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Original Research Article

A Comparative Study of Laparoscopic Appendicectomy Specimen Retrieval Using Plastic Endo-Bag and Direct Removal Through 10mm Umbilical Port

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Conflict of interest: Nil

Abstract:

Background: Laparoscopic appendectomy is the preferred approach for treating acute appendicitis. Specimen retrieval techniques may influence operative times and postoperative outcomes.

Objective: To compare the operative outcomes between Plastic Endo-Bag retrieval and Direct 10mm Umbilical Port retrieval during laparoscopic appendectomy.

Materials and Methods: In this prospective observational study conducted over 18 months, 50 patients diagnosed with acute appendicitis were alternatively allocated into two groups: Group A (Endo-Bag retrieval) and Group B (Direct retrieval). Mean operative time, specimen retrieval time, first passage of flatus, length of hospital stay, and port-site infections were evaluated.

Results: Mean operation and specimen retrieval times were significantly longer in Group A compared to Group B ($p<0.05$). Port-site infections were slightly more common in Group B but without statistical significance. No differences were observed regarding the first passage of flatus and hospital stay.

Conclusion: Direct retrieval through a 10mm umbilical port reduces operative time and specimen retrieval time without significantly affecting infection rates. Larger studies are recommended to confirm these findings.

Keywords: Laparoscopic Appendicectomy, Endobag, Specimen Retrieval.

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Introduction

Acute appendicitis is a common surgical emergency worldwide.

Laparoscopic appendicectomy has become the standard treatment due to advantages such as reduced postoperative pain, shorter hospital stay, and quicker recovery. Specimen retrieval during laparoscopic appendicectomy can be challenging, especially with inflamed appendices. Retrieval via a plastic endo-bag is thought to reduce contamination, but direct retrieval through a 10mm umbilical port is quicker and cost-effective.

This study aims to compare these two retrieval techniques in terms of operative outcomes and postoperative complications.

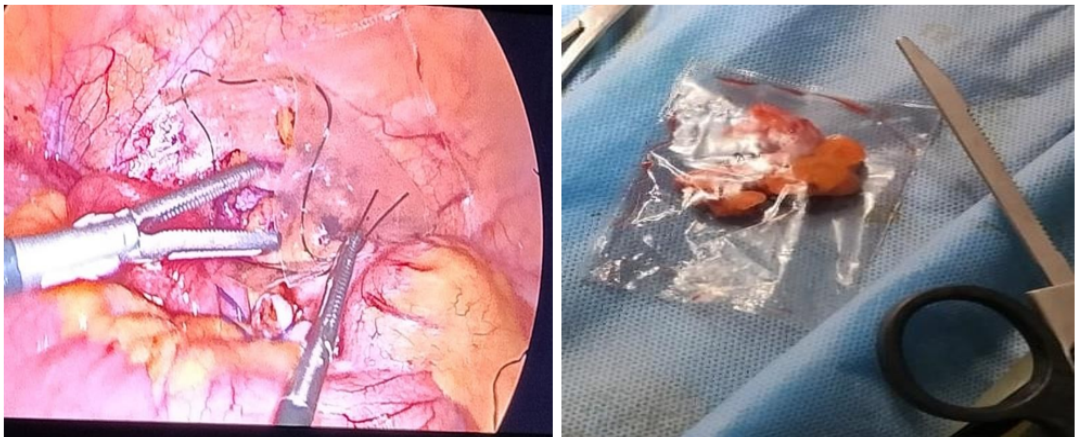

Figure 1:

Materials and Methods

Study Design and Setting: A prospective observational study was conducted at the Department of General Surgery, Narayana Medical College & Hospital, Nellore, Andhra Pradesh, India, from October 2022 to March 2024.

Study Population: Fifty patients clinically diagnosed with acute appendicitis and fit for laparoscopic surgery were enrolled. Patients were alternatively allocated into two groups:

- Group A: Specimen retrieval using Plastic Endo-Bag.
- Group B: Direct specimen retrieval through 10mm umbilical port.

Inclusion Criteria

- Patients with clinical diagnosis of acute appendicitis.
- Patients willing to undergo laparoscopic appendectomy.

Exclusion Criteria

- Patients diagnosed with other causes of acute abdomen.
- Patients refusing surgery.
- Patients medically unfit for surgery.

Outcome Measures

- Mean operation time.
- Specimen retrieval time.
- First passage of flatus.
- Length of hospital stay.
- Port-site infections.

Statistical Analysis: Data were analyzed using independent samples t-test, chi-square test, and one-way ANOVA. A p-value <0.05 was considered statistically significant.

Results

Demographic Profile: The mean age of patients was 22.7 ± 9.65 years. Male and female patients were nearly equally distributed across both groups.

Operative Outcomes

Mean Operation Time: Group A: 46.25 ± 11.2 minutes; Group B: 42.5 ± 10.5 minutes (p = 0.026).

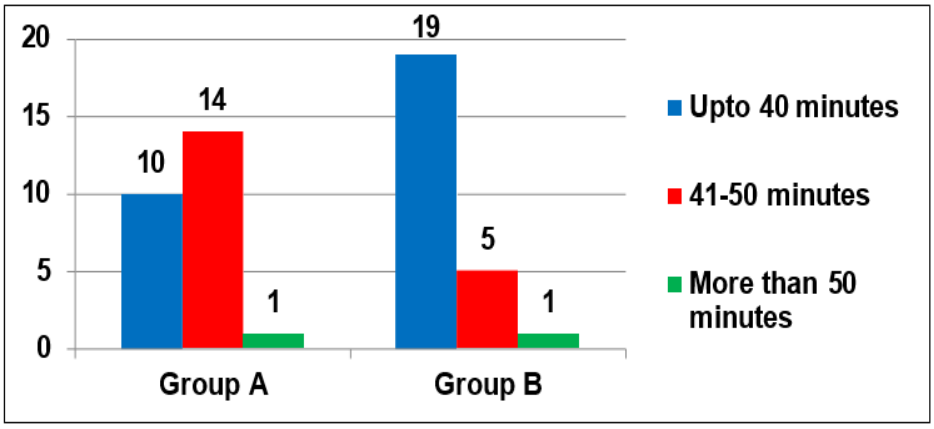

Figure 2:

Specimen Retrieval Time: Group A: 3.5 minutes; Group B: 3.05 minutes (p < 0.001).

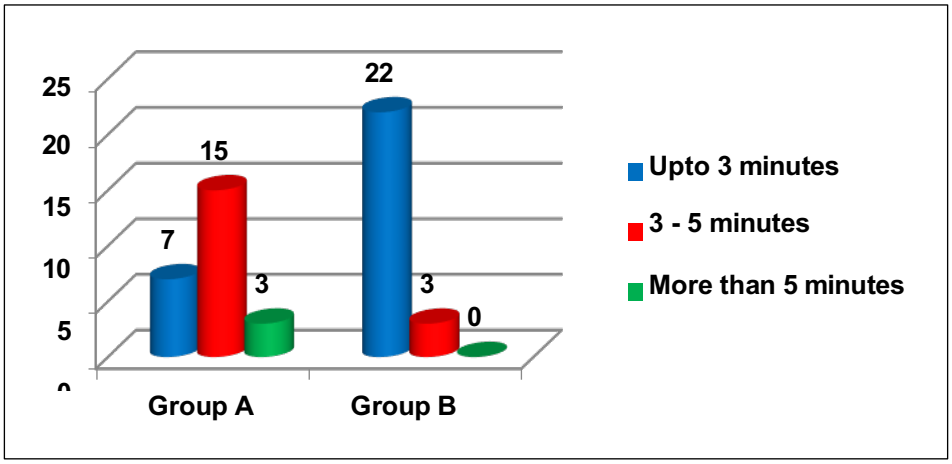

Figure 3:

Hospital Stay: 90% of patients were discharged on day 3; 10% required longer stay due to port- site infections.

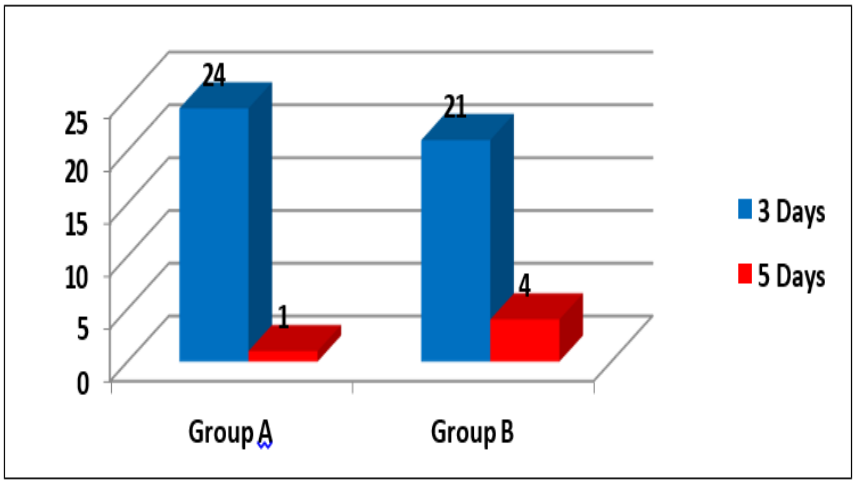

Figure 4:

First Passage of Flatus: Majority of patients in both groups passed flatus by postoperative day 1 ($p > 0.05$).

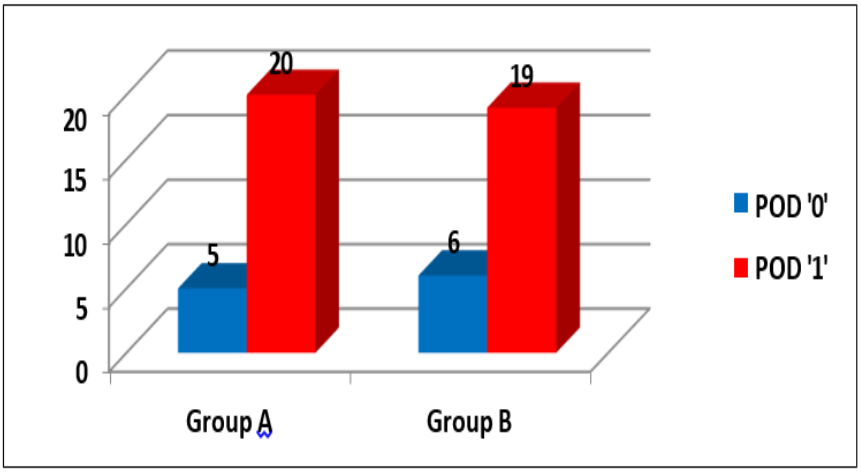

Figure 5:

Port-Site Infection: Group A: 4%; Group B: 16% ($p = 0.157$, not statistically significant).

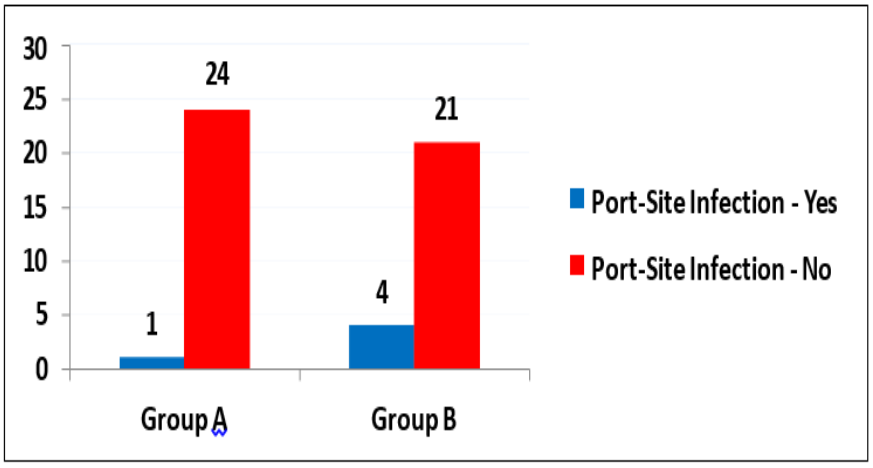

Figure 6:

Discussion

The findings indicate that while using a Plastic Endo-Bag adds a few extra minutes to the operation and retrieval times, it does not significantly reduce port-site infections compared to direct retrieval through a 10mm umbilical port. Similar findings have been reported in previous studies, suggesting that although retrieval bags reduce contamination theoretically, their clinical advantage regarding wound infection remains debatable.

The study by Mustafa Sami Bostan et al. (2022) found that the use of specimen retrieval bags was not statistically significant in reducing surgical site infections, supporting our results.

Furthermore, most patients experienced early return of bowel function and had a short hospital stay, consistent with standard outcomes for laparoscopic appendectomy.

Conclusion

Direct specimen retrieval through a 10mm umbilical port during laparoscopic appendectomy reduces operative and extraction times without significantly increasing port-site infections.

The chances of port site infections were found more in direct retrieval technique through 10mm port, but the data was not statistically significant.

However, larger, multicentric randomized studies are warranted to validate these results.

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