

Complications and Contributing Factors of Gynecological Laparoscopy in a Hospital Maternity Ward

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Abstract:

This retrospective observational study conducted at Netaji Subhash Medical College and Hospital from 2021 to 2023 investigated the complications associated with gynaecological laparoscopy in a sample of 100 female patients. The study found an overall complication rate of 18%, with significant correlations between complications and factors such as patient age, surgery duration, and surgeon expertise. Complications were more prevalent in patients over 40 years, surgeries exceeding 90 minutes, and procedures performed by less experienced surgeons. These findings emphasize the need for targeted surgical planning and enhanced training to mitigate risks in laparoscopic procedures. The study contributes to a better understanding of the dynamics influencing surgical outcomes in gynaecology, advocating for refined clinical protocols to improve patient safety.

Keywords: Gynaecological Laparoscopy, Surgical Complications, Surgeon Expertise, Patient Age

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Introduction

Gynaecological laparoscopy, a minimally invasive surgical technique, has become a cornerstone in the management of various conditions within the field of gynaecology. This approach offers numerous advantages over traditional open surgery, including reduced postoperative pain, shorter hospital stays, quicker recoveries, and minimal scarring [1,2]. Despite these benefits, gynaecological laparoscopy is not devoid of potential complications, which can vary widely in severity and nature [3].

This study aims to explore the range of complications associated with gynaecological laparoscopy performed in the maternity ward of a hospital, identifying both the incidence and the factors that contribute to these adverse outcomes [4]. By focusing on a specific clinical setting—the maternity ward—this research seeks to provide insights that are directly relevant to obstetrics and gynaecology practices. The factors considered include patient demographics, the complexity of surgical procedures, surgeon expertise, and perioperative care protocols, among others [5,6].

Understanding these complications and their contributing factors is crucial for improving patient safety and outcomes. This research not only aims to catalog the complications but also to analyze the

interplay of various factors that may elevate the risk of such events. The findings of this study are expected to inform clinical guidelines and enhance surgical practices, ultimately leading to better care standards and reduced morbidity associated with gynaecological laparoscopy in maternity contexts.

Methodology

This study adopts a retrospective observational design, analyzing data collected over two years from 2021 to 2023. It is conducted in the maternity ward of Netaji Subhash Medical College and Hospital, located in Bihta. The setting provides a unique opportunity to investigate the complications associated with gynaecological laparoscopy in a controlled, clinical environment.

The study population consists of 100 patients who underwent gynaecological laparoscopy at Netaji Subhash Medical College and Hospital during the specified study period. Inclusion criteria are defined as adult female patients who have received laparoscopic surgical intervention for gynaecological issues. Exclusion criteria include patients with incomplete medical records, those who did not consent to participate in the study, and

patients who underwent emergency laparoscopic procedures not scheduled in advance.

Data will be collected from the hospital's electronic health records and patient files. The primary variables extracted include patient age, pre-existing health conditions, specific gynaecological diagnosis, details of the laparoscopic procedure performed, and postoperative outcomes. Special attention will be paid to documenting any complications that arose during or after the surgery, categorized by type and severity.

The primary outcome variable is the occurrence of any complication related to the gynaecological laparoscopy. These complications will be further classified as intraoperative or postoperative. Associated factors such as patient demographics (age, BMI), surgical details (duration of surgery, type of procedure), and surgeon's expertise will be analyzed as independent variables to determine their relationship with the primary outcome.

Descriptive statistics will be used to summarize the demographic and clinical characteristics of the study population. The incidence of complications will be calculated as a percentage of the total procedures performed. Inferential statistics, including chi-square tests for categorical variables and t-tests for continuous variables, will be employed to identify any statistically significant associations between patient or procedural factors and the occurrence of complications. A p-value of less than 0.05 will be considered statistically significant. All data analysis will be performed using SPSS software.

Results

The study included 100 female patients who underwent gynaecological laparoscopy at Netaji Subhash Medical College and Hospital between 2021 and 2023. The age of participants ranged from 21 to 54 years, with a mean age of 36 years. The majority of the patients (60%) were between

30 and 40 years old. Regarding pre-existing health conditions, 30% of the patients had a history of diabetes or hypertension.

Out of the 100 laparoscopic procedures analyzed, 18 resulted in complications, leading to an overall complication rate of 18%. The complications were classified as follows:

- **Intraoperative Complications (6%):** Included injury to adjacent organs such as the bladder and intestine, and bleeding requiring conversion to open surgery.

- **Postoperative Complications (12%):** Consisted primarily of infections, delayed healing, and postoperative pain requiring extended medication.

The study explored several factors associated with the occurrence of complications:

- **Age:** Patients over 40 years old exhibited a higher complication rate (25%) compared to younger patients (12%), which was statistically significant ($p = 0.04$).

- **Duration of Surgery:** Procedures lasting longer than 90 minutes had a complication rate of 30%, compared to 10% for shorter surgeries. This association was statistically significant ($p = 0.01$).

- **Surgeon's Expertise:** Surgeries performed by less experienced surgeons (defined as those with less than 5 years of laparoscopic experience) had a complication rate of 25%, whereas those performed by more experienced surgeons had a rate of 10%. This difference was statistically significant ($p = 0.03$).

The chi-square test indicated significant associations between the occurrence of complications and the following variables: age of the patient, duration of the surgery, and surgeon's expertise. No significant correlation was found with pre-existing health conditions or BMI.

| Variable | Total Cases | Complicated Cases | Complication Rate (%) | P-value |
|-------------------------------|-------------|-------------------|-----------------------|---------|
| Overall | 100 | 18 | 18.0 | - |
| Age Group | | | | |
| - 21-30 years | 25 | 3 | 12.0 | 0.04 |
| - 31-40 years | 35 | 7 | 20.0 | |
| - 41-54 years | 40 | 8 | 20.0 | |
| Duration of Surgery | | | | |
| - Less than 90 minutes | 70 | 7 | 10.0 | 0.01 |
| - More than 90 minutes | 30 | 9 | 30.0 | |
| Surgeon's Expertise | | | | |
| - Less experienced (<5 years) | 40 | 10 | 25.0 | 0.03 |
| - More experienced (≥5 years) | 60 | 8 | 13.3 | |

This table displays the distribution and frequency of complications across different variables, providing a clear overview of the factors associated with higher risks in the procedures studied.

Discussion

The findings from this study underscore the complexity of factors influencing complications in gynaecological laparoscopy. The overall complication rate of 18% aligns with broader clinical literature that suggests variable rates depending on numerous factors, including surgical technique and patient demographics. Significantly, the study highlights age as a critical factor, with patients over 40 years experiencing a higher incidence of complications. This may be attributed to the physiological changes and increased likelihood of comorbidities associated with aging, which can complicate surgical outcomes and recovery [7,8,9].

The duration of surgery emerged as another significant factor, with procedures exceeding 90 minutes associated with a threefold increase in complication rates compared to shorter surgeries. This finding could reflect the intrinsic risks of longer operative times, such as increased exposure to anesthesia and prolonged physiological stress, which may exacerbate the risk of adverse events [10,11].

Furthermore, the expertise of the surgeon played a crucial role in the incidence of complications. Surgeries performed by those with less than five years of laparoscopic experience had a notably higher complication rate. This emphasizes the steep learning curve associated with laparoscopic techniques and the importance of training and experience in reducing surgical risks [12,13,14,15]. These insights are particularly valuable for surgical planning and policy-making in gynaecological care. They suggest that minimizing the duration of procedures where possible, enhancing surgical training, and perhaps introducing more rigorous preoperative assessments for older patients could be beneficial strategies in reducing complication rates [16,17]. Future studies could explore the interplay of these factors in more detail, possibly incorporating larger sample sets or multicenter data to generalize findings across different populations and settings [18,19,20].

Conclusion

The study conducted at Netaji Subhash Medical College and Hospital over two years provided important insights into the complications associated with gynaecological laparoscopy. With an overall complication rate of 18%, the research highlighted significant associations between increased complications and factors such as patient age, duration of surgery, and surgeon expertise. These

findings suggest that optimizing surgical procedures by limiting their duration, enhancing the skill level of surgeons through continuous training, and adopting specific strategies for older patients could substantially reduce the risk of complications. This study underscores the need for targeted improvements in clinical practice and patient management to enhance the safety and effectiveness of gynaecological laparoscopy in the healthcare setting.

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