



APPENDICULAR PERFORATION : CLINICAL STUDY OF RISK FACTORS AND VARIOUS CLINICAL PRESENTATIONS

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ABSTRACT

INTRODUCTION: Acute Appendicitis is the commonest abdominal surgical emergency in young adults all over the world. Appendicular perforation is a serious complication in view of the ensuing peritonitis with the consequent sequelae and morbidity. **OBJECTIVES:** To determine the Different risk factors and clinical presentation of perforation of appendix of patients admitted in a tertiary care hospital and effective management of patients by knowing risk factors. **METHODS:** A retrospective study was conducted among 54 patients during July 2023 to December 2024 admitted For Appendicular Perforation in our hospital. Patients of age above 10 years and both sexes operated for acute appendicitis were included in present study. The clinical history, clinical features, investigations, intraoperative findings, were noted and surgical procedure done. **RESULT:** In this study 37 patients were male, 17 patients were females. According to our study appendicular perforation is more common in males . Age incidence of appendicular perforation is maximum in the age group of 11 - 20 years. Next common age group is 50-60 yrs. Incidence is more in males. Male to female ratio is 2.4:1. Pain abdomen, vomiting, fever and anorexia were common symptoms in all the patients. Rare presentation include bowel obstruction . Delayed checkup/admission in hospital accounted for 65% of perforated cases. **CONCLUSION:** 1. The morbidity and mortality rates are higher in elderly patients, diabetics and immunocompromised patients. 2. We should be aggressive in the treatment of acute appendicitis associated with high risk factors. 3. Also Majority of the patients came late to the hospital accounting for the cause of perforation and subsequent mortality and morbidity . 4. Once acute appendicitis with perforation is diagnosed, the expedient surgery and appropriate use of perioperative antibiotics can help in reducing the morbidity and mortality.

KEYWORDS : Appendicular perforation , morbidities, risk factors.

INTRODUCTION

Appendicitis is one of the most common causes of surgical emergency, having a varied number of presentations¹. Its incidence gradually rises over the teenage years and declines in the older ages². Acute Appendicitis is the most common abdominal surgical emergency in young adults all over the world. Appendicular perforation is a serious complication because of the ensuing peritonitis with the consequent sequelae and morbidity³. Distinguishing appendicitis from other causes of abdominal pain is difficult. Identifying the risk factors and clinical presentations of perforation helps in early diagnosis and effective treatment which can reduce mortality and morbidity.

Obstruction of the Appendix lumen leads to Increased intraluminal pressure Obstructing Lymphatic Drainage causing Oedema, Mucosal Ulceration, And Bacterial translocation to submucosa which causes Venous Obstruction and Ischemia of the Appendix wall with Bacterial Invasion leading to Acute Appendicitis and Ischemic necrosis of appendix wall (Gangrenous Appendicitis) and Other complications such as perforation⁴.

Complications from a Perforated appendix are Bacterial contamination of the peritoneal cavity, Peritonitis, Deteriorating Clinical Course and Systemic Sepsis Syndrome⁵.

MATERIALS AND METHODS

Study Design

Observational study

Study Duration

January 2023 to December 23 admitted For Appendicular Perforation in our hospital. (GMC, AKOLA).

Study sample size

Calculated by $Z2pq/d2$, where $Z = 1.96$ (for 95% Confidence Interval); p (prevalence) = 17% (previous literature); $q = 1 - p$; d (allowable error) = 10%.

The sample size came to 54.

Sampling Type:

Convenient sampling

Inclusion Criteria

- Patients of age above 10 years and both sexes operated for acute appendicitis.
- All right lower abdominal pain is clinically presumed to be of appendicular origin.

Exclusion Criteria

- Patients less than 10 years.
- Patients who were not willing to have appendectomy.

Study Method:

Informed consent was taken from the patients with confidentiality maintained.

Surgery:

- Open surgical method, intraoperative findings were noted and recorded on a standard proforma.
- Appendicectomy with peritoneal wash was done in patients with peritonitis and a tube drain kept.
- Drainage of abscess + appendicectomy was done in patients who had appendicular abscess.
- As it was emergency surgery, we collected patient's demographic details and details regarding risk factors in the post-operative period.

RESULT

Table 1: Distribution Of Patients As Per Age Group

Age Group Years	No. of Patients	Present Study
11-20	17	31.48%
21-30	9	16.66%
31-40	5	9.25%
41-50	7	12.96%
51-60	12	22.22%
61-70	4	7.44%

- 1) Age incidence of appendicular perforation is maximum in the age group of 11- 20 years. The next common age group is 50-60 yrs.
 - 2) All of the patients were non-diabetics.
 - 3) 35 (65%) patients of appendicular perforation had delay in seeking health care.
 - 4) 54 patients enrolled. 37 (68.5%) patients were males, 17 (31.5%) patients were females.
 - 5) Pain abdomen, vomiting, fever and anorexia were common symptoms in all the patients.
- Rare presentation include bowel obstruction .

Tables 2 & 3: Distribution Of Patients As Per Sex And Risk Factors

SEX	No. Of Patients	Present Study
Males	37	68.51%
Females	17	31.48%
Total	54	100%
Risk factors	No . Of Patients	
Fecolith	1	1.8%
Delay in admission	35	65%
Previous Abdominal operation	6	10.3%

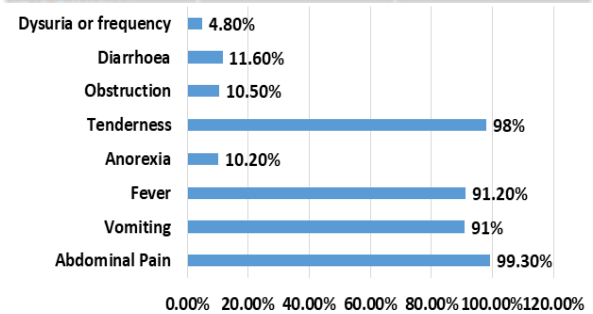


Fig 1: Distribution Of Patients As Per Symptoms And Signs Of Appendicular Perforation

Morbidities

Observed were SSIs, fecal fistula, lung infection, and septicemia. All in elderly (50-60 yrs).

INVESTIGATIONS

- 1) W.B.C. count: Elevated beyond 14000/cu.mm in most of the patients.
- 2) ESR: relatively raised in all the patients.
- 3) Blood urea: Raised in direct proportion to the degree of dehydration. Electrolyte estimation helped in the correction of fluid and electrolyte imbalance.
- 4) PLAIN X-RAY ABDOMEN ERECT:
 - a. a) Ground glass appearance with air-fluid levels in 4 (8%) patients.
 - b. b) Distended loops of small bowel with gas & fluid seen in 16 (30%) patients.
 - c. c) Pneumoperitoneum seen in 1 (1.8%) of patients.
 - d. d) Faecolith seen in 1 (1.8%) of patients.
- 5)ULTRASOUND ABDOMEN: Appendicular mass was detected in 3 (5.5%) patients.

DISCUSSION

Acute Appendicitis remains a common Abdominal Emergency throughout the world with an incidence of 1.7/1000 population³.

In our study, 68.5% were males. This is consistent with a study by Bralas Sulu et al., in which appendicitis was more common in males(53.5%)². Similar observation was seen in Kini Study⁶. Also, the most common age group was between 11 and 20. This is consistent with the study conducted by A. J. Scott et al.², in which the common age group was found to be 10-30. Similarly, the same observation was found in the McPhail and Campbell series⁵.

CONCLUSION

Perforation of inflamed appendix is a dangerous complication. Hence, early diagnosis and treatment are essential³.

- 1) The morbidity rate is higher in elderly patients and those immunocompromised.
- 2) The majority of the patients make delays in seeking hospital care.
- 3) Aggressive treatment is needed for acute appendicitis associated with risk factors.
- 4) Once acute appendicitis with perforation is diagnosed, expedient surgery and appropriate use of perioperative antibiotics can help reduce the morbidity and mortality.

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