

Post Appendectomy Fistula: A Review of Its Management in 50 Cases

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Abstract

Introduction: Open appendectomy (OA) and laparoscopic appendectomy (LA) are the choices of treatment for acute appendicitis. However, laparoscopic approach is emerging for the benefits it provides, but it also sometimes may have some drawbacks like OA including fistula. **Objective:** This retrospective study aims to investigate the management of fistula in 50 post appendectomy fistula patients. **Methods:** A retrospective study was done at MH Samorita Medical College & Hospital, Hi-Tech Surgicare Hospital & Piles Centre, Savar Specialized Hospital and Lab Zone Hospital Savar, Bangladesh during January 2019 to December 2023 from January 2019 to December 2023, among the patients who had undergone laparoscopic appendectomy and open appendectomy. The total study population was 50, among which 33 (66%) patients were in open appendectomy and 17 (34%) were in laparoscopic appendectomy. The patients' age group included 10 years to 50 years of both male and female patients. $P < 0.005$ was considered significant in this study. **Results:** Out of total study population, 33 were from OA (66%) and 17 were from LA (34%) group. Most of the study patients were male, aged 21-30 years age group. Fistulogram found to be the commonly used method to diagnose fistula. Tuberculosis was found to be the frequent cause of post appendectomy fistula. **Conclusion:** Post appendectomy seems to have different outcomes with some adverse impact, fistula is one of them. The present study finds that the chances of post appendectomy fistula is less in LA group compared to OA. Proper study and better investigation may bring this to null with time.

Keywords: Appendectomy, appendicitis, laparoscopy, appendectomy, fistula.

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INTRODUCTION

Almost 7% of the population develop appendicitis in the course of their life, mainly within the ages between in the range of 10 and 30 years of age [1]. Mc Burney presented appendectomy as the treatment of decision for appendicitis which included the open approach [2]. These days laparoscopic technique for appendectomy has come as another strategy for appendectomy. Negligible surgical trauma, less postoperative pain, and term of clinic stay are found in the laparoscopic approach [3]. Yet the greater expense of the treatment and longer duration of the activity stays the lagging step for laparoscopic surgery. Improved results have been shown by certain examinations favoring the

laparoscopic approach, [4] while certain researches show laparoscopic surgery has a negligible advantage or no advantage contrasted with open surgery [5]. Laparoscopic appendectomy has the inherent allure shared by all minimal access surgery. This incorporates the potential for diminished postoperative pain, quicker re-visitation of full activity, and improved cosmesis. On the other hand, a few studies have proposed that the laparoscopic approach outcomes a potential longer operating time and more postoperative complications than the open approach. These perceptions have been accounted for the two grown-ups and children [6-13]. Regardless of these revealed possible weaknesses, laparoscopic appendectomy has turned into a famous

activity for intense and punctured an infected appendix in children [6, 8-10, 14, 15]. Perforation generally prompts abscess development in right iliac fossae or pelvic sore relying on the place of supplement. After perforation of appendix patient present with the signs symptoms of peritonitis like abdominal distension, tenderness, fever, tachycardia, abdominal pain and raised attention [16]. Nowadays, the combined benefits of better diagnosis and decreased surgical trauma have dynamically preferred the laparoscopic appendectomy (LA) over open appendectomy (OA) for the treatment of intense an infected appendicitis. In various analyses and meta-analyses LA has accomplished less postoperative pain, decreased emergency clinic stay and quicker return to typical day to day exercises contrasted with OA at the expense of longer operating times [17-19]. Despite these positive outcomes OA is still often performed around the world: In the United Kingdom, 34% of appendicitis patients receive OA [20], in Ireland, 45% to 75% (district general hospitals) [21], and in Italy, more than 50% [22, 23]. In addition, OA is still required when LA requires conversion to an open approach (such as dense adhesions, diffuse peritonitis, appendix excision difficulties caused by perforation) [24] or in special circumstances like pregnancy, where the rate of fetal loss is decreased by avoiding the pneumoperitoneum and CO₂ systemic absorption [25]. One of the authentic debates of the open method includes the administration of the appendiceal stump following evacuation of the supplement. A long stump might create repeats (appendiceal stumpitis) [26]. While an insufficient conclusion sullies the stomach cavity with waste material (waste fistula). In the two cases, the postoperative result is jeopardized and re-activities with gut resections might become vital. Two methodologies have been described over the course of the years for the administration of the appendiceal stump during OA. The simple ligation (SL), which was first described in 1884 [27, 28], is the simplest method. The second comprises in the ligation and invagination of the stump (SI) in the cecum [27, 28] by a purse-string suture or a Z-stitch [29-34]. This study aims to investigate the management of post appendectomy fistula in LA and OA. Ethical clearance and informed consent was taken from the respected authority.

OBJECTIVES

- **General Objective:** The objective of this research is to identify the postoperative complications in laparoscopic appendectomy and open appendectomy.
- **Specific Objective:** This study aims to investigate the management of fistula in 50 post appendectomy fistula patients who underwent LA and OA.

METHODOLOGY

It is retrospective comparative study which has been designed to compare the management of fistula in post appendectomy patients who went through LA and OA. This study was directed in MH Samorita Medical College & Hospital, Hi-Tech Surgicare Hospital & Piles Centre, Savar Specialized Hospital and Lab Zone Hospital Savar, Bangladesh during January 2019 to December 2023. Within this 3 years period, 576 patients of 10-50 years age group came in this hospital for appendectomy, among which only 50 of them, diagnosed with post appendectomy fistula, were selected for the study.

- **Inclusion Criteria:** Patients diagnosed with acute appendicitis were diagnosed both clinically as well as radiologically, and who underwent either LA or OA were included in the study.
- **Exclusion Criteria:** Patients with a history of a lump at the right iliac fossa, abdominal trauma, pregnant women, previous lower abdominal operation, and patients with severe medical disease requiring intensive care, and patients converted from laparoscopic to open surgery were excluded from the study. Also patients below 10 years and above 50 years age group were excluded.

Statistical analysis Data analysis was done by using the Statistical Package for the Social Sciences Windows version 25.0 (SPSS, Chicago, Illinois, United States). Results were considered significant if the probability of chance of occurrence was less than five percent ($P < 0.05$). The ethical review committees of the study places approved the study. Written informed consent paper was signed by the patients.

RESULT

Table-1: Age distribution of study patients

Total patients (50)	Age group	Number of patients	Percentage	P-value
Male (38)	10-20 years	12	36.36%	P<0.001
	21-30 years	15	45.45%	
	31-40 years	7	21.21%	
	41-50 years	4	12.12%	
Female (12)	10-20 years	5	29.41%	
	21-30 years	4	23.53%	
	31-40 years	2	11.76%	
	41-50 years	1	5.88%	

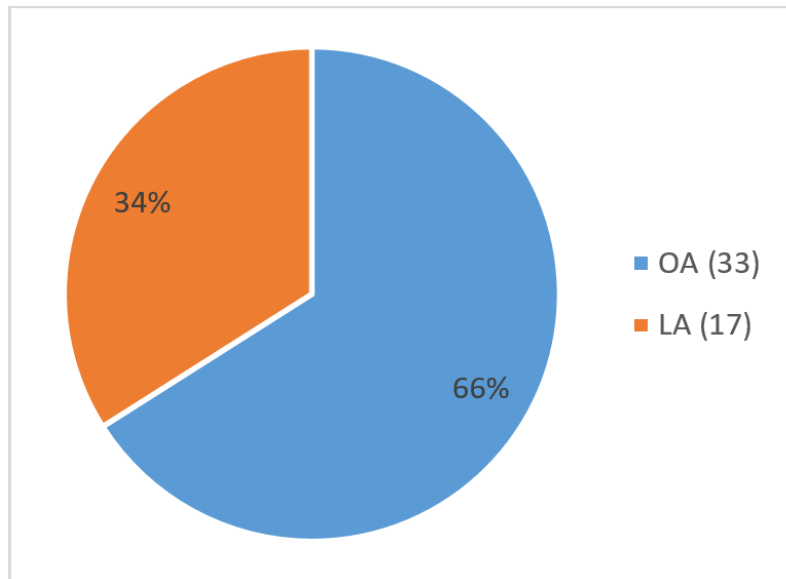


Figure-1: Choice of appendicectomy

Table-2: Diagnostic modalities used for the study patients

Diagnosis	Number of patients	Percentage
Ultrasonography	5	10%
CT scan	10	20%
Fistulogram	21	42%
Colonoscopy	14	28%

Table-3: Reasons of post appendicectomy fistula

Reasons	Number of Patients	Percentage
Tuberculosis	16	32%
Chron's Disease	2	4%
Ca-Caecum	1	2%
Residual Faecolith	8	16%
Suture Material	1	2%
Unidentified	22	44%

DISCUSSION

In this study, 66% of the study patients suffering from post appendicectomy fistula underwent open appendicectomy where most of the patients were of 21-30 years age group. Most of the patients used Fistulogram process to identify the problem. Tuberculosis was spotted as the main reason which resulted in post appendicectomy fistula.

The age of the OA group and that of the LA group was found to be similar to some studies [35]. Some similar studies reported the mean age in both groups as around the 30s which is quite consistent with the current study [36-39]. There were 76% males (38), whereas only 24% females (12) who faced fistula ($P < 0.001$). This statistically significant difference in the sex was also studied by Biondi *et al.*, [36] On the other hand, a nationwide population-based study from Taiwan showed that a higher proportion of females had undergone laparoscopic surgery [39]. Postoperative complications observed were Tuberculosis, Chron's Disease, Ca-Caecum, Residual Faecolith, and Suture Material. There

were no cases of appendicular abscess, appendicular tumor, or pelvic abscess in the study people. Similar findings are reported in the other literature [40]. A study found purulent peritonitis to be common among OA groups [51] which did not match the present study. However, lower overall morbidity, mortality, and shorter hospital stays have been shown for LA than OA in large nationwide data from the United States [41]. Some studies done on larger amount of population from Sweden and Denmark with ten 10-year study duration noted a significant decrease in general complications, including the intra-abdominal abscess [42, 43]. LA have frequently reached out from simple to complicated acute appendicitis and even more actually to appendicular lump [44, 45]. OA can be performed during the index admission in numerous patients with an appendicular lump. Although OA has been linked to a wide range of complications, the majority are attributed to gastrointestinal injuries, wound disease, an intra-stomach boil, an intestinal fistula, and respiratory complications [44, 46-48].

The most common postoperative complication in complicated appendicitis identified is wound infection. The second most common one is noted as intra-abdominal abscess formation and the third one small bowel obstruction [49]. Usually, complications of laparoscopic appendectomy is intra-abdominal collection. The major complications related to anesthesia found in LA are not different from those that occur in OA. Cardiac arrhythmias and cardiac arrest have been reported in certain cases, generally because of a profound vasovagal response to rapid peritoneal distension, the patient's position, air embolism, or increased abdominal pressure [50]. No such complications were reported in the current study.

Limitations

The limitations of this study was its multi-institutional nature, which may cause loss of data. As it's a capital centered study, it does not project the overall situation of the country.

CONCLUSION

Laparoscopic appendectomy (LA) has achieved less post appendectomy fistula compared to open appendectomy (OA). Additionally, over time, people are attempting for LA than OA which reduces postoperative complications. For better conclusion, multicenter study with large sample is recommended.

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Conflicts of Interest: N/A

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