

Prevalence of Appendix Perforation in Patients Presenting with Acute Appendicitis: A Cross-Sectional Study

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ABSTRACT

Aim: To find out the frequency of perforated appendix among patients presenting with acute appendicitis.

Study design: A cross-sectional study

Place and Duration: This study was conducted at Sindh Employee Social Security Hospital Landhi Karachi, Pakistan from July 2020 to November 2021.

Methodology: This study includes 205 patients. All the details like age, gender, and previous history associated with diabetes and fasting blood sugar were noted. The surgeries were performed by a single surgeon who detected the presence and absence of a perforated appendix.

Results: Mean age of patients was 28 years with a standard deviation of ± 13.63 . A total of 64% of patients were male and 26% were female. About 11% of patients had perforated appendix after acute appendicitis.

Conclusion: The frequency of perforated appendix in this study was 11% in patients undergoing appendectomy for acute appendicitis.

Keywords: Appendicitis, perforated appendix, adults, prevalence

INTRODUCTION

There are almost 250,000 cases of acute appendicitis reported each year in America (1) and about 40,000 in England (2). Mostly abdominal pain is due to appendicitis which also leads to abdominal surgeries (3). In order to treat appendicitis, there is a treatment known as Appendectomy. The inflammation of the appendix is known as appendicitis (4) which leads to surgery in the future. The percentage for males is ten and for females is twenty-four (5). Amyan was the first surgeon to perform this surgery in 1735. This surgery was executed without anesthesia to remove the perforated appendix (4, 6). In the case of complex appendicitis, a complicated appendectomy is performed to remove the appendix (7). This technique includes perforated appendicitis with localized peritonitis (8). Other complexities related to appendicitis are empyema, fecal peritonitis, and abscess formation but the most common one is an inflamed appendix with high mortality rates between ages of 10 and 30 years (9). Acute appendicular inflammation is related to obstruction in 55-80% of cases. The site of obstruction of the organ is known by finding out the diameter and thickness of the organ but the pathogenesis remains unknown with no findings of luminal obstruction (10). The cause of appendicitis is the mechanical obstruction of the appendix lumen which is due to swelling of mural lymphoid tissue caused by infection (11). Treatment of perforated appendicitis in children is difficult. Patients with long-term symptoms of perforated appendicitis are first treated with antibiotics then surgery is carried out (12). Broad-spectrum antibiotics have made this surgery easy in a large number of patients (13). If an Inflamed appendix remains untreated it can further cause problems like necrosis of the appendix. When the appendix becomes perforated, complications due to fecal peritonitis can lead to death.

The main aim of this study was to find out the frequency of perforated appendix in patients that have gone under the treatment of Appendectomy. This study will provide information about the frequency of perforated appendicitis in patients with acute appendicitis. This information will help in future research on perforated appendicitis.

METHODOLOGY

This study was carried out in our hospital after taking consent from the ethical committee. A total of 205 patients were considered for the study. Patients who had a previous history of diabetes and

abnormal fasting blood sugar were not included in the study. A complete examination was done and standard pre-operative procedures were carried out. The surgeries were performed by a single surgeon in a controlled environment. All the details including age, name, weight, BMI, and gender were noted and perma was made. The data were analyzed in SPSS version 21. The mean and standard deviation of continuous variables was also calculated. Categorical variables were calculated through percentages and frequencies. Effect moderation was determined when perforation was stratified with age and duration of appendicitis. A Chi-square test was applied in which P-value < 0.05 was considered significant.

RESULTS

Among 205 patients 15 were in the age range of 20-25 years, 60 patients in a range of 25-29 years, 65 patients in a range of 30-35 years, 43 patients in the age range of 36-40 years, and 22 patients in the age range of 41-45 years. Mean and standard deviation was also taken. Gender distribution among 205 patients was 125 male patients and 180 female patients. Time of appendicitis among 205 patients was calculated as 118 patients had appendicitis >24 hours while 87 patients had appendicitis <23 hours. The status of BMI among 205 patients was analyzed as 93 patients had BMI <24Kg/m² and 112 patients had BMI >24kg/m². Perforated appendix among 205 patients was analyzed as 23 patients had perforated appendix while 182 did not have a perforated appendix.

DISCUSSION

Acute appendicitis is one of the common causes of abdominal surgery. Diagnosis of this condition is difficult due to the absence of accurate diagnostic tests (14). So, it is difficult for the surgeon to detect acute appendicitis in a patient. Diagnostic techniques like CT and MRI are less effective to Diagnose acute appendicitis because these diagnostic techniques are expensive and time-consuming (15). Basic diagnosis of acute appendicitis is done through WBC. Negative Appendectomy is being avoided by adopting a reliable scoring system and this has been practiced by many surgeons. Previous studies have shown an improvement in the diagnosis of acute appendicitis (16). The mean age in this study was 32 years with a standard deviation of ± 13.63 . In recent studies, the prevalence of appendicitis is 10 to 30%.

In this study 23 patients had a perforated appendix while 182 did not have a perforated appendix, 125 patients were male and 80 were female. Similar results were also observed in other studies by Manan F et al. performed a study where the number of patients was 201 (17). About 10% of patients were suffering from perforated appendicitis, appendicular mass was found to be in 5% of patients, and the remaining 75% of patients were diagnosed to be acutely inflamed. The perforation rate in the study given by Balogun OS et al. was 30% (18). The age range was 22-28 years. About 72% of patients were male, and only 4.5% were suffering from abdominal pain. Besides abdominal pain, other problems were site infections, pelvic abscess, and wound dehiscence. The occurrence of SSI score was in correlation with male gender and ASA score was 93%. A pelvic abscess was found to be still there even after the surgery. Also, there was no death reported in this study. Njoku et al. also reported a 5% perforation rate in their study (19). Another study by Edino et al. was performed 140 appendectomies (20). He reported 30 cases of appendicular perforation. A perforation rate of 40% was reported by Yeboa in his study. All these figures are very high from the ones observed in Nigeria and less than from Ghana. All these studies were retrospective.

Conclusion: The frequency of perforated appendix in this study was 11% in patients undergoing appendectomy for acute appendicitis.

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