

## Original Research Article

## “The Non Traumatic Acute Abdomen and Its Diseases Spectrum”

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**Abstract: Introduction:** The surgeon considers abdomen as an enigma because in a good proportion of his cases, the cause of abdominal pain or the nature of the abdominal lump, may not be decided in spite of all possible investigations. But application of anatomical knowledge makes diagnosis more interesting and more rational except in few cases. **Objective:** To assess the non-traumatic acute abdomen and its diseases spectrum. **Materials and Methods:** The prospective study was conducted in Department of Surgery, BSMMU, Dhaka, Bangladesh from January-2018 to January-2020. All the patients admitted into the surgery units of BSMMU with an initial diagnosis of acute abdomen of nontraumatic origin. Two hundred cases of nontraumatic emergency laparotomy patients were studied in surgical unit. Acute abdominal pain was the constant symptom with different degree of severity, presenting either locally or diffusely. In conditions with peritonitis either local or diffuse, muscle guarding, rigidity or diminished bowel sound were found. **Results:** In the present study 201 patients were included. All these patients underwent emergency laparotomy with the provisional diagnosis of acute abdomen. **Conclusion:** The most common cause of acute abdomen in the study was acute appendicitis, affecting young population; this was followed by Hollow viscus perforation with peritonitis and bowel obstruction. To evaluating patients with acute appendicitis and peritonitis, plain x ray abdomen high sensitive in bowel obstruction and peritonitis as well. USG abdomen had high specificity as well as positive and negative predictive value in acute appendicitis. Acute appendicitis was the commonest cause 48% of patients presenting to Emergency and Casualty as acute abdomen. It must be remembered that 'Diagnostic errors at the initial assessment may at best result in unnecessary surgical intervention, and at worst demise of the patient or a protracted illness due to the development of complications, which could have been avoided by prompt intervention.

**Keywords:** Non traumatic acute abdomen, laparotomy, Appendicectomy, Laparotomy, peritonitis.

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## INTRODUCTION

Acute abdomen means ‘The term acute abdomen denotes any sudden spontaneous nontraumatic disorder whose chief manifestation is in the abdominal area and for which urgent operation may be necessary [1]. Severe acute abdominal pain is the most frequently encountered symptom bringing the patient to the emergency department. Abdominal pain is the most frightening of all and most of them need laparotomies. Since there is frequently a progressive underlying intra-abdominal disorder, undue delay in the diagnosis and treatment adversely affects the outcome. Pain of acute abdomen is of two types: (a)

constant abdominal pain, and (b) colicky or cramping abdominal pain. Constant abdominal pain: frequently waxes and wanes but is neither rhythmic nor cyclic and does not appear in successive waves. The term acute abdominal pain generally refers to previously undiagnosed pain that arises suddenly and is of less than 7 day’s (usually less than 48 hours) duration. The correct interpretation of abdominal pain is one of the most challenging demands to any Surgeon. It is important factor in the diagnosis of acute abdomen. Reflex ileus is often induced by visceral afferent fibers stimulating sympathetic efferent fibers of the splanchnic nerves to reduce the intestinal peristalsis

[2]. Hence, paralytic ileus undermines the value of constipation in the different diagnosis of acute abdomen. Abdominal pain that persists for 6 hours or longer is usually caused by disorders of surgical significance. It can be defined as one of nature's earliest sign of morbidity [3]. Pain is usually the predominant and presenting feature of an acute abdomen, in order to elucidate its cause, the location, mode of onset, progression and character of pain must be determined. To reach a correct diagnosis, detail history taking is imperative of a patient suffering from acute abdomen. At other times, the clinical evaluation establishes the presence of acute intra-abdominal pathology (acute abdomen) but only a differential diagnosis is possible and laboratory tests and other investigations are necessary to establish a definite diagnosis [4]. Laparoscopy is also a useful diagnostic tool in managing obtunded, elderly or critically ill patient who may have subdued manifestation of acute abdomen.

## MATERIALS AND METHODS

The prospective study was conducted in Department of Surgery, BSMMU, Dhaka, Bangladesh from January-2018 to January-2020. All the patients admitted into the surgery units of BSMMU with an initial diagnosis of acute abdomen of nontraumatic origin. Two hundred cases of nontraumatic emergency laparotomy patients were studied in surgical unit. Acute abdominal pain was the constant symptom with

different degree of severity, presenting either locally or diffusely. In conditions with peritonitis either local or diffuse, muscle guarding, rigidity or diminished bowel sound were found. All the patients of thirteen to eighty years with an initial diagnosis of acute abdomen of non-traumatic origin that is manageable by emergency laparotomies.

Detailed history was taken and a meticulous clinical examination was performed. After making a provisional diagnosis, few investigations were needed to help the clinical diagnosis and to exclude differential diagnosis. Laparotomy findings and pathological assessment in relevant cases were also documented. Finally correlations between preoperative clinical diagnosis and preoperative findings were compared. Limited investigations dictated by the clinical conditions were done. Plain X-ray abdomen was the most frequently used investigation along with blood count, serum amylase and ultrasonogram of abdomen. Clinical diagnosis was made depending on clinical findings and the results of investigations.

## RESULTS

In the present study 201 patients were included. All the patients underwent emergency laparotomy with the provisional diagnosis of acute abdomen. In total, 201 cases of nontraumatic emergency laparotomy, 140 (69.5%) were male and 61(30.5%) were female (table-1).

**Table-1: Sex distribution of the patients.**

Sex	Total No.	Percent
Male	140	69.5%
Female	61	30.5%

**Table-2: General clinical findings of acute abdomen.**

Signs	No. of cases	%
Anxious look	183	91.0
Anaemia	83	41.5
Dehydration	62	31.0
Tachycardia	187	93.5
Hypotention	33	16.5

Tachycardia was present in 95.5% patients and 91.0% patients were anxious. Anaemia was present

in 41.5% of patients and 31% patients had dehydration (table-2).

**Table-3: Correlation between clinical diagnosis and operative findings.**

Clinical diagnosis	Total	Confirmed on laparotomy No (%)	Inappropriate diagnosis No (%)
Acute appendicitis	97	85 87.6	13 12.4
Perforated peptic ulcer	56	51 91.07	5 8.93
Perforated small bowel	18	14 77.77	4 22.23
Intestinal obstruction	18	16 88.88	2 11.2
Miscellaneous	12	7 58.33	5 41.77

Diagnostic accuracy in respect of clinical diagnosis was highest in case of perforated peptic ulcer (91.07%). In case of acute appendicitis, it was 87.6%.

In case of intestinal obstruction, it was 88.88% (table-3).

**Table-4: Non correlated surgery.**

Preoperative diagnosis	No. of Patients	Preoperative diagnosis
Acute appendicitis	5	Perforated peptic ulcer
Acute appendicitis	2	Ruptured ectopic pregnancy
Acute appendicitis	2	Twisted ovarian cyst
Acute appendicitis	3	Mesenteric lymphadenitis
Perforated peptic ulcer	2	Gallbladder perforation
Perforated peptic ulcer	1	Large gut perforation
Perforated peptic ulcer	1	CBD perforation
Perforated peptic ulcer	1	Burst liver abscess
Perforated peptic ulcer	4	Burst appendix
Intestinal obstruction	2	Peptic ulcer perforation

**Table-5: Findings of ultrasonography of whole abdomen.**

Findings	Number	%
Distended bowel loops	10	27.77
Distended bowel loops with free fluid	7	19.44
Tubo-ovarian mass	4	11.11
Collection in Cul-De-Sac	2	5.55
Normal	14	38.88

**Table-6: Disease specific findings of radiological examination.**

Types of disease	Radiological findings	Number	%
Perforated duodenal ulcer N=56	Free gas	41	73.22
	Free gas and free fluid level	8	14.28
	No free gas but multiple air fluid level	7	12.5
Acute Intestinal obstruction N=18	Multiple fluid gas level	15	88.33
	Nonspecific	3	16.67
Perforated small gun N=18	Free gas and fluid level	10	55.55
	Fluid level only	6	33.33
	Nonspecific	2	11.11

In duodenal ulcer perforation free gas shadow under the dome of diaphragm in erect posture was found in 87.5% cases in acute intestinal obstruction, multiple fluid level and gas shadows were found in 83.33% of cases (table-6).

## DISCUSSION

In this study acute surgical emergencies constitute 50% of all general surgical admission and 50% of them are for acute abdomen, 50% of which require surgical intervention. If diagnosis is in doubt it is advised to operate for exploration rather than wait and watch. But this policy will definitely raise the unnecessary laparotomy rate and morbidity. This study shows that commonest cause of nontraumatic emergency laparotomy is acute appendicitis, 48%. The second commonest cause is duodenal ulcer perforation, 28%. Next is ileal perforation, 9%. It correlates with the study of Irvin [5], who found most common cause as acute appendicitis. Also with Wilson *et al.* [6] and Dombal *et al.* [7]. This series revealed male female ratio in perforated duodenal ulcer was 8.3:1; it almost correlates

with the study of Staniland *et al.* [8]. In this study, male-female ratio in acute intestinal obstruction was 2:1. It nearly correlates with the study of Staniland *et al.* (1.5:1) and also with Iqbal [9] (3.7:1). In case of large gut obstruction male-female ratio was almost equal. This does not correlate with the study of Brewer *et al.* [10]. This study shows that most common age group for acute appendicitis was the third decade in case of male. But in case of female it was the second decade. In this study abdominal pain: the predominant feature of the patient was found in all cases, of which is consistent with the study by Brewer *et al.* [10]. Among the patients, 90% of them were anxious looking, 41.5% of them had anaemia. 31% patients were dehydrated. 93.5% of them had tachycardia. Only 16.5% had hypotension. Commonest cause of nontraumatic emergency laparotomy was acute appendicitis. Incidence is increasing in our country. Probably due to change in food habit of our people. In this study male-female ratio for ileal perforation was 2.6:1. This correlates with the study of Irvin [5]. So far the etiology of nontraumatic emergency laparotomy is concerned, in this series the commonest was acute appendicitis 48%, followed by

perforated duodenal ulcer 28% & intestinal obstruction 9%. In this study 87.5% of the clinically diagnosed acute appendicitis was accurate by preoperative diagnosis. In case of intestinal obstruction diagnostic accuracy was 88.88%. They correlate with the study of Jones [11]. Acute abdominal pain was the constant symptom with different degree of severity, presenting either locally or diffusely. In conditions with peritonitis either local or diffuse, muscle guarding, rigidity or diminished bowel sound were found.

## CONCLUSION

The most common cause of acute abdomen in the study was acute appendicitis, affecting young population, this was followed by Hollow viscus perforation with peritonitis and bowel obstruction. Acute appendicitis was the commonest cause 48% of patients presenting to Emergency and Casualty as acute abdomen. It must be remembered that 'Diagnostic errors at the initial assessment may at best result in unnecessary surgical intervention, and at worst demise of the patient or a protracted illness due to the development of complications, which could have been avoided by prompt intervention.

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