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Comparison of Surgical Complications After Traditional and Endoscopic Appendectomy in Fergana

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Abstract

This retrospective comparative study evaluated postoperative complications after traditional and endoscopic appendectomy in 56 patients treated in Surgical Department 1 of Fergana Emergency Hospital. Twenty-eight patients underwent open appendectomy and twenty-eight underwent endoscopic appendectomy. Outcomes included wound infection, intra-abdominal abscess, postoperative ileus, operative time, and length of stay. Complications were more frequent after open surgery, while endoscopic surgery showed shorter hospitalization despite slightly longer operative time. The overall complication rate was 46.4% in the traditional group and 14.3% in the endoscopic group. Mean hospital stay was 5.8 ± 1.6 days versus 3.4 ± 1.2 days, respectively. These findings support endoscopic appendectomy as the preferred technique in settings where equipment and expertise are available.

Keywords: appendectomy, complications, laparoscopy, open surgery, wound infection, abscess, ileus

Introduction

Acute appendicitis remains one of the most common surgical emergencies, and appendectomy is still the definitive treatment in most patients. Contemporary literature shows that minimally invasive appendectomy generally reduces wound complications, postoperative ileus, and length of hospital stay compared with open surgery, although operative time may be modestly longer and concerns about organ-space infection remain clinically relevant (Bonomo et al., 2024; Huston et al., 2024; Bulut & Ucar, 2025; Patel et al., 2025).

Recent evidence from umbrella reviews, meta-analyses, and guideline updates has strengthened support for laparoscopic or endoscopic appendectomy in both uncomplicated and many complicated cases. These reports emphasize lower surgical site infection rates, faster recovery, and better postoperative comfort, while also recommending careful source control, selective drain use, and rational antibiotic duration in complicated appendicitis (Poprom et al., 2020; Di Saverio et al., 2020; Liao et al., 2022; Liao et al., 2022).

Further studies from Asia and other middle-resource settings suggest that the benefits of endoscopic appendectomy persist outside high-income centers. Meta-analytic and cohort data indicate shorter hospitalization and fewer wound events after laparoscopy, even when perforation or gangrenous appendicitis is present, provided surgical expertise is adequate (Zhang & Wu, 2022; Gu & Hua, 2023; Shiihara et al., 2023; Jaschinski et al., 2018).

However, local outcome data remain important because hospital practice, case selection, and postoperative care pathways vary significantly between institutions. The present study therefore compared surgical complications after traditional and endoscopic appendectomy in 56 patients treated at Fergana Emergency Hospital.

Methods

A retrospective comparative analysis was performed in 56 consecutive patients treated for acute appendicitis in Surgical Department 1 of Fergana Emergency Hospital. Patients were divided equally into traditional open appendectomy and endoscopic appendectomy groups. The analyzed endpoints were wound infection, intra-abdominal abscess, postoperative ileus, mean operative time, and mean length of hospital stay. Descriptive statistics were calculated for both groups; complication proportions were compared with a chi-square test, and mean hospital stay was compared using Welch’s t-test. A p-value below 0.05 was considered significant.

Results

Among 56 patients, 28 underwent traditional appendectomy and 28 underwent endoscopic appendectomy. The traditional group had 6 wound infections, 3 intra-abdominal abscesses, and 4 cases of postoperative ileus, whereas the endoscopic group had 2 wound infections, 1 intra-abdominal abscess, and 1 case of postoperative ileus. This corresponded to an overall complication rate of 46.4% in the traditional group and 14.3% in the endoscopic group.

Complication analysis showed a marked excess burden after traditional surgery. The relative risk of any recorded complication in the traditional group was 3.25 compared with the endoscopic group, and the between-group difference was statistically significant (chi-square $p = 0.009$).

Hospital stay was also shorter after endoscopic appendectomy. Mean length of stay decreased from 5.8 ± 1.6 days in the traditional group to 3.4 ± 1.2 days in the endoscopic group, a mean reduction of 2.4 days, which was statistically significant ($p < 0.001$). Operative time showed the opposite trend, increasing from 48 ± 10 minutes in the traditional group to 57 ± 12 minutes in the endoscopic group.

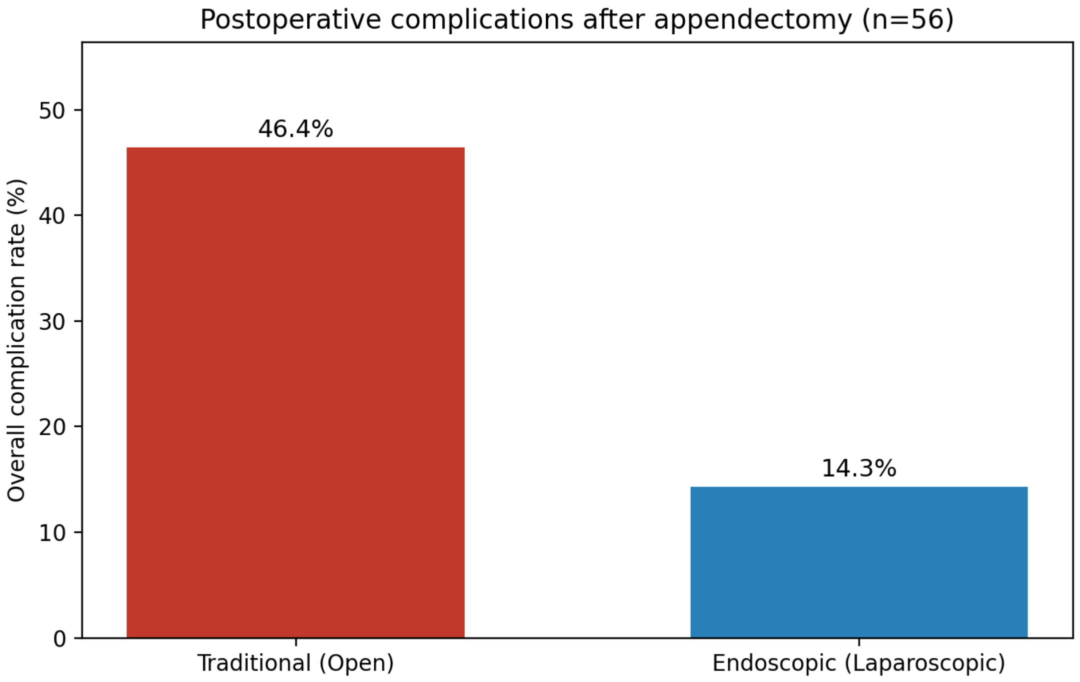
The complication profile suggests that the principal advantage of endoscopic surgery in this cohort was reduction of wound-related morbidity and postoperative bowel dysfunction. Clinically, this translated into faster recovery and earlier discharge.

Table 1. Postoperative outcomes in the two study groups

Group	n	Wound infection	Intra-abdominal abscess	Postoperative ileus	Overall complication rate	Mean stay, days
Traditional (Open)	28	6	3	4	46.4%	5.8 ± 1.6

Endoscopic (Laparoscopic)	28	2	1	1	14.3%	3.4 ± 1.2

Figure 1. Overall complication rates after traditional and endoscopic appendectomy



Discussion

The present hospital-based analysis is consistent with the current literature showing that endoscopic appendectomy is associated with fewer postoperative complications and shorter hospitalization than the traditional approach. Our observed reduction in wound infection and ileus follows the same direction reported in recent cohort studies and systematic evidence syntheses, where minimally invasive surgery consistently improved short-term recovery (Bulut & Ucar, 2025; Patel et al., 2025; Poprom et al., 2020; Zhang & Wu, 2022).

The shorter hospital stay in the endoscopic group is clinically important because it reflects faster return of gastrointestinal function, lower wound morbidity, and more efficient bed utilization. Current guidelines on intra-abdominal infection and appendicitis management support minimally invasive surgery when expertise is available, especially when adequate source control and standardized perioperative antibiotic protocols are followed (Bonomo et al., 2024; Huston et al., 2024; Di Saverio et al., 2020).

Although operative time was somewhat longer in the endoscopic group, the overall postoperative course remained better, which agrees with recent meta-analyses in complicated and perforated appendicitis. Evidence also suggests that routine drainage should be avoided in most cases because it does not reliably reduce abscess formation and may prolong recovery, a point relevant to complication prevention strategies in appendectomy practice (Gu & Hua, 2023; Liao et al., 2022; Liao et al., 2022; Shiihara et al., 2023).

This study has practical value for a regional emergency hospital, but several limitations should be acknowledged. The sample was small, the design was retrospective, and the analysis was based on institutional outcomes without long-term follow-up. Nevertheless, the direction and magnitude of the findings support broader contemporary evidence favoring endoscopic appendectomy for reduction of short-term surgical morbidity (Jaschinski et al., 2018; Zhang & Wu, 2022).

Conclusion

Endoscopic appendectomy demonstrated a clear advantage over traditional appendectomy in this 56-patient series from Fergana Emergency Hospital. It produced fewer postoperative complications, especially wound infection and ileus, and shortened hospital stay despite a slightly longer operative time. These findings make endoscopic appendectomy the more attractive surgical option for routine practice where training and equipment are available. Wider implementation of minimally invasive appendectomy may improve patient recovery, reduce complication burden, and optimize surgical department efficiency.

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