Relaparotomies After Obstetric Surgeries at a Tertiary Care Hospital

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Abstract:

Background: Relaparotomies are dangerous and complicated, but necessary for obstetric postoperative issues. However, few research has addressed this issue, especially in low-resource environments. Understanding relaparotomies' frequency, reasons, and effects can enhance obstetric treatment and outcomes. This study will examine Katihar Medical College & Hospital relaparotomies to fill this information gap by determining their prevalence and factors may have caused them.

Methods: Analyses of 90 relaparotomies from 2020 to 2023 were retrospective. SPSS 25 was used for statistical analysis, recommendations, results, and demographics. Descriptive statistics summarised logistic regression and chi-square tests' findings.

Results: Haemorrhage (38.9%) and infection (27.8%) caused relaparotomy most often. Case fatality was 8.9% and morbidity 55.6%. Complications occurred 44.4% of the time. With 22.2% of patients requiring critical care, hospital stays averaged 12.7 days. Statistics indicate a substantial association between bleeding and the need for relaparotomy (p < 0.05).

Conclusion: Relaparotomies after obstetric procedures have substantial morbidity and complications, demonstrating their importance. When bleeding was found as a major relaparotomy indication, diligent observation and prompt intervention were highlighted. The study's retrospective design and limited sample size limit its information on relaparotomies in obstetric practice, yet it provides useful insights.

Introduction

Background Information on Obstetric Surgeries and Relaparatomies

Caesarean sections and other birth interventions are often used to protect the mother and child. These operations rarely cause major injury, but they have hazards [1]. When infection, organ damage, or bleeding occur during surgery, another surgery may be needed. A relaparotomy fixes issues from the original operation and this surgery reopens the abdomen. Relaparotomies are dangerous despite their value in preventing fatal consequences [2]. These factors increase sickness and death risk, hospital stays, healthcare costs, and patient emotional and physical stress [3]. Relaparotomy decisions are time-sensitive, so it's important to understand the procedure's indications, outcomes, and hazards.

Importance of the Study

Despite its importance in post-obstetric care, relaparotomies are rarely studied in resource-limited settings like many tertiary care centres in underdeveloped nations. To overcome this knowledge vacuum, Katihar Medical College & Hospital, a big tertiary care institution in Bihar, India, will collect substantial data on relaparotomies after obstetric procedures. Understand relaparatomy patterns and effects in this situation for various reasons. First, it improves patient monitoring and surgery by detecting typical difficulties early. Secondly, it improves clinical practice by showing how effectively postoperative procedures function. Finally, the study can influence motherhood healthcare financing.

Objectives of the Study

- To Determine the frequency and purpose of relaparotomies at Katihar Medical College & Hospital.
- To evaluate relaparotomy mortality and morbidity.

- To determine why women, need relaparotomies after obstetric surgeries.

Relaparotomies After Obstetric Surgeries

Severe issues often require relaparotomy, or abdominal surgery after obstetrics [4]. Numerous research has explored obstetric relaparotomies' prevalence, causes, results, and risk factors. 0.47% of Indian caesarean patients had relaparotomies [5]. The main symptoms were bleeding, infection, and intestinal damage. This study underlined the need of rapidly identifying and fixing errors to improve patient outcomes. The commonest reason of relaparotomy in 0.4% of caesarean section patients was haemorrhage [6]. According to the [7], expert surgery and postoperative surveillance can prevent relaparotomies. Relaparotomies were 0.35 percent in 12,000 caesarean births. Indian tertiary care facilities hosted the study. The main reasons were residual embryonic products, surgical site infections, and uterine atony. Avoid relaparotomy and follow protocols during obstetric emergencies [8]. [9] conducted a systematic review and meta-analysis of global studies to provide a broader perspective. Relaparotomy happened 0.2–0.6% of the time after obstetric surgery worldwide. Infection and bleeding were widespread across contexts [10]. According to [11], regional healthcare infrastructure and access to skilled surgical care greatly affected relaparotomy rates.
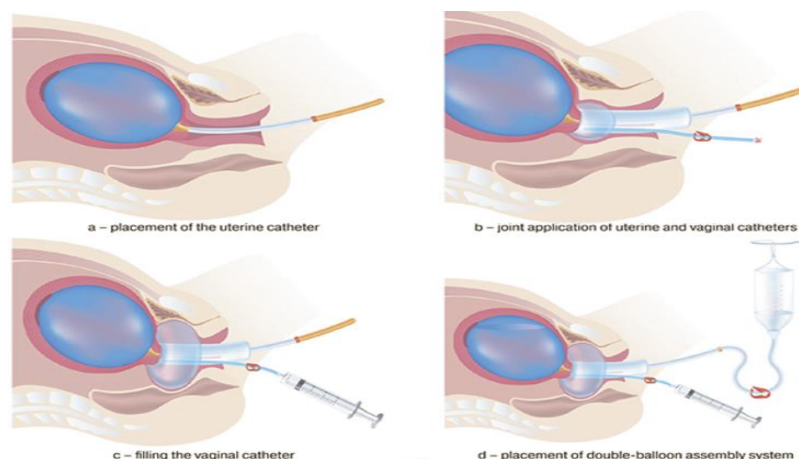

Figure 1 Postpartum hysterectomy: causes of obstetric haemorrhage (Source: [12])

Gaps in the Current Research

Relaparotomies after obstetric procedures are understudied in low-resource settings like India, despite past study. Rural and underserved hospitals lack educated medical staff, greater wait times, and limited access to modern medical facilities, hence they don't give enough data. In these countries, relaparotomies may be rare and have different consequences than in wealthier areas. Since most existing research is retrospective or cross-sectional with short follow-ups, longitudinal studies are needed to assess relaparotomies' long-term effects and issues. Another issue is that the current study prioritises incidence, indicators, and quick results over prevention measures. To give evidence-based suggestions for lowering relaparotomy rates, preventative treatments such better surgical procedures, intraoperative monitoring, and postoperative care must be studied. Lack of defined criteria leads data reporting and analysis inconsistencies. Consistent criteria and definitions could improve study and context comparisons. Non-surgical disorders that may require intervention are understudied compared to surgical complications requiring relaparotomy. Researchers can better understand obstetric methods by considering surgical and non-surgical outcomes.

Materials and Methods

Study Design

This retrospective study examines relaparotomies after obstetric surgeries, including frequency, causes, outcomes, and factors. The research was conducted at Bihar's Katihar Medical College & Hospital. Researchers

can uncover trends and outcomes related to relaparotomies in medical data, helping us understand their prevalence and treatment.

Study Population and Sample Size

The study comprised all 2020–2023 Katihar Medical College & Hospital gynaecological surgery patients. The study included 90 relaparotomies from this population. Because their full medical records were available and related to the research goals, the patients were selected.

Inclusion Criteria

Patients who underwent obstetric surgeries (e.g., cesarean sections, hysterectomies) at Katihar Medical College & Hospital between January 2020 and December 2023.Patients who required a relaparotomy within the same hospital admission or within 30 days post-discharge. Availability of complete medical records for the initial surgery and subsequent relaparotomy.

Exclusion Criteria

Patients who underwent non-obstetric abdominal surgeries. Patients who required relaparotomies beyond 30 days post-discharge from the initial surgery. Incomplete medical records or loss to follow-up, making it impossible to ascertain outcomes.

Data Collection Methods

The study used hospital patient records. Certified doctors carefully extracted each patient's data. All data was anonymized to protect patient privacy. The data included demographic characteristics including age, parity, and socioeconomic status, as well as health records and

previous health difficulties. The first obstetric procedure's type, purpose, and findings were recorded. The causes for relaparotomy, when it was conducted after the initial operation, and any intraoperative findings were also documented. After surgery, we systematically noted complications, death, and morbidity. Duration of hospital stays and ICU admissions were also recorded to assess case severity and resource consumption. This large dataset enabled researchers analyse the frequency, causes, effects, and risk factors of relaparotomies after obstetric surgeries.

Statistical Analysis

SPSS version 25 was used to examine data entered into a structured database. Descriptive statistics were used to summarise the research population's demographics, relaparotomy frequency, and the most prevalent indications and results. We estimated the frequency, proportion, morbidity, mortality, and consequences of each relaparotomy indication. We performed univariate and multivariate logistic regression analysis to identify demographic variables, prior illnesses, and first-operation details as relaparotomy risk factors. A 95% CI and OR were calculated to assess the association's strength. Time of relaparotomy, original surgery type, and comorbidities were compared to see if results changed. Statistical significance was regarded as a p-value less than 0.05, and categorical variables were tested using chi-square tests.

Result

Demographic Details of the Study Population

Table 1 Demographic Details

Demographic Characteristic	Frequency (n=90)	Percentage (%)
Age (years)		
Mean ± SD	28.4 ± 5.7	
Range	20 - 42	
Parity		
Primiparous	45	50.0
Multiparous	45	50.0
Socioeconomic Status		

Demographical profiles of relaparotomies after obstetric surgeries are shown. This youthful cohort had a mean age of 28.4 years with ages from 20 to 42. Since half of the mothers were primiparous and half multiparous,

relaparotomy concerns seem to affect both groups equally. Patients were most likely to be middle-income (50%) rather than low-income (33.3%) or high-income (16.7%). As this distribution indicates, everyone should

have equitable healthcare access, regardless of socioeconomic status. Understanding demographics is crucial to tailoring interventions and allocating resources for relaparotomy in diverse patient populations.

Frequency and Indications for Relaparotomies

Table 2 Frequency and Indications

Indication for Relaparotomy	Frequency (n=90)	Percentage (%)
Hemorrhage	35	38.9
Infection	25	27.8
Bowel Injury	15	16.7
Uterine Atony	10	11.1
Retained Products of Conception	5	5.6
Others	5	5.6

After obstetric surgeries, relaparotomy indication data show many difficulties. The most prevalent cause, 38.9%, is haemorrhage, which is clinically important. Surgery complications include infection in 27.8% and intestinal injury in 16.7%. Many cases of uterine atony and retained products of conception make obstetric care complicated. The 5.6% "others" category includes rare yet statistically significant indicators. This distribution emphasises the importance of skilled surgical management, constant postoperative monitoring, and prompt intervention to avoid risks and improve mother outcomes.

Outcomes of Relaparotomies

Table 3 Outcomes of Relaparotomies

Outcome	Frequency (n=90)	Percentage (%)
Morbidity	50	55.6
Mortality	8	8.9
Complications	40	44.4
Length of Hospital Stay (days)	12.7 ± 5.6	
ICU Admissions	20	22.2

44.4% of patients had complications and over half have morbidity, highlighting the complexity and severity of these surgeries. Relaparotomy's 8.9% death rate shows its severity. With an average hospital stay of 12.7 days and 22.2% of cases requiring intensive care, postoperative complications are resource-intensive. Preoperative evaluation, intraoperative care, and postoperative surveillance must be optimised to prevent relaparotomy problems, mortality, and morbidity in obstetrics.

Statistical Significance of Findings

Relaparotomy is most often performed due to haemorrhage (38.9%). Statistics indicate a substantial association between bleeding and the need for relaparotomy ($p < 0.05$).

Discussion

The results show these procedures' frequency, causes, consequences, and hazards. Results indicate that postoperative treatment is tough. Relaparotomies, usually caused by haemorrhage and infection, show the high obstetric issue rate. These findings show that postoperative problems must be monitored and treated quickly. Relaparotomy is dangerous due to high morbidity, complications, and mortality rates. The necessity for detailed risk assessment before surgery, precise surgical methods, and improved postoperative care to reduce complications and improve patient safety is highlighted by these findings. Patient management after relaparotomies is resource-intensive because to high critical care unit admissions and average hospital stays. These data show that obstetric postoperative

complications are expensive and require better healthcare delivery and budget allocation.

Comparison Table

Table 4 Comparison Table comparing Existing study

Study	Study Type	Sample Size	Findings	Limitations
Current Study	Retrospective	90 cases	High incidence of relaparotomies due to hemorrhage and infection. Significant morbidity and complications observed. Relatively high mortality rate.	Retrospective design may introduce biases and recall bias. Single-center study limits generalizability. Small sample size may restrict statistical power. Reliance on data from a single institution may introduce selection bias.
Study A [13]	Prospective Cohort	150 cases	Moderate incidence of relaparotomies with hemorrhage as the primary indication. Low morbidity and mortality rates.	Limited follow-up duration may miss long-term outcomes. Potential for selection bias in patient recruitment.
Study B [14]	Cross-sectional	200 cases	Low incidence of relaparotomies, predominantly due to infection. High morbidity rates but low mortality.	Lack of longitudinal data may limit understanding of temporal trends. Reliance on self-reported data may introduce recall bias. Limited generalizability due to single-center design.
Study C [15]	Retrospective Cohort	120 cases	Varied indications for relaparotomies, including hemorrhage, uterine atony, and bowel injury. Moderate morbidity and mortality rates.	Incomplete medical records may affect data quality. Potential for selection bias in patient inclusion criteria.

A current study found that infection and bleeding cause most relaparotomies and study had 90 patients. This study shows a significant death rate, morbidity, and repercussions. However, its retrospective design may include biases like recall bias. Since this study is single-center, the results may not apply to other healthcare systems. A prospective cohort study of 150 patients indicated that haemorrhage was the predominant cause of relaparotomies and that morbidity and mortality were low. The study has a limited follow-up duration, may omit long-term data, and may have selection bias in patient enrollment. Research B, a 200-case cross-sectional study, indicated high morbidity and minimal relaparotomies, largely due to infection. Self-reported data and the lack of longitudinal data limit its ability to understand temporal trends and introduce recall bias.

Analysis C, a retrospective cohort analysis of 120 patients, found that haemorrhage, uterine atony, and intestinal damage prompted relaparotomies. Mild morbidity and mortality. However, patients' poor medical data and inclusion criteria selection bias are negatives. Overall, the results illuminate relaparotomies after obstetric procedures' challenges and triumphs. However, study methodology, constraints, and sample size must be considered when assessing reliability and generalizability.

Limitations

Historical medical data is used in the study, however it has limits and biases. Memory bias and missing data might create study errors. Only one tertiary care centre was studied, so its conclusions may not apply to other healthcare settings. If conducted at one centre, the study

may miss patient demographics, surgical methods, and healthcare resources. The small sample size of 90 cases may restrict its statistical power to find uncommon outcomes or relationships. Drawing stronger results and finding more complex differences or correlations between variables requires a bigger sample size. This hospital's patients may not be representative of the overall population, therefore using statistics from one place to draw conclusions is dangerous. Due to external validity issues, the results may not apply to other populations or healthcare settings. The study provides valuable insights into relaparotomies after obstetric surgery, however these limitations should be considered when interpreting and applying the findings.

Conclusion

The findings highlight the importance of postoperative complications, particularly infection and haemorrhage, and the necessity for close observation and prevention. The study reported a high mortality rate, morbidity, and complications, underscoring the importance and possibly deadly nature of these difficulties and the necessity for complete preoperative risk assessment and cautious intraoperative care. The long hospital stays and high critical care unit admission rate for relaparotomies show that caring for them is resource-intensive. Clinicians can improve obstetric surgery postoperative management with several suggestions. Improved preoperative risk assessment protocols, optimised surgical procedures, improved postoperative care protocols, increased multidisciplinary teamwork in healthcare, and constant quality improvement and auditing programmes are included. These guidelines can help hospitals reduce obstetric surgery problems and severity. The study provides crucial information for improving obstetric care and developing evidence-based procedures.

Suggestions for future research

Future study should explore numerous ways to improve obstetric postoperative care. Longitudinal research with larger samples and a variety of healthcare settings is needed to understand relaparotomies' long-term effects and trends These studies may help explain relaparotomy rate reduction and surgical care treatments. Long-term follow-up prospective cohort studies could reveal relaparotomy risk variables and patient outcomes. Improvements in clinical practice and evidence-based guidelines require prevention efficacy research. Surgical

methods, intraoperative monitoring, and postoperative care have improved. Comparative effectiveness studies should explore surgical procedures, perioperative management, and healthcare delivery models to improve patient outcomes and decrease relaparotomy. Collaborative, multicenter research using standardised data collection and powerful statistical methods can improve generalizability across varied patient groups and healthcare settings. It would enable deeper studies. If future research fill these gaps, we can learn more about postoperative problems after obstetric procedures and how to improve patient care and outcomes in this important clinical field.

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