only routine cesarean sections but also to manage various surgical problems efficiently. Complicated CS and emergent gynecological disorders should be referred to more specialized centers.

Source of funding: Self

Conflict of interest: None declared

Approval: The study was approved by the ethical committee.

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Akhter S, et. al. "Indications and Risk Factors of Relaparotomy in Gynaecology and Obstetrics Cases in DMCH." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 22(3), 2023, pp.30-35.