Section: General Surgery

Original Research Article

COMPARATIVE STUDY OF LAPAROSCOPIC ASSISTED APPENDECTOMY AND OPEN APPENDECTOMY

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ABSTRACT

Background: Acute appendicitis is a common indication for abdominal surgery, as 7% to 9% of the population often suffer with appendicitis, as it is the most constricted part of the GIT. The technique for appendectomy must be safer with the least post-surgical complications and early returns of bowel functions. **Materials and Methods:** 60 patients aged between 19 to 45 years were operated on. 30 patients with LA and 30 patients with OA techniques were used for acute appendectomy. USG and routine blood exams were done. The operation was done under general anesthesia. The post-surgical manifestations of both groups were noted. **Result:** Pain 6 (20%) in LA, 16 (53%) in OA; vomiting 9 (30%) in LA, 13 (43%) in OA; fever 6 (20%) in LA, 15 (30%) in OA; constipation 5 (16%) in LA, 10 (33%) in OA; paralytic ileus 6 (20%) in LA, 11 (36%) in OA. Infection of wound 10 (33%) only in OA, Return of bowel sounds 42-43 hours in LA, 50-52 in OA. Duration of hospital stay: 3 to 4 days in LA, 7 to 9 days in OA. **Conclusion:** LA surgery is more preferable for acute appendicitis than OA because of fewer postoperative complications and a shorter postoperative stay at the hospital, even though the duration of LA is longer than OA.

INTRODUCTION

Acute appendicitis is a common indicator for abdominal surgery with a lifetime incidence between 7% to 9% because the appendix is the most constricted part of the G.I.T., like the pharynx; hence, it frequently gets infected. Appendectomy is one of the most common surgical procedures.[1]

Open appendectomy (OA), performed through the right lower quadrant incision, was described by Charles McBurney in 1874 and has been a safe and effective operation for acute appendicitis for more than a century.[2] With the advent of new surgical techniques, the quest has been raised for minimally invasive techniques for the treatment of various surgical ailments for minimum hospital stay, less surgical trauma, and a better quality of life.[3]

In 1981 Semm, a German gynecologist performed the laparoscopic appendectomy. Since then this procedure has been widely used. LA has emerged as a safe procedure, and its potential advantages are short hospital stay, early mobilization, early return of bowel function, fewer complications, and less postoperative pain.[4] On the contrary, laparoscopic appendectomy consumes more operating time and is associated with increased costs. Hence, an attempt is made to compare the postoperative complications and hospital stay in both groups of techniques.

MATERIALS AND METHODS

60 (sixty) patients aged between 19 to 45 years visiting the surgery OPD of Mallareddy Institute of Medical Sciences (MRIMS), Suraram X Road, Quthabullapur, Hyderabad, Telangana-500055, were studied.

Inclusive Criteria

Appendicitis confirmed by clinical examination and USG study, and patients fit for general anesthesia who gave their consent for the study in writing were selected.

Exclusive Criteria

Patients with suspected malignancy who have previously undergone abdominal surgery. Immunocompromised patients were excluded.

Method: The patients with acute appendicitis were operated on. Out of 60, 30 patients were willing for laparoscope-assisted extracorporeal appendectomy, and the remaining 30 for conventional open appendectomy. Written consent was obtained from every patient regarding the method of appendectomy surgery. USG, routine blood examination, and history of each patient were recorded. The post-surgical manifestations were recorded in both groups.

The duration of the study was March 2023 to April 2025.

Statistical analysis: The clinical manifestations observed in both groups were compared with

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percentage. The statistical analysis was done in SPSS software. The ratio of males and females was 2:1.

RESULTS

[Table 1] Comparative study of post-surgical manifestations – pain 6 (20%) in LA, 16 (53%) vomiting, 9 (30%) in LA, 13 (43%) in OA, Fever – 6 (20%) in LA, 15 (30%) in OA, Constipation – 5 (16%) in LA, 10 (33%) in OA, paralytic Ileus – 6 (20%) in LA, 11 (36%) in OA, Infection in wound – 10 (33%) observed only in OA.

[Table 2] (1) Return of Bowel sounds 42-43 hours in OA, 50-52 hours in OA, (2) Duration of hospital stay 3 to 4 days in LA, 7-9 days in OA

Table 1: Comparative study of post-surgical manifestation

Sl. No	Manifestations	LA (30) Patients		OA (30) patients	
1	Pain	6	20	16	53
2	Vomiting	9	30	13	43
3	Fever	6	20	15	30
4	Constipation	5	16	10	33
5	Paralytic Ileus	6	20	11	36
6	Infection of wound	0	--	10	33

Table 2: Comparative study of post-surgical manifestations

Sl No	Manifestations	LA	OA
1	Return of Bowel sound	42-43 hours	50-52 hours
2	Duration of Hospital stay	3 to 4 days	7 to 9 days

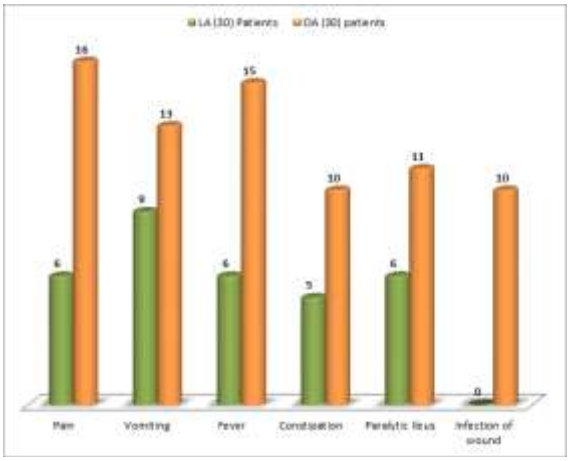

Figure 1: Comparative study of post-surgical manifestation

DISCUSSION

The present comparative study of laparoscopic-assisted appendectomy versus open appendectomy The post-surgical manifestations were pain 6 (20%) in LA, 16 (53%) in OA; vomiting 9 (30%) in LA, 13 (43%) in OA; fever 6 (20%) in LA, 15 (30%) in OA; constipation 5 (10%) in LA, 10 (33%) in OA; paralytic ileus 6 (20%) in LA, 11 (36%) in OA; and infection of wound 10 (33%) only in OA (Table-1 A). Return of bowel sound 42-43 hours in LA, 50-52 hours in OA. Duration of hospital stay: 3 to 4 days in LA, 7 to 9 days in OA [Table 1], These findings are more or less in agreement with previous studies.[5-7]

The introduction of laparoscopic surgery has had a great impact in many areas of surgery. The greatest influence has been in gallbladder surgery. The laparoscopic cholecystectomy was quickly adopted with the benefits of shorter operating time, less postoperative pain, and shorter hospital stays when compared with the traditional open technique. Laparoscopic appendectomy has not been accepted by surgeons quickly because of the longer operating time and greater cost of the laparoscopic technique when compared with the open technique. However, patients suffer less with postoperative pain and have shorter hospital stays with LA when compared with the open technique. Thus, in an era of cost-conscious medicine, the choice of technique must be weighed carefully.[8]

An additional advantage of laparoscopy is its use as a diagnostic tool. Diagnostic tests for suspected appendicitis, including ultrasound, CT scan, and laboratory tests, can be a significant expense. The introduction of laparoscopic surgery has allowed for a more accurate and less expensive method of diagnosis than was previously possible, but it carries with it the risks of a surgical procedure and anesthesia.[9] Because LA requires longer surgical time and is more expensive than the open technique, a combination of the laparoscopic and open technique called the laparoscopic-assisted (LAA) technique is evaluated.

The final area of comparison involves postoperative length of stay.[10] LA patients have shorter durations of hospital stays when compared with OA. Moreover, the LA technique has an advantage over the open technique in that it can be utilized as a diagnostic tool. If the cause of the abdominal pain is not appendicitis, the abdomen can be further explored laparoscopically to assess for another cause of abdominalpain without the use of any radiological tests. If, during OA, the appendix appears normal, the abdominal exploration is more difficult to perform, and it is more difficult to determine the cause of the abdominal pain.

CONCLUSION

The LA technique for appendectomy incorporates the advantages of both the laparoscopic technique and the open technique. LA has exploration, diagnosis, and treatments that are unavailable through an OA.

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This study demands further genetic, nutritional, pathophysiological, and pharmacological studies because the exact pathogenesis of appendicitis is still unclear.

Limitation of Study: Owing to remote locations of research centers, a small number of patients, and a lack of the latest techniques, we have limited findings and results.

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