

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20221943>

Original Research Article

Relaparotomy in obstetrics and gynecological surgeries: a retrospective study in a tertiary care hospital

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Received: 17 June 2022

Accepted: 06 July 2022

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ABSTRACT

Background: Relaparotomy is biggest dilemma to the surgeon as well as to the patient to undergo second surgery in a short span of time. It may be required due to post-operative complications as lifesaving procedure. Objectives of this study are to determine the risk factors, indications, management and outcome in obstetric and gynecological surgeries in a tertiary care hospital attached to Mysore Medical College and Research Institute (MMCRI), Mysore.

Methods: It is a retrospective observational study for the duration of 5 years from January 2016 to December 2020 in Cheluvamba Hospital attached to MMCRI, Mysore.

Results: Incidence of relaparotomy was 0.11%; 0.1% for obstetric indication and 0.06% for gynecological procedure most common indication for relaparotomy was atonic postpartum hemorrhage (PPH) (35%) followed by burst abdomen (26%), uterine scar dehiscence 13%. Time interval between primary and secondary surgery is <24 hours in 57% of cases mainly due to obstetric hemorrhage. About 74% of patients post relaparotomy were stable and 26% patients needed intensive care unit (ICU) admission. Out of 23 relaparotomy cases 4 patients died with mortality rate of 17% (all relaparotomies were related to obstetric causes) with zero mortality rate for relaparotomies done for gynecological case. The major cause of death was found to be multiorgan dysfunction syndrome (MODS).

Conclusions: Relaparotomy is lifesaving procedure; early recognition of complications, good primary surgery, good surgical techniques, meticulous hemostasis and strict asepsis can prevent relaparotomy.

Keywords: Relaparotomy, Obstetric and gynecological surgeries, Peripartum hysterectomy, Caesarean section, Burst abdomen

INTRODUCTION

Relaparotomy is a Greek word with 3 components; 're'-repeated, 'laparo'-stomach and 'tomies'- cut. If laparotomy is done within 60 days of primary surgery is called relaparotomy. If laparotomy is done which is plannable, repeated and multiphasic to complete the primary surgery; then it is not considered as relaparotomy.¹ Emergency operations are often associated with high-risk unlike elective surgeries. In some cases, conservative measures fail and need for reopening the abdomen to manage the complications of previous surgery, to maintain hemostasis and to save patients life. It is challenging decision for the surgeon and require good clinical

judgement hence this should be done by an experienced surgical team.

The majority of previous studies reported a incidence of relaparotomies ranging between 0.2-0.8%.²⁻⁵ Cesarean section is most commonly done obstetric surgery worldwide. The increased incidence of cesarean section attributed to increased medicolegal issues, changing obstetrical practices, electronic fetal monitoring and previous cesarean section. In spite of improving the health facility and safety of cesarian delivery, it is still a major operation associated with multiple risk and potential complications. A study conducted in Dhaka Medical College, Bangladesh reported mortality rate of 45% among

relaparotomies.⁶ Outcome of the relaparotomy depends on the keen monitoring, early diagnosis and prompt management of the post-operative complications. The purpose of this study is to determine the incidence, risk factors, management and outcome of the relaparotomies so that we can imply the knowledge in successive cases to reduce the chances of relaparotomy and related mortality.

METHODS

It is a retrospective observational study. All records of relaparotomies from January 2016 to December 2020 in a tertiary care hospital, Cheluvamba Hospital attached to Mysore Medical College and Research Institute (MMCRI), Mysore was retrieved. During the study period a total number of 21,684 obstetric and gynecological surgeries were performed.

Data were collected from operation theatre register, maternal death register, near miss register, medical record section and particular case record sheets.

Inclusion criteria

Laparotomies that were done within 60 days of primary surgery, patients who underwent primary surgery in the institution or outside and referred thereafter, and patients following any gynecological/obstetrical surgery which gave rise to complications were included.

Exclusion criteria

Relaparotomies that were done after 60 days of the primary surgery were excluded.

During 5 years study period, relaparotomy was required in 23 patients and incidence was found to be 0.11%. All obstetrics and gynecological relaparotomy cases are included in this study. Variables studied are the age, indications for primary surgery, procedure performed on reoperation, indication for relaparotomy, outcome and interval between primary surgery and relaparotomy to analyze the results of early and late reoperation decision.

Statistical package for the social sciences (SPSS) software was used to analyze data with respect to relevant clinical information.

RESULTS

During 5 years study period, 21,684 procedures were performed at Cheluvamba Hospital attached to MMCRI, Mysore, of them 23 patients underwent relaparotomy with an incidence of 0.11%. Most of the relaparotomies were done for primary obstetric surgery. For obstetric conditions out of 18,460 operations, 21 women required reoperation with an incidence of 0.1%. For gynecological indications, out of 3224 surgeries 2 patient underwent relaparotomy with an incidence of 0.06% (Table 1).

Table 1: Incidence in obstetrics and gynaecology surgeries.

Parameters	Number of cases	Number of relaparotomies	Percentage
Obstetric cases	18,460	21	0.1
Gynecological cases	3224	2	0.06
Total	21,684	23	0.11

The mean age of patients observed was 25 years (range 20-30 years). Relaparotomies were less common in gynecological surgeries compared to surgeries done for obstetric indications in present study as most of the obstetrical surgeries was done for emergency indication. Most common primary surgery done was cesarean section for emergency indications. Major indication for primary surgery was fetal distress accounting for 43.5% followed by previous cesarean section with threatened scar rupture which accounts for about 30%. Most of the complications requiring relaparotomies were due to obstetrical causes. Most common obstetrical cause was atonic postpartum hemorrhage (PPH) accounts for about 35%, followed by burst abdomen (26%) (Table 2). Most common gynecological complication requiring relaparotomy was burst abdomen.

Table 2: Indications for primary surgery and relaparotomies.

Indications of primary surgery	Number of patients (%)	Indication of relaparotomy	Number of patients (%)
Fetal distress	10 (43.5)	PPH (atonic)	8 (35)
Previous caesarean section with threatened scar rupture	7 (30)	Burst abdomen	6 (26)
Preeclampsia with unfavourable cervix	1 (4.3)	Uterine scar dehiscence with abdominal distension	3 (13)
Secondary arrest of descent and dilatation	1 (4.3)	Subrectal hematoma	2 (9)
Failed induction	1 (4.3)	Hemoperitoneum	2 (9)
Elective previous 2 caesarean section	1 (4.3)	Pelvic abscess	1 (4)
Post meusal bleed with atypical endometrial hyperplasia	1 (4.3)	Anuria with abdominal distension	1 (4)
Ovarian tumor	1 (4.3)		

Most women underwent relaparotomy within 24 hours of primary surgery (Figure 1).

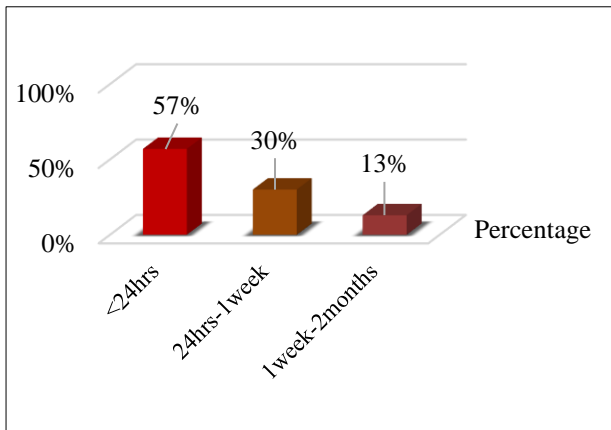


Figure 1: Time interval between primary & secondary surgery.

Procedure done for relaparotomy in 39% cases was subtotal hysterectomy followed by internal artery ligation and tension band wiring (Table 3). Among 23 cases most common intraoperative finding was uterine atony and PPH in 35% cases followed by rectus muscle dehiscence/ burst abdomen, uterine scar dehiscence in 13% cases (Table 4).

Table 3: Procedure done for primary surgery complication.

Procedure done	Number of cases	Percentage (%)
Subtotal hysterectomy with /without internal iliac artery ligation	With-05	39
	Without-4	
	Total-9	
B/L internal iliac artery ligation	3	13
Tension band sutures	3	13
Tension band sutures with uterine repair	3	13
Rectus sheath hematoma evacuation	2	9
B/L uterine artery ligation	1	4.3
Pelvic abscess drainage	1	4.3
Neoureterocystostomy with B/L ureteric stenting	1	4.3

About 74% of patients post relaparotomy were stable and 26% patients needed ICU admission, transfusion of blood and blood products and ventilator support. Out of 23 relaparotomy cases 4 patients died with mortality rate of 17% (all relaparotomies were related to obstetric causes) with zero mortality rate for gynecological relaparotomies (Figure 2). The major cause of death was found to be multiorgan dysfunction syndrome (MODS).

Table 4: Intraoperative findings of relaparotomy.

Intraoperative findings	Number	Percentage (%)
Uterine atony	8	35
Burst abdomen	3	13
Burst abdomen intraperitoneal collection	3	13
Uterine scar dehiscence with intraperitoneal collection	3	13
Subrectal hematoma	2	9
Ureteric injury	1	4.3
Uterine angle hematoma with intraperitonea collection	1	4.3
Pelvic abscess	1	4.3
Broad ligament hematoma	1	4.3

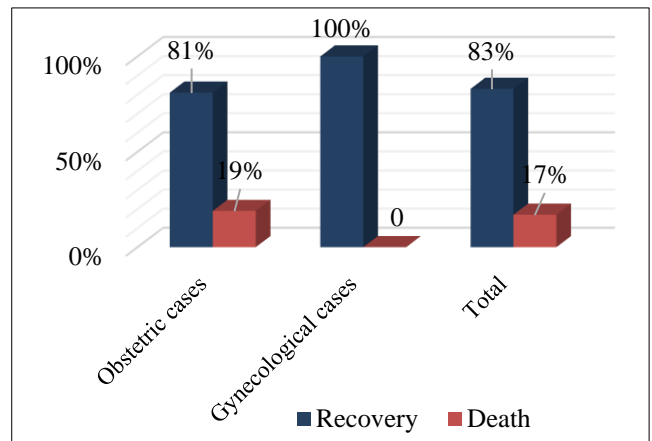


Figure 2: Outcome of relaparotomy.

DISCUSSION

Complications are usually inevitable in surgery unless inexperienced/hasty/overconfident surgeon or complicated case with risk factors patient may need relaparotomy as lifesaving procedure. In this study, we assessed cases of relaparotomy after not only cesarean section, but many surgical procedures in our obstetrics and gynecology practice both elective as well as emergency cases done over a period of 5 years in Cheluvamba Hospital attached to MMCRI, Mysore.

The incidence of relaparotomy in our study was 0.11%. The majority of previous studies reported a rate of relaparotomy ranging between 0.2-0.8%.³⁻⁶ Majority of relaparotomies were done for obstetric cases than gynecological cases. The major indication for primary surgery in our study was fetal distress which accounts for 43.5% followed by previous cesarean with threatened scar rupture. Whereas study by Thobarapu et al indication for primary surgery in study population was repeated cesarean section accounts for 50% followed by fetal distress (25%).⁷

The most common indication for re-laparotomy in our study was hemorrhage (53%) of which atonic PPH accounts for 35% followed by sub rectal hematoma (9%) and hemoperitoneum (9%) which is comparable with study conducted by Bijjaragi et al where the incidence of bleeding into the abdomen was 10%, PPH in 30% cases and rectus sheath hematoma in 20% cases.⁸ In study by Seal et al post-partum hemorrhage in 42.4% cases and rectus sheath hematoma in 27.3% cases were the leading causes for relaparotomy.⁴ It is essential to ensure hemostasis before closure, if any difficulty in securing bleeding and achieving hemostasis better to take help of senior surgeon and also to check under surface of rectus sheath that may be missed and secure if any to prevent hematoma. Before relaparotomy the surgeon should assess the patient critically and justifies the indication of repeat operation, proper counselling of attenders about its complications in terms of morbidity and mortality, pros and cons of repeat surgery and take written consent.

Injury to adjacent abdominal organ can increase morbidity and mortality. In our study 1 patient had ureteric injury which needs neoureterocystostomy with bilateral ureteric stenting. Therefore, surgeon should be careful not to damage other abdominal organs during surgery. In cases where anatomy is distorted and difficult to find plane better to take help from experienced surgeon rather than doing surgery alone to reduce complication which are preventable.

In our study time interval between primary and secondary surgery is <24 hours in 57% of cases mainly due to obstetric hemorrhage. Ahmed et al in their study the cases requiring relaparotomy within 24 hours were due to hemorrhagic complications.⁵ This substantiates the need for strict postoperative vigilance to pick up any hemodynamic instability at the earliest.

The mortality rate in our study was 17% which similar to Khan et al (18.5%).⁹ Mortality was mainly due to MODS and DIC as this study was done retrospectively.

CONCLUSION

Relaparotomy should be lifesaving procedure to tackle the complications of primary surgery and to prevent the mortality. Atonic PPH is the most common indication for relaparotomy followed by burst abdomen in our study. As prevention is better than cure, precautions should be taken during primary surgery like achieve good hemostasis, intraoperative identification of injuries to adjacent organs if any, proper knowledge of anatomy, complicated primary surgery to be done by experienced surgeon, surgeon should not be hasty/overconfident to avoid complications.

Early recognition and management of post-operative complications, with vigilant ICU monitoring and post-operative care can decrease the mortality rate.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Unalp HR, Kamer E, Kar H, Bal A, Peskersoy M, Ali Onal M. Urgent abdominal re-explorations. *World J Emerg Surg.* 2006;1(1):1-6.
2. Levin I, Rapaport AS, Satzer L, Maslovitz S, Lessing JB, Almog B. Risk factors for relaparotomy after cesarean delivery. *Int J Gynecol Obstet.* 2012;119(2):163-5.
3. Seal SL, Kamilya G, Bhattacharyya SK, Mukherji J, Bhattacharyya AR. Relaparotomy after cesarean delivery: experience from an Indian teaching hospital. *J Obstet Gynaecol Res.* 2007;33(6):804-9.
4. Ahmed M, Pandya ST, Supraneni T. Return to the operation theatre: an analysis of repeat surgeries in operative obstetrics. *J Obstet Gynaecol India.* 2016;66(1):117-21.
5. Seffah JD. Re-laparotomy after Cesarean section. *Int J Gynecol Obstet.* 2005;88(3):253-7.
6. Gedikbasi A, Akyol A, Asar E, Bingol B, Uncu R, Sargin A, Ceylan Y. Re-laparotomy after cesarean section: operative complications in surgical delivery. *Arch Gynaecol Obstet.* 2008;278(5):419-25.
7. Thombarapu U, Veeravalli S, Koneru GR, Kodey PD. Relaparotomies after obstetric surgeries at a tertiary care hospital, NRI General Hospital, Chinnakani, Guntur. *Indian J Obstet Gynaecol Res.* 2019;6(4):448-51.
8. Bijjaragi B, Amulya MN. Re-laparotomy in OBG: a clinical study. *Int J Reprod Contracept Obstet Gynaecol.* 2018;7(4):1367-72.
9. Khan NB, Kolasseri SS. Relaparotomy after caesarean section: an analysis of the risk factors, indications and outcome. *Int J Reprod Contracept Obstet Gynaecol.* 2015;4(3):575-81.

Cite this article as: Sunanda N, Aisha T. Relaparotomy in obstetrics and gynecological surgeries: a retrospective study in a tertiary care hospital. *Int J Reprod Contracept Obstet Gynecol* 2022;11:2232-5.