

Original Research Article

A prospective study of epidemiology and clinical presentation of non-traumatic acute abdomen cases in a tertiary care hospital of central India

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ABSTRACT

Background: Acute Abdomen is a term used to encompass a spectrum of surgical, medical and gynecological conditions ranging from trivial to life threatening conditions, which require hospital admission, investigations and treatment. The purpose of this study was to identify the epidemiological pattern and to determine the spectrum of disease causing “non-traumatic acute abdomen in central India”.

Methods: This is a prospective study of 98 patients of non-traumatic acute abdominal cases conducted in the Department of Surgery, Sri Aurobindo Medical College and PG Institute, Indore, Madhya Pradesh, India. In this study, preoperative detailed history and thorough physical examination was done for all acute abdominal emergencies, to arrive at pre-operative diagnosis.

Results: Amongst the study of 98 patients, males have higher incidence of acute abdomen with the young age group (21-30 years) most commonly affected. Perforation peritonitis constituted the most common cause of acute abdomen (39.7%), followed by acute appendicitis (37.7%), followed by intestinal obstruction (14.2%).

Conclusions: This study was conducted to evaluate the epidemiology, etiology and differential diagnosis of non-traumatic acute abdomen. At the end of the study, we had a better insight of the spectrum of the condition and we concluded that there is more scope for further work in the same field for better understanding of this topic.

Keywords: Acute Abdomen, Appendicitis, Perforation peritonitis

INTRODUCTION

Acute Abdomen is a term used to encompass a spectrum of surgical, medical and gynecological conditions ranging from trivial to life threatening conditions, which require hospital admission, investigations and treatment.¹ The term encompasses long list of differential diagnosis which may vary from self-limiting to life threatening conditions. Abdominal pain is one of the common reasons for visits to the emergency room. Although for the majority of patients, symptoms are benign and self-limited, a subset will be diagnosed with “acute abdomen”, as a result of serious intra-abdominal

pathology necessitating emergency intervention.² The most appropriate therapy should be initiated with the patient’s clinical status optimized. The workup should first include a thorough but efficient acquisition of the patient’s history and physical examination followed by judicious use of laboratory and radiologic studies.

The most common symptoms are abdominal pain and vomiting whereas tenderness and guarding were the most frequent clinical signs. Specifically, gastroenteritis, acute appendicitis and abdominal trauma are commonest causes of acute abdomen in children and young adults, whereas biliary disease, intestinal obstruction, diverticulitis and

appendicitis are most common causes in middle aged and elderly and among non-surgical causes are metabolic, cardiac that should be considered while evaluating the patient. Indicated management may vary from emergency surgery to reassurance of the patient.^{3,4} The aim of this study was to identify the spectrum of disease causing non-traumatic acute abdomen in Central India.

METHODS

This is a prospective study of 98 patients of non-traumatic acute abdominal cases which was conducted in Sri Aurobindo Medical College and PG Institute, Indore, Madhya Pradesh, India which is a leading tertiary care hospital of Central India. In this study, the relevant epidemiological data was collected and preoperative detailed history and thorough physical examination was done for all acute abdominal emergencies, to arrive at pre-operative diagnosis. 98 patients were included in the study. The study was conducted from January 2015 to July 2016.

Inclusion criteria

- All non-traumatic acute abdominal cases presenting in surgery department
- Patients and/or his/her legally acceptable representative willing to provide voluntary written informed consent for participation in the study.

Exclusion criteria

- All the OPD cases (cases who would not get admitted)
- All the patients who would not be able to take full treatment (due to financial, social or other constraints)
- All the Patients presenting with traumatic acute abdomen cases
- Cases in pediatric age group (less than 15years) (as they are managed by pediatric surgery)
- All non-traumatic acute abdominal cases presenting with pregnancy
- Patients and/or his/her legally acceptable representative not willing to provide voluntary written informed consent for participation in the study.

Written informed consent was obtained from all the study subjects and approval for the study was obtained from the Hospital Ethical and Research Committee of the Sri Aurobindo Medical College and PG Institute, Indore, Madhya Pradesh, India

RESULTS

During the study period, 98 patients with nontraumatic acute abdomen were investigated.

Age and gender

There were 70 (71.43%) males and 28 (28.57%) females in the present study with a male:female ratio of 2.5:1. Highest number of patients were from the third decade of life. Thirty five patients (35.7%) out of 98 were aged between 21-30 years, while seventeen patients (17.3%) were aged <21 years.

Table 1: Distribution of patients according to age and gender.

Age group (years)	Female		Male	
	No.	Percent	No.	Percent
< 21	6	21.4	11	15.7
21-30	11	39.3	24	34.3
31-40	3	10.7	13	18.6
41-50	2	7.1	9	12.9
51-60	4	14.3	10	14.3
61-70	2	7.1	2	2.9
>70	0	0.0	1	1.4
Total	28	100.0	70	100.0

(n = 98).

In our study, pain abdomen 98 (100%) was a major symptom present in patients with acute abdomen while vomiting 71 (71.4%), abdominal distension 49 (50.0%), constipation 47 (48.0%), fever 41 (41.8%) and diarrhea 2 (2.0%) were also present.

Table 2: Distribution of patients according to symptoms.

Symptoms	No.	Percent
Pain	98	100.0
Vomiting	71	72.4
Abdominal distension	49	50.0
Constipation	47	48.0
Fever	41	41.8
Diarrhoea	2	2.0

(n = 98).

In our study, abdominal tenderness 97 (99.0%) was the most common sign, followed by abdominal guarding/rigidity in 60 (61.2%) and absent bowel sounds in 50 (51.0%), while tympanic note is not found even in single patient of non-traumatic acute abdomen.

Table 3: Distribution of patients according to signs.

Signs	No.	Percent
Abdominal tenderness	97	99.0
Abdominal guarding/rigidity	60	61.2
Absent bowel sound	50	51.0
Tympanic note	00	0.0

(n = 98).

Spectrum of disease

On analyzing the spectrum of disease in all the 98 patients of non-traumatic acute abdomen in our study, it was found that Perforation Peritonitis was the most common cause of acute abdomen which was found in 39 (39.7%), followed by appendicitis in 37 (37.7%), intestinal obstruction in 14 (14.2%) of the total patients studied.

Table 4: Distribution of patients according to spectrum of disease.

Spectrum of disease	No.	Percent
Perforation peritonitis	39	39.7
Appendicitis	37	37.7
Intestinal obstruction	14	14.2
Ruptured liver abscess	3	3.06
Gall bladder pathology	2	2.04
Bowel ischemia	2	2.04
Meckel's diverticulitis	1	1.02

(n = 98).

DISCUSSION

The present study entitled a prospective study of epidemiology and clinical presentation of non-traumatic acute abdominal cases in a tertiary care hospital of central India was conducted in the department of surgery of Sri Aurobindo Medical College and PG Institute, Indore, Madhya Pradesh, India.

Ninety Eight patients of non-traumatic acute abdomen which were admitted From 1st January 2015 to 30th July 2016 were included in the study.

Acute abdominal pain constitutes a significant percentage of emergency admissions worldwide and comprises a largest group (non-traumatic) of people presenting as general surgery emergency. The pattern of disease may vary according to age, sex, geography, class and genetic factors. This study attempts to highlight the causes of non-traumatic acute abdomen in local population.⁵

Age and gender incidence

In our study, it has been seen that the highest incidence of patients is in the age group between 21-30 years i.e. (35.7%) followed by age group < 21 years i.e. (17.3%) with more male predominance. In a similar study done by Memon et al, highest incidence was found in patients between 21-30 years i.e. (27.81%) with more male predominance.⁶ This clearly points that younger age group is more commonly affected.

Clinical presentation

In our study, the commonest symptom is abdominal pain (100%) followed by vomiting (71.4%). In a study done

by Chanana et al in, the commonest symptom was abdominal pain (76.9%) followed by vomiting (57.2%) and in study done by Berhane et al in 2016, the commonest symptom was abdominal pain (100%) followed by vomiting (80%).^{7,8} Hence, symptoms in our study have similar findings compared with the study done by other two authors with abdominal pain and vomiting are the commonest symptoms seen in patients on acute abdomen (non-traumatic).

In the present study, the commonest sign is abdominal tenderness (99.9%) followed by abdominal guarding/rigidity (61.2%). In a study done by Singh et al in 2014 concluded abdominal tenderness and abdominal distension as the commonest sign and study done by Hagos M et al conducted in 2015 concluded that abdominal tenderness is the commonest sign (96%) followed by abdominal guarding/rigidity (90%).^{9,10} Hence, signs in our study have similar findings compared with the study done by other two authors.

Spectrum of disease

In the present study, the most common cause of non-traumatic acute abdomen is perforation peritonitis (39.7%) followed by acute appendicitis (37.7%). In a study done by Yeboah O et al, the common cause of non-traumatic acute abdomen is acute appendicitis (22.4%) followed by perforation peritonitis (16.2%) and study done by Agboola et al, the commonest cause of non-traumatic acute abdomen is acute appendicitis (30.3%) followed by intestinal obstruction (27.9%).^{5,11} Hence, findings in our study regarding spectrum of disease is different as compared with other two studies.

CONCLUSION

The increasing incidence of cases of non-traumatic acute abdomen is a diagnostic dilemma for the surgeons and warrants early recognition and prompt treatment to avoid major morbidity and mortality. It constitutes a significant percentage of emergency admissions worldwide and comprises the largest group (non-traumatic) of patients presenting in general surgery emergency. Consensually, acute abdomen denotes a group of abdominal symptoms which rapidly deteriorate and require urgent surgical treatment with perforation peritonitis followed by acute appendicitis being the most common cause.

The delay in decision for surgery, does not only increases the duration of hospitalization, but also increases the mortality rate. Our study is a modest attempt to know the incidence, spectrum of disease, sensitivity of diagnostic modalities and management protocol of non-traumatic acute abdominal cases coming to our institute. Through this study, we have collected the epidemiological data of various conditions presenting as acute abdomen (non-traumatic) to our institute, analysed it and documented it. This study will help in determining the epidemiology of

such cases and will also help in establishment of prompt treatment guidelines of such patients.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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