

# Assessment of Patients Undergoing Appendectomy

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## Abstract

**Background:** Aim: To assess patients undergoing appendectomy. **Subjects and Methods:** One hundred eight cases of appendectomy treated in the department of general surgery was enrolled. Based on the procedure performed whether open (group I) or laparoscopic appendectomy (group II) was performed. Parameters such as operative time, hospital stay and complication in both groups was recorded and compared. **Results:** Out of 108 patients, males comprised 64 (59.2%) and females 44 (40.8%). Operative time in group I was 42.1 minutes and 41.3 minutes in group II. Hospital stay was 3.5 days in group I and 4.8 days in group II. Complications was seen among 1.4 in group I and 3.8 in group II. A significant difference was observed ( $P < 0.05$ ). Histopathological findings was appendicitis in 81, mucinous lesions in 12, carcinoid tumour in 5 and unusual pathology in 10. A significant difference was observed ( $P < 0.05$ ). **Conclusion:** Maximum patients were suffering from appendicitis. Surgical procedure performed was open and laparoscopic appendectomy.

**Keywords:** laparoscopic appendectomy, carcinoid tumour, mucinous lesions.

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## Introduction

Acute appendicitis (AA) is the most common surgical disease with a lifetime risk of 7–8%. Traditionally, appendectomy has been the treatment of choice for acute appendicitis. Mortality rate after appendectomy is very low and may range from 0.07 to 0.7% rising to 0.5 to 2.4% in patients without and with perforation.<sup>[1,2]</sup> Furthermore, overall postoperative complication rates ranged between 10 and 19% for uncomplicated AA and reaching 30% in cases of complicated AA.<sup>[3]</sup> Improving the diagnostic pathway is the cornerstone for decreasing the negative appendectomy rate and the risk of wrong diagnosis.<sup>[4,5]</sup> Before the wide spread use of CT scans, the diagnosis of acute appendicitis was mainly based on symptoms, signs, and laboratory data.<sup>[6]</sup>

Acute abdominal pain is one of the most common earliest indicators of any clinical issues. The earliest known case of an appendiceal tumor dates back to 1882. Appendiceal tumors constitute 0.2% to 0.5% of all primary neoplasms seen in the gastrointestinal tract. This type of tumor is rare compared to other tumors that affect the gastrointestinal tract.<sup>[7]</sup> Obstruction of lumen is the dominant factor in acute appendicitis and although faecoliths and lymphoid hyperplasia are the usual cause of obstruction, some unusual factors could be involved.<sup>[8]</sup> Unusual causes of obstructions are enterobiasis, ascariasis, tuberculosis, carcinoid tumor, primary or secondary adenocarcinoma, lymphoma, dysplastic changes, mucocele, gastrointestinal stromal tumor, eosinophilic granuloma etc. Even though, there are many case reports in English written medical literature, reports with

meticulous analysis of all cases with appendicitis are small in number.<sup>[9]</sup> Considering this, we attempted present study to assess patients undergoing appendectomy.

## Subjects and Methods

A total of one hundred eight cases of appendectomy treated in the department of general surgery was enrolled. They were selected after they agreed to participate in the study. Ethical clearance was obtained before starting the study. Demographic profile of patients was recorded. A thorough clinical examination was carried out. Based on the procedure performed whether open (group I) or laparoscopic appendectomy (group II) was performed. Parameters such as operative time, hospital stay and complication in both groups was recorded and compared. Results of the study was tabulated and subjected to statistical inference, where level of significance was set significant below 0.05.

## Results

**Table 1: Distribution of patients**

Total- 108		
Gender	Male	Female
Number (%)	64 (59.2%)	44 (40.8%)

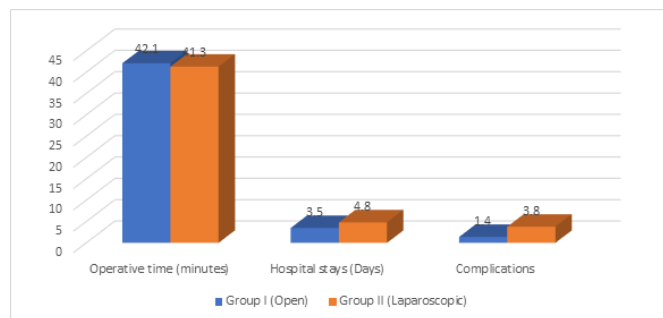
Out of 108 patients, males comprised 64 (59.2%) and females 44 (40.8%) [Table 1].

Operative time in group I was 42.1 minutes and 41.3 minutes in group II. Hospital stay was 3.5 days in group I and 4.8 days

in group II. Complications was seen among 1.4 in group I and 3.8 in group II. A significant difference was observed ( $P < 0.05$ ) [Table 2, Figure 1].

**Table 2: Patients characteristics**

Parameters	Group I (Open)	Group II (Laparoscopic)	P value
Operative time (minutes)	42.1	41.3	>0.05
Hospital stays (Days)	3.5	4.8	<0.05
Complications	1.4	3.8	<0.05

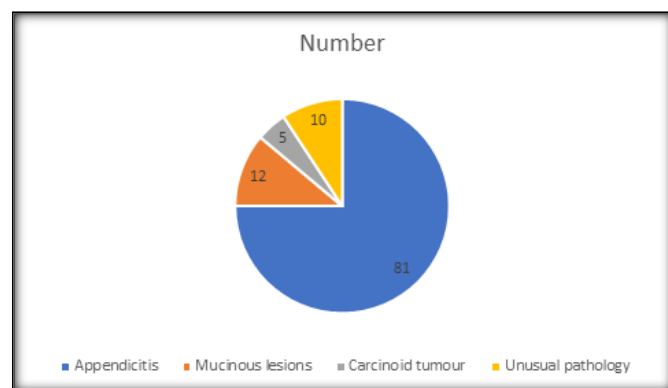


**Figure 1:**

**Table 3: Histopathological findings**

Findings	Number	P value
Appendicitis	81	<0.05
Mucinous lesions	12	
Carcinoid tumour	5	
Unusual pathology	10	

Histopathological findings was appendicitis in 81, mucinous lesions in 12, carcinoid tumour in 5 and unusual pathology in 10. A significant difference was observed ( $P < 0.05$ ) [Table 3, Figure 2].



## Discussion

Appendicitis is a common acute surgical emergency with over 40,000 cases in the UK every year and the estimated life time risk of appendicitis in the USA is 8.6% and 6.7% for males and females respectively.<sup>[10,11]</sup> The diagnosis of appendicitis is largely clinical and appendectomy is the treatment of choice.<sup>[12]</sup> Delayed diagnosis of appendicitis could lead to complications like perforated appendix, peritonitis, sepsis, increased morbidity and mortality.<sup>[13,14]</sup> Right iliac fossa pain can be a presenting complaint of different pathologies that

may mimic appendicitis especially in the female population causing diagnostic difficulties and often leads to negative appendectomies.<sup>[15]</sup> Acute abdominal pain is one of the most common earliest indicators of any clinical issues. The earliest known case of an appendiceal tumor dates back to 1882.<sup>[16]</sup> Appendiceal tumors constitute 0.2% to 0.5% of all primary neoplasms seen in the gastrointestinal tract. This type of tumor is rare compared to other tumors that affect the gastrointestinal tract.<sup>[17]</sup> Considering this, we attempted present study to assess patients undergoing appendectomy.

Our study revealed that out of 108 patients, males comprised 64 (59.2%) and females 44 (40.8%). Emre et al,<sup>[18]</sup> found that out of 790 appendectomy specimens, acute appendicitis accounted for 302 (38.2%) with peak occurrence in the age group 11-20 years (38.9%) and 21-30 years (27.7%) with male predominance (2.34:1). Unusual findings were noted in 44 (5.6%) cases by histopathology. Most common findings included obliterative appendicitis (77.3%), followed by eosinophilic appendicitis (6.8%) and granulomatous appendicitis (4.5%). Other unusual findings include diverticulum, mucocele, carcinoid and signet ring adenocarcinoma of the appendix.

The results showed that operative time in group I was 42.1 minutes and 41.3 minutes in group II. Hospital stay was 3.5 days in group I and 4.8 days in group II. Complications was seen among 1.4 in group I and 3.8 in group II. Kirby et al,<sup>[19]</sup> found that AA was more prevalent in young adults (19- 44 years) and males (65.20%). The mean hospital stay was seven days and phase II was the most prevalent. Authors found the histopathological diagnosis of primary tumor of the appendix in six patients (0.94%), adenocarcinoma being the most common histologic type (66.7%). Regarding the use of antibiotics, 196 patients underwent antibiotic prophylaxis and 306 received antibiotic therapy. Eighty-one patients used some kind of drain, for an average of 4.8 days. Seventeen patients died (2.67%), predominantly males (70.59%), with mean age of 38.47 years.

We observed that Histopathological findings was appendicitis in 81, mucinous lesions in 12, carcinoid tumour in 5 and unusual pathology in 10. Sartelli et al,<sup>[20]</sup> conducted a study in which a total of 4282 patients were enrolled in the POSAW study, 1928 (45%) women and 2354 (55%) men, with a median age of 29 years. Nine hundred and seven (21.2%) patients underwent an abdominal CT scan, 1856 (43.3%) patients an US, and 285 (6.7%) patients both CT scan and US. A total of 4097 (95.7%) patients underwent surgery; 1809 (42.2%) underwent open appendectomy and 2215 (51.7%) had laparoscopic appendectomy. One hundred eighty-five (4.3%) patients were managed conservatively. Major complications occurred in 199 patients (4.6%). The overall mortality rate was 0.28%. The results of the present study confirm the clinical value of imaging techniques and prognostic scores. Appendectomy remains the most effective treatment of acute appendicitis. Mortality rate is low.

Bhangu et al,<sup>[21]</sup> in their study found that mean age was 24.51 ± 16.17, 54.7% were male and the mean Charlson's comorbidity index was 0.32 ± 0.92. Mortality was < 0.0001%. Appendectomy was performed in 94.7% of the patients and the mean length of stay was 5.08 ± 2.88 days; the cumulative hospital stay was 5.19 ± 3.36 days and 1.2% of patients had at least one further hospitalization due intestinal occlusion.

Laparoscopic appendectomy was performed in 48% of cases. Percent of 5.34 the patients were treated conservatively with a mean length of stay of  $3.98 \pm 3.96$  days; the relapse rate was 23.1% and the cumulative hospital stay during the study period was  $5.46 \pm 6.05$  days.

## Conclusion

Maximum patients were suffering from appendicitis. Surgical procedure performed was open and laparoscopic appendectomy.

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