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Original Research Article

Comparative Study between Same-Day Discharge vs Overnight Stay in Laparoscopic Acute Non-Perforated Appendectomy in a Single Institution

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Abstract:

Laparoscopic appendectomy has become one of the most frequent laparoscopic surgeries done by surgeons on a daily basis. When compared to open appendectomy, the advantages are significantly greater, and so the change from open to limited access surgery has gained relevance, primarily in terms of perioperative duration. Small trials conducted over the last decade have shown that same-day discharge following appendectomy may be used for non-perforated appendicitis. We looked at a research group to see whether same-day release in acute non-perforated appendicitis is a safe alternative. All patients over the age of 18 who had acute, non-perforated appendicitis and had a laparoscopic appendectomy were included in the study. individuals released on the day of surgery were compared to individuals hospitalised for one night and followed up on sequentially. The research included 100 patients, 70 of whom were discharged on the same day and 30 of whom were hospitalised. When compared to the hospitalised group, patients in the same-day discharge group had a reduced risk of readmission within 30 days (2.2% vs 3.1%; p 0.005). The hospitalised group had somewhat more postoperative general surgery department visits (85% vs 81%; p 0.001).

Keywords: Laparoscopic Appendectomy, Open Appendectomy, Minimal Access Surgery, Non-Perforated Appendicitis.

Introduction

In India, around 250,000 appendectomies are done each year for acute appendicitis in children and adults. The commonly recognised therapy for non-perforated acute appendicitis is laparoscopic appendectomy with discharge the following day. With a growing focus on securely minimising hospital-acquired expenses, modest studies have shown the safety of releasing adults and children on the same day without overnight hospitalisation. Cross and colleagues [1] published retrospective data for 54 patients discharged within 24 hours after having laparoscopic appendectomies during a two-year period. They found no statistically significant difference between same-day discharge (SDD) and overnight stay for non-perforated, acute appendicitis. The goal of this research is to assess the safety and results of patients who received a laparoscopic appendectomy at SCB Medical college and hospital, Cuttack, Odisha, and were released on the same day of surgery vs those who were admitted for an overnight stay.

Materials and Methods

Study Period: Between Jan 2021 and Jan 2023 in department of General surgery, SCB Medical college and Hospital, Cuttack

Inclusion Criteria: All patients older than 18 years of age with acute, non-perforated appendicitis who underwent a laparoscopic appendectomy were included.

Exclusion criteria: Those who presented with evidence of perforation, incidental appendectomy, appendectomy performed concomitant with another procedure.

We compared patients who were released on the day of surgery to those who were hospitalised overnight. Overnight hospitalisation was defined as having an admission status that lasted longer than 12:01 a.m. Patients in the SDD group were released from the post-operative room at the operating surgeon's discretion and if they satisfied the discharge criteria. Preoperative examination,

intraoperative results, postoperative recovery, and whether the patient satisfied discharge requirements all influenced the surgeon's decision. The Procedural and Anaesthesia Scoring System (Table 1) was used to develop the post-operative room discharge criteria. Patients with a score of 12 or above were considered safe for release. We looked at readmission rates, complication rates, postoperative ER visits, and reoperation.

SAS Enterprise Guide (version 6.1) was used for all data administration and analysis. To compare patient demographics, comorbidities, repeat visits, and complication rates, Chi-square testing was used. The Cochran-Armitage Trend Test was performed to evaluate the trend of SDD after appendectomy.

Results

The research included 100 patients with non-perforated acute appendicitis who had laparoscopic appendectomy, with 70 (70%) in the SDD group and 30 (30%) in the hospitalised group. When compared to the hospitalised group, patients in the SDD group had a reduced risk of readmission within 30 days (2.2% vs 3.1%; p 0.005). As independent factors, sex, age, and diabetes mellitus and hypertension diagnoses were subanalyzed. Patients over the age of 50 and those with diabetes were more likely to be hospitalised for an overnight stay after their surgery. those with a prior diagnosis of hypertension were also more likely to be hospitalised than those with SDD (16% vs 13%; p 0.0001). Postoperative complication rates, such as wound infection and postoperative visits to the emergency room for treatment or diagnostic investigations, were not substantially different between the two groups. Patients in the hospitalised group had a greater proportion of postoperative visits with the operating surgeon (85% vs 81%; p 0.001). Patients who were released without staying overnight had a reduced direct hospital cost (p 0.001).

Table 1: Variables and Score

VARIABLES	SCORE
Consciousness	
Awake and alert, turn towards voice	2
Arousable but drifts back to sleep	1
Unresponsive (except for painful/repeated stimuli)	0
Activity	
Appropriate for age or development	2
Weak for age or development	1
No voluntary movement	0
Circulation	
Stable BP within 15% of pre-sedation level	2
BP within 30% of pre-sedation level	1
BP > 30% higher or lower than pre-sedation level	0
Respiration	
Able to cough, breath deeply or cry	2
Dyspnea or limited breathing	1
Apnea or obstructed breathing requires assistance to maintain airway	0
O2 saturation	
Room air O2 > 95%	2
Needs supplemental O2 to maintain > 95%	1
O2 saturation < 95% with supplementation	0
Pain	
No or mild pain	2
Moderate or severe pain controlled with IV analgesics	1
Persistent severe pain	0
Emetic	
No or mild nausea without vomiting	2
Transient vomiting or retching	1
Persistent moderate to severe nausea or vomiting	0

Discussion

The gold standard for treating acute appendicitis is still appendectomy [2,3,4]. Since the inception of laparoscopic surgery and its growing usage in general surgery, studies have shown that when compared to open procedures for many surgical conditions, laparoscopic surgery provides a significant reduction in length of stay, less

discomfort, and a quicker recovery period [2,3,5]. Similar outcomes have been seen in laparoscopic appendectomy [6,7]. Page and colleagues [5] shown that appendectomies are now done utilising laparoscopic procedures >80% of the time, indicating that laparoscopic appendectomy has now become the preferred alternative. Laparoscopic appendectomy with discharge the following day is now standard practise in non-perforated acute appendicitis. In a case series, we demonstrated that this group of patients may be safely released from the recovery room on the same day after having a laparoscopic appendectomy at the surgeon's choice. Our findings are consistent with those of other research conducted over the last decade. Frazee and colleagues [2] reported an 88% success rate in non-perforated acute appendicitis patients treated with laparoscopic appendectomy and discharged the same day. Our SDD postoperative complication rate was similar to previous studies reporting a 2% to 7% complication rate [2,6,4]. Furthermore, SDD did not result in greater rates of readmission, as previously reported [2,6,4]. We discovered that older patients and those who already have comorbidities were less likely to be released on the day of surgery. Frazee and colleagues [2] revealed that pre-existing comorbidities influenced variables triggering hospitalisation following appendectomy in individuals eligible for SDD. Because the decision to discharge or admit the patient is made solely at the discretion of the operating surgeon, it stands to reason that surgeons feel more at ease releasing younger, healthier patients from the recovery room. Furthermore, we discovered that the later surgery was performed on a particular day, the more likely patients were to be hospitalised overnight. In other words, if the operation was conducted after 8 p.m., there was a greater-than-70 percent probability that the patient would be retained in the hospital overnight. Patients that arrive in the middle of the night are usually hospitalised and then added to the operating room schedule the following day. It has been shown that using a standardised methodology increases the incidence of SDD following laparoscopic appendectomy [2,6]. When comparing patients with appendicitis who were handled following an actual outpatient strategy for discharge criteria against those who were managed at the surgeon's discretion. However, when comparing year to year, our data indicated that as the strategy gained popularity and acceptability from 2021 to 2023, a greater proportion of patients were released home from the recovery room, with a continuous rise in SDD from 45.5% in 2014 to 61.9% in 2017 (p 0.0001). In our research, we found that patients in the SDD group had reduced direct costs, improving cost effectiveness and protecting patient safety throughout their stay, resulting in speedier recovery and improved patient care. Antibiotic therapy without surgical intervention for acute non-perforated appendicitis has recently gained popularity [8]. Antibiotics alone have been proved in studies to be a viable alternative to surgery. In a 1-year follow-up, antibiotic therapy was linked with a 63% to 78% success rate, with a tendency favouring antibiotic treatment in a shorter duration of stay but no significant difference [8,9]. However, in these trials, the average duration of stay in the surgical group varies from 3 to 3.96 days, compared to 2.6 to 3.4 days in the antibiotic treatments group. When compared to our data, when the duration of stay following surgery was 1 day or less, the benefits of antibiotic therapy alone in terms of length of stay do not correspond. The statistical power provided by such a large number of patients, as well as the multi-surgeon nature of the data, are the study's strengths. Although the retrospective design of this research has limitations, the large patient population and electronic medical record may be used in future studies to prospectively analyse standard treatments for SDD following laparoscopic appendectomies to show the safety and usefulness of this therapy. Another limitation of the research is that, although we demonstrated that there was no difference in readmission rates between the two groups, no comprehensive examination of the reasons for readmission was undertaken.

Conclusion

When compared to the hospitalised group, patients in the same-day discharge group had a reduced incidence of readmission within 30 days. The hospitalised group had somewhat more postoperative general surgery department visits (85% vs 81%; p 0.001).

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