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Immediate vs interval Lap Appendicectomy Benefits drawbacks and outcomes

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ABSTRACT
To Immediate vs interval Lap Appendicectomy Benefits drawbacks and outcomes. One hundred ten patients of acute appendicitis of both genders were randomly divided into 2 groups of 55 each. In group I, immediate and in group II, interval Lap appendectomy was performed. Parameters such as operative time, hospital stay and adverse events in both groups were compared. The mean duration of symptoms was 3.2 days in group I and 3.4 days in group II. The mean operative time was 102.1 min in group I and 118.3 min in group II. The mean antibiotic duration was 13.2 days in group I and 15.4 days in group II. The mean hospital stay was 5.1 days in group I and 3.2 days in group II. The difference was significant ($P<0.05$). Adverse events reported were intra-abdominal abscesses in 5 patients in group I and 12 patients in group II, wound infection in 2 patients in group I and 3 patients in group II, small bowel obstruction in 4 patients in group II, and recurrent appendicitis in 5 patients in group II. Readmission and increased cost/time was observed in 1 in group I and 3 patients in group II. A significant difference was observed in both groups ($P<0.05$). Immediate appendectomy found to be better in terms of early recovery, shorter hospital stay and less adverse events in comparison to interval appendectomy.

INTRODUCTION

Appendicitis is a medical condition characterized by the inflammation of the appendix, a small, finger-like pouch located on the lower right side of the abdomen[1]. It is considered a medical emergency and requires prompt medical attention and often surgical intervention[2]. The exact cause of appendicitis is not always clear but it can occur when the appendix becomes blocked, usually by feces, foreign objects, or rarely, tumors. This blockage can lead to the multiplication of bacteria inside the appendix, causing infection and inflammation[3]. The primary symptom is often a dull, aching pain that starts around the belly button and then shifts to the lower right side of the abdomen[4]. The pain can become more severe and localized over time. Many people with appendicitis experience a loss of appetite. Nausea and vomiting may occur, sometimes accompanied by a low-grade fever. A mild fever may develop as a result of the infection[5].

Since its initial description by Semm in 1983 the laparoscopic appendectomy has gained widespread acceptance as a suitable choice for treating patients with uncomplicated appendicitis due to its numerous advantages over the open method[6]. Laparoscopic appendectomy has been demonstrated to be practical and safe. The advantages of laparoscopic appendectomy include better diagnostic precision, less wound infections, less pain, quicker recuperation and an earlier return to regular activity[7,8]. We performed this study to compare benefits, drawbacks and outcomes of immediate vs interval Lap appendicectomy.

MATERIALS AND METHODS

After considering the utility of the study and obtaining approval from the ethical review committee, we selected one hundred ten patients of acute appendicitis of both genders. Patient's consent was obtained before starting the study.

Data such as name, age, gender, etc. was recorded. A thorough clinical examination was carried out. Patients were randomly divided into 2 groups of 55 each. In group I, immediate, and in group II, interval Lap appendectomy was performed. Parameters such as operative time, hospital stay and adverse events in both groups were recorded and compared. The results of the study were tabulated and subjected to statistical inference, where the level of significance was set significant below 0.05.

RESULTS

Group I comprised 35 males and 20 females and group II, 25 males and 30 females (Table 1).

The mean duration of symptoms was 3.2 days in group I and 3.4 days in group II. The mean operative time was 102.1 min in group I and 118.3 min in group II. The mean antibiotic duration was 13.2 days in group I and 15.4 days in group II. The mean hospital stay was 5.1 days in group I and 3.2 days in group II. The difference was significant ($p<0.05$) (Table 2).

45% of patients in group I and 82% in group II received central venous catheters. 11% of patients in group I and 46% in group II were discharged with central venous catheter. 24% of patients in group I and 27% in group II underwent IR procedure (Table 3, Fig. 1).

Table: 1 Patients distribution

Parameters	Group I (immediate)	Group II (interval)
M:F	35:20	25:30

Table: 2 Comparison of parameters

Parameters	Group I	Group II	p-value
Duration of symptoms (days)	3.2	3.4	0.98
Operative time (min)	102.1	118.3	0.71
Total antibiotic duration (days)	13.2	15.4	0.05
Hospital stays (days)	5.1	3.2	0.02

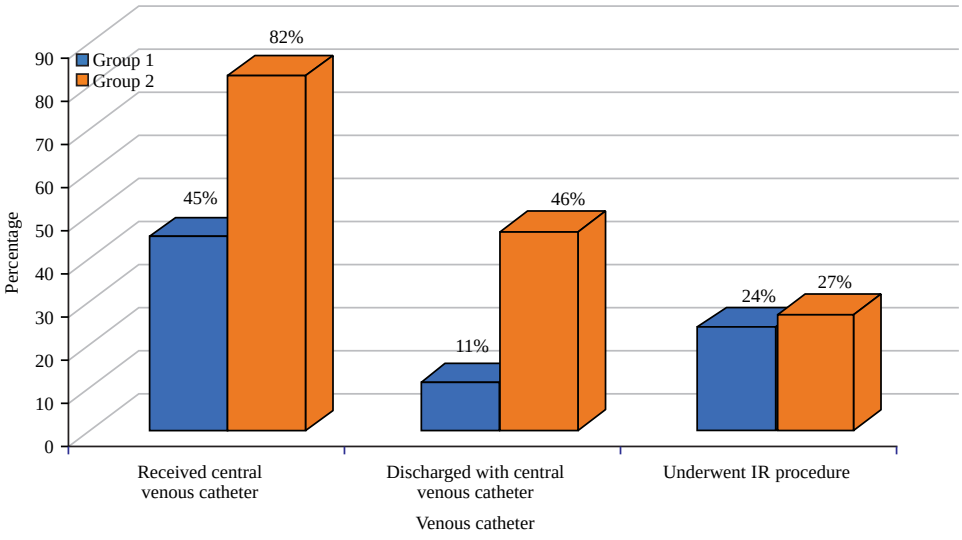

Fig. 1: Comparison of outcome in both groups

Table 3: Comparison of outcome in both groups

Parameters	Group I	Group II	p-value
Received central venous catheter	45%	82%	0.01
Discharged with central venous catheter	11%	46%	0.02
Underwent IR procedure	24%	27%	0.85

Table 4: Adverse events after immediate and interval appendectomy

Adverse events	Group I	Group II	p-value
Intra-abdominal abscess	5	12	0.01
Wound infection	2	3	0.94
Small bowel obstruction	0	4	0.05
Recurrent appendicitis	0	5	0.05
Readmission and increased cost/time	1	3	0.04

Adverse events reported were intra-abdominal abscesses in 5 patients in group I and 12 patients in group II, wound infection in 2 patients in group I and 3 patients in group II, small bowel obstruction in 4 patients in group II, and recurrent appendicitis in 5 patients in group II. Readmission and increased cost/time was observed in 1 in group I and 3 patients in group II. A significant difference was observed in both groups ($p<0.05$) (Table 4).

DISCUSSIONS

Over 40,000 instances of appendicitis are reported in the UK each year, and the estimated lifetime risk of appendicitis in the USA is 8.6% for men and 6.7% for women, respectively[9]. Appendectomy is the preferred course of therapy for appendicitis and the diagnosis is typically made clinically[10]. Appendicitis that is diagnosed later may have complications such a perforated appendix, peritonitis, sepsis, and higher morbidity and death rates[11,12]. Particularly in the female population, right iliac fossa pain can be a presenting complaint of various illnesses that may mimic appendicitis, creating diagnostic challenges and frequently resulting in negative appendectomies[13,14]. We performed this study to compare benefits, drawbacks and outcomes of immediate vs interval Lap appendicectomy.

In our study, we divided 110 patients into immediate and interval appendectomy group (55 each). Bae *et al*.[15] studied 25 adults who underwent a single-port laparoscopic interval appendectomy for perforated appendicitis with peri-appendiceal abscess. Blakely *et al*.[16] studied 131 patients <18 years with a preoperative diagnosis of perforated appendicitis.

Our results showed that the mean duration of symptoms was 3.2 days in group I and 3.4 days in group II. The mean operative time was 102.1 min in group I and 118.3 min in group II. The mean antibiotic duration was 13.2 days in group I and 15.4 days in group II. The mean hospital stay was 5.1 days in group I and 3.2 days in group II. Blakely *et al*.[16] in their study observed that when compared to interval appendectomy, early appendectomy considerably cut down on recovery time (mean, 13.8 vs. 19.4 days). When compared to interval appendectomy the total adverse event rate was 55% for interval appendectomy and 30% for early appendectomy (relative risk with interval appendectomy: 1.86; 95% confidence interval: 1.21-2.87). Due to failure to improve (n = 17), recurrent appendicitis (n = 5), or other causes (n = 1), 23 patients (34%) who were randomly assigned to interval appendectomy underwent an appendectomy earlier than scheduled. Bae *et al*.[15] found that of the 25 patients, 3 (12%) required conversion to reduced-port laparoscopic surgery with a 5-mm port insertion due to significant adhesions to nearby organs, and 9 (36%) required percutaneous drainage for a median of 7 days (5-14 days) after insertion. Of the 22 patients who had SPLS, 13 (52.0%) underwent pure SPLS and 9 (36.0%) received SPLS with a 2-mm needle device. A drainage tube was inserted in 9 patients (36.0%) during the procedure, which took a median of 70 min (30-155 min). The median time to start a soft diet and the median length of stay in the hospital were 2 days (0-5 days) and 3 days (1-7 days), respectively. The median overall length of the incision was 2.5 cm (2.0-3.0 cm). One wound site bled and two patients (8.0%) experienced postoperative problems. Adverse events reported were intra-abdominal abscesses in 5 patients in group I and 12 patients in group II, wound infection in 2 patients in group I and 3 patients in group II, small bowel obstruction in 4 patients in group II, and recurrent appendicitis in 5 patients in group II. Readmission and increased cost/time was observed in 1 in group I and 3 patients in group II. Drawback of immediate appendicectomy was longer duration and more pain. Kim *et al*.[17] found that the use of a laparoscopic approach was advantageous in the interval appendectomy group (INT group) for peri-appendiceal abscess in terms of operation duration, reduced fasting time and less postoperative problems. However, because patients in the INT group required two hospital visits the overall cost in the INT group was higher than in the EAR group. In the INT group the overall postoperative hospital stay was 7.312.726 days, while it was 9.213.378 days in the EAR group ($p = 0.537$).

Takami *et al*.[18] compared clinical outcomes between patients treated with laparoscopic appendectomy (LA) and those who underwent open appendectomy (OA) in 179 patients. The mean ages of patients in the OA and LA groups were 50.17±22.77 and 50.13±25.84 year. The mean operative times were longer in the LA group than OA (10.2.56±44.4 versus 85.4±43.11 min, $p = 0.009$). The duration of hospital stay was shorter for the LA group (9.61±5.57 versus 12.19±8.4, $p = 0.016$). There were no significant differences in return to consumption of oral intake between the LA and OA groups (2.03±1.66 versus 2.48±2.17, $p = 0.123$). Multivariable analysis found that the rate of postoperative complications was

significantly reduced for the LA group, in comparison with the postoperative-complication rate of the OA group (16.7% versus 27%).

CONCLUSION

Immediate appendectomy found to be better in terms of early recovery, shorter hospital stay and less adverse events in comparison to interval appendectomy.

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