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General Surgery

A STUDY ON EVALUATION OF RISK FACTORS OF APPENDICULAR PERFORATION.

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ABSTRACT **Aims and objective:** The objective is to determine the risk factors contributing in appendicular perforation and effective management of patients by knowing risk factors. **Methods:** This study was conducted in the department of general surgery Andhra medical college, Visakhapatnam, from July 2021 to June 2022. Patients of age above 13 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, in all appendicular perforation cases through wash was given with normal saline with drain in situ. Post operatively antibiotics were given and all patients follow up done for one month. **Results:** Present study duration is one year, we operated total 60 patients for acute appendicitis. In this study 36 patients were male (61%) and 24 patients were females (39%). According to our study acute appendicitis is more common in males. Appendicular perforation has noticed in 11 female patients. The incidence of perforated appendicitis is low in males 06 out of 36 as compared to females 11 out of 24. The incidence of appendicular perforation is higher in the extreme of ages. In the elderly patients it is 57.1%. Thus, according to present study findings age above (>40 years) is strongly associated with the perforated appendicitis ($p<0.001$ chi square test). Delayed presentation Shows 83.33% appendicular perforations and faecolith associated with 66.66%. **Conclusions:** The morbidity and mortality rates are higher in elderly patients, diabetics, steroid dependent and immunocompromised patients. We should be aggressive in the treatment of acute appendicitis associated with high risk factors. So once acute appendicitis is diagnosed, the expedient surgery and appropriate use of perioperative antibiotics can help in reducing the morbidity and mortality

KEYWORDS : appendicular perforarion,risk factors,delayed presentation.

INTRODUCTION

Acute appendicitis is one of the most common disease presenting in emergency department.The peak incidence of the appendicitis is more in the younger age group. Then it decreases with the age. The male to female ratio is 1.3:1. The incidence of perforated appendix is higher in males and also at the extremes of ages.

The obstruction of the lumen of appendix is a main causative factor in perforation of appendix. The main culprit for the obstruction of the lumen of appendix is considered fecolith.

Fecoliths are responsible for the perforation of appendix in about 90% of cases of perforated appendix. Although there are certain other causes of luminal obstruction such as seeds of fruits and vegetables, lymphoid hyperplasia, intestinal worms especially Ascaris, malignancy and foreign body etc.

The mortality and morbidity is increased in cases of perforated appendix.

There are many contributing factors in the perforation of appendix. The most important factor is the late presentation of the patients from the onset of symptoms. As the more time lapses between the symptoms and the treatment, there are far more chances of complications.

The age is also considered as a significant risk factor in the perforation of the appendix. Age less than l0 years and more than 40 years is associated with significant mortality and morbidity.

The incidence of acute appendicitis is lower in the elderly as compared with younger age group. Diabetes a metabolic disorder, when accompany the acute appendicitis increases the mortality and morbidity significantly.

In this retrospective study we will evaluate the role of different risk factors -extremes of age, delayed presentation, obstructive appendicitis, diabetes and their importance in the management of acute appendicitis so that we may be able to suggest any helpful change in the management for example approach, pelvic generous toilet, antibiotic regimen etc.

AIMS AND OBJECTIVES

The objective of the study is to determine different risk factors contributing in appendicular perforation and effective management of patients by knowing risk factors.

METHODS

The total 60 patients were enrolled in the study with duration of one year between JULY 2021 to June 2022 and operated for acute appendicitis in the Surgical Department, king George Hospital, Visakhapatnam, Andhra Pradesh, India. It was a descriptive study.

Inclusion criteria: Age above 13 years and both sexes .
Exclusion criteria : Patients treated conservatively are excluded in this study.

All the patients admitted were assessed preoperatively by thorough history, physical examination,laboratory and radiological investigations.

Following investigations were performed:

- Hb, TLC, DLC, ESR
- Urine complete examination
- Blood sugar
- Blood urea
- Serum creatinine
- LFTs
- Anti HCV antibody, anti HbsAg
- X-Ray chest
- X-Ray abdomen in patients presenting with generalized abdominal pain.

RESULTS

Present study duration was one year. We operated total 60 patients for acute appendicitis. In this study 36 patients were male (60%) and 24 patients were females (40%). According to present study acute appendicitis is more common in males. Perforated appendix has been noticed in 17 patients. The incidence of perforated appendicitis was low in males 06 out of 36 as compared to females 11 out of 24. (from table-1).The incidence of appendicular perforation was higher in the extreme of ages. In the elderly, it was 57.1%. Thus, according to present study findings age above (>50 years) is strongly associated with the perforated appendicitis ($p<0.001$ chi square test). (as observed in in table -2)

Delayed presentation associated with 83.33% appendicular perforations and faecolith associated with 66.66% ($p<0.001$ chi square test).(as observed from table-3)

Table - 1, Sex distribution

Age group	Total cases	Appendicular perforation	percentage	male	female
18-30	28	10	35.7	4	6
31-40	14	1	7.1	0	1
41-50	11	2	18.1	1	1
>50	7	4	57.1	2	2

Table- 2, age distribution

	male	female	Total
Cases	36(60%)	24(40%)	60
Appendicular perforation	6(35%)	11(65%)	17

Table -3 ,risk factors

Risk factors	No.of cases	percentage
Age>40	6	35.29
Delayed presentation >72hrs	14	83.33
faecolith	11	66.66
diabetes	07	41.17
immunocomromised	00	00
Previous pelvic surgery	00	00
Steroid dependency	00	00

DISCUSSION

Incidence of appendicitis in elderly is 5-10% ,in the present study it is 11% and incidence of perforated appendicitis is 32-72%,in our study it is 57% both of above are in line with results of previous studies.

Male sex is significantly related to perforated appendicitis in previous studies but in our study female sex more related in appendicular perforation.

Delayed presentation- recent study by Augustin et al. showed a significant risk of perforation increased after 36hrs after onset of pain, and other study by Singh at al. it is >72hrs , in present study it is more than 72hrs duration.The result of present study showed that perforation of the appendix is strongly influenced by the patient factors, the time lapse between the symptoms and the treatment, phase of illness, age, presence of the fecolith, pre-existing clinical condition such as diabetes.

Perforated appendicitis may occur when appropriate treatment for acute appendicitis is delayed for a number of reasons, including problems with access to health care, failure by the patient to interpret symptoms as important, misdiagnosis and other delays in treatment. Appendicitis is a more serious situation in elderly patients than in young one.

The higher morbidity and mortality rates among the elderly undoubtedly reflect an increased prevalence of pre-existing cardiovascular and other diseases as well as a predictable decline in many physiological functions.

Diabetes a metabolic disorder, when accompany the acute appendicitis increases the morbidity and mortality because it impairs immunity.

The progression of disease from acute appendicitis to perforated appendicitis is more rapid in diabetic patients as compared to non-diabetics.

According to our study in elderly age people even in early presentation there is high risk of appendicular perforation and the uncontrolled diabetes patients are strongly associated with perforated appendicitis and wound infection is much more common in such patients.

Faecolith is one of the most common cause of appendicitis and appendicular perforation.

CONCLUSION

Elderly age group, female sex, duration of pain in preadmission period, fecolith, comorbidities like diabetes and immunocompromised states are the significant factors associated with perforated appendicitis.

Morbidity and mortality rates are higher in elders, diabetics, steroid dependent and immunocompromised patients. We should be aggressive in the treatment of acute appendicitis associated with high risk factors. So once acute appendicitis is diagnosed, the expedient surgery and appropriate use of perioperative antibiotics can help in reducing the morbidity and mortality.

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