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Clinical Diagnosis and Per-Operative Findings Non-Traumatic emergency Laparotomy-A Study of 200 Cases

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Abstract **Original Research Article**

Introduction: In surgical wards, most of the patients of emergency admission present with abdominal complaints, for which laparotomy is indicated in many cases. Sometimes the diagnosis is obvious and can be done by taking a detailed history and careful clinical examination. ***Objective*:** To assess the clinical evaluation of non-traumatic emergency laparotomy, a study of 200 cases. ***Materials and Methods*:** It is a prospective study. Two hundred cases of nontraumatic emergency laparotomy patients were studied in Dhaka Medical College Hospital during the period of July 2007 to June 2008. Limited investigations dictated by the clinical conditions were done. Plain X-ray abdomen was the most frequently used investigation alone with blood count, serum amylase and ultrasonogram of abdomen. Clinical diagnosis was made depending on clinical findings and the results of investigations. ***Results*:** In total, 200 cases of non-traumatic emergency laparotomy, 139(69.5%) were male and 61(30.5%) were female. Among the 200 patients age of them ranged from 12 to 75 years. Most of them were in the age group of 10 to 50 years of age. In acute appendicitis, pain followed by vomiting in 83.33 of cases, whereas in perforation of duodenal ulcer this incidence was only 14.28%.Pain and fever predominates 51.5% followed by severe abdominal pain 47%.The most common diagnosis of this series was acute appendicitis (48%), followed by duodenal ulcer perforation (24%). Ileal perforation (96) and largegut obstruction (5.5%) occupied third and fourth position respectively. Above study shows that males are more affected by acute non traumatic abdominal diseases and undergone laparotomy. Diagnostic accuracy in respect of clinical diagnosis was highest in case of perforated peptic ulcer (91.07%). In case of acute appendicitis, it was 87.5%. In case of intestinal obstruction, it was 88.88%. ***Conclusion:*** The inconsistency between clinical diagnosis and peroperative findings can be minimized with more meticulous clinical examination and submitting the patients to more relevant investigations. Of course, the use of extensive laboratory aids may not be cost-effective, neither it is possible to afford in a poor country like ours. Meticulous clinical evaluation should remain the main stay for the diagnosis of nontraumatic emergency abdominal conditions. The inconsistency between clinical diagnosis and peroperative findings was due to inadequate history taking, meticulous physical examination dueto hurry on the part of clinician and reluctance on the part of the patient forexposure and inadequate access to the modern laboratory aids.

Keywords: Acute abdomen, Laparotomy, Diagnosis.

INTRODUCTION

In surgical wards, most of the patients of emergency admission present with abdominal complaints, for which laparotomy is indicated in many cases. Sometimes the diagnosis is obvious and can be done by taking a detailed history and careful clinical examination. 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' [1]. Sometimes some urgent investigations are needed to reach a diagnosis and to take decision for an urgent laparotomy. According to Marsh [2], "Happy is he, who has no serious consequence of his erroneous diagnosis to regret". To achieve this, every hospital should have regular meetings from time to time, exchanging There experiences, evaluating the shortcomings. There should be planned improvement of the situation on the basis of past experience. Clinical presentation and per operative findings do not correlate all the times. Sometimes some cases are misdiagnosed clinically. Even sometimes negative laparotomies are found. So keen knowledge is needed to take decision about laparotomy. There are many things to learn from close observation of the patient from the admission till the final outcome of the

patient, for future decision making about laparotomies. Post-operative outcome varies from patient to patient. It depends upon age, sex, general condition of the patient, type of operation etc. Till today non-traumatic emergency laparotomies not only provide a large workload for the surgeons but also create a lot of diagnostic problems. For any patient presenting with acute abdominal pain, any abnormality of pulse rate, blood pressure, respiratory rate, temperature and sensorium should raise the suspicion of an intra-abdominal catastrophe immediately. The main symptom of acute abdomen is 'pain', and a subtle differentiation may be crucial to find the correct diagnosis. Appropriate laboratory blood investigations should be obtained followed by relevant imaging investigations for approaching a correct diagnosis before a surgical intervention is planned. Plain roentgenogram has historically been the initial imaging modality used for the evaluation of abdominal pain, due to its ease of acquisition and cost. According to recommendations by American college of radiology, the use of imaging studies for evaluation of acute abdominal pain, Ultrasonography (USG) is recommended to assess the right upper quadrant pain and Computed tomography (CT) is recommended for pain in the right and left lower quadrants [3]. 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 progressive underlying intra-abdominal disorder, undue delay in the diagnosis and treatment adversely affects the outcome.

MATERIALS AND METHODS

Study design: It is a prospective study.

Study period: The study period is one year starting from 1st July, 2007 to 30thJune, 2008.

Study population: All the patients admitted into the surgery units of Dhaka Medical College Hospital, Dhaka, Bangladesh with an initial diagnosis of acute abdomen of nontraumatic origin.

Study Place: Different surgical units of Dhaka Medical College Hospital, Dhaka, Bangladesh.

Sample size: 200 patients were selected for the study.

Inclusion Criteria

1. 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.

Exclusion Criteria

2. Age < 10 years or, > 80 years.
3. Acute pancreatitis.
4. Acute cholecystitis.
5. Severe cardio-respiratory problems.
6. Patients who refused to give any consent for laparotomy.

Study method: Detailed history was taken and a meticulous clinical examination was performed. A per designed study proforma (data sheet) was duly filled in. 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 peroperative findings were compared.

RESULTS

In total, 200 cases of non-traumatic emergency laparotomy, 139(69.5%) were male and 61(30.5%) were female. In total, 200 cases of non-traumatic emergency laparotomy, 139(69.5%) were male and 61(30.5%) were female. This shows most of the patients are of 21-30(34%) yrs age group. Second age group if 10-20 (30%) yrs. age. 31-40 (15%) yrs age group is in third position. Above fifty age group is the least in number (8%) (Table-1 & Fig-1). Among the 200 patients age of them ranged from 12 to 75 years. Most of them were in the age group of 10 to 50 years of age (Table-2). Pain and fever predominates 51.5% followed by severe abdominal pain 47% (Table-3 & Fig-2).

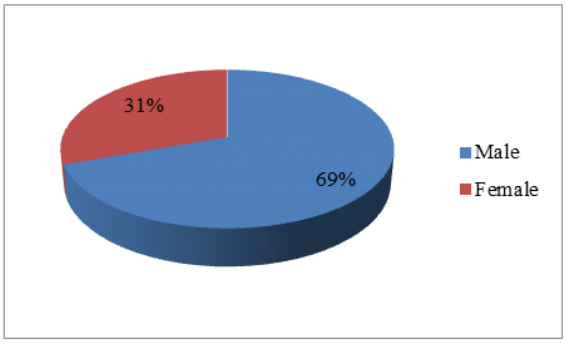

Fig-1: Pie chart showing sex distribution.

Table-1: Age distribution of the patients.

Age Group	Number	Percent
10-20	60	30%
21-30	68	34%
31-40	30	15%
41-50	26	13%
Above 50	16	8%

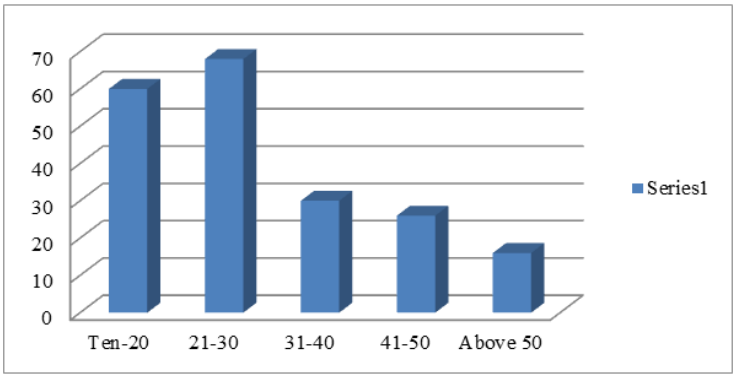

Fig-2: Age distribution of the study group.

Table-2: Age and sex distribution of the patients (n-200)

Age	Male		Female	
	Number	Percent	Number	Percent
10-20	40	20%	20	10%
21-30	42	21%	25	12.5%
31-40	24	12%	6	3%
41-50	21	10.5%	6	3%
51-60	8	4%	1	0.5%
61-70	3	1.5%	3	1.5%
Above 70	1	0.5%	0	0%

Table-3: Predominant presenting symptoms of the patients.

Symptoms	No. of cases	%
*Sudden severe abdominal pain	94	47
*Moderate abdominal pain with anorexia,nausea and vomiting	82	41
*Abdominal pain with constipation	20	10
*Abdominal pain with diarrhoea	11	5.5
*Abdominal pain with fever	103	51.5
*Abdominal pain with shock	13	6.5

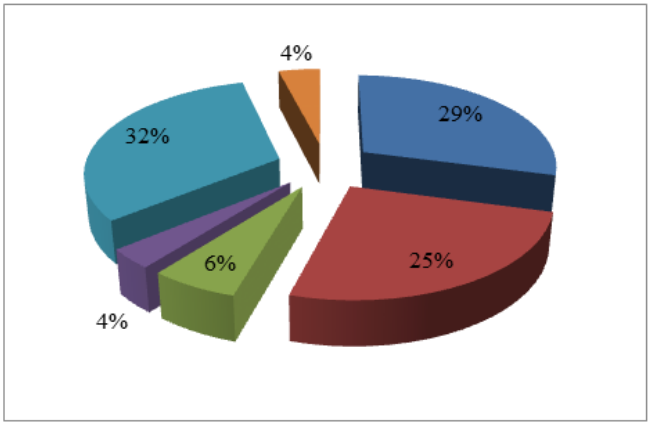

Fig-3: Number of cases that showed different symptoms.

Table-4: Associated symptoms in patients with abdominal pain in common conditions of the patients.

Diagnosis N /%	Anorexia No./%	Vomiting No./%	Pain followed by vomiting No./%	Diarrhoea No./%	Dbstipation No./%	Previously similar symptoms No./%
Acute appendicitis, n-96	20/20.83	50/52.83	80/83.33	5/5.2	4/4.16	40/41.66
Perforated duodenal ulcer, n-56	11/19.64	8/14.28	8/14.28	5/8.93	9/16.07	0/0

Intestinal pbstruction, n=18	7/38.88	10/55.55	10/55.55	0/0	12/66.66	5/27.77
Small gut pbstruction.m-18	10/55.55	8/44.44	8/44.44	3/16.66	2/11.11	0/0

In acute appendicitis, pain followed by vomiting in 83.33 of cases, whereas in perforation of duodenal ulcer this incidence was only 14.28% (Table-4).

Table-5: Incidence of different entities (n-200)

Diagnosis	Number	Percent
Acute Appendicitis	96	48%
DU-Perforation	56	28%
Ileal-Perforation	18	9%
Large gut Obstruction	11	5.5%
Small gut obstruction	7	3.5%
Ruptured Ectopic pregnancy	2	1%
Twisted ovarian cyst	2	1%
Burst liver abscess	1	0.5%
Stomach perforation	3	1.5%
Large gut perforation	1	0.5%
Gall bladder perforation	2	1%
CBD Perforation	1	.05%

The most common diagnosis of this series was acute appendicitis (48%), followed by duodenal ulcer perforation (24%). Ileal perforation (96) and largegut obstruction (5.5%) occupied third and fourth position respectively (Table-5).

Table-6: Sex distribution of different entities of diseases undergone laparotomy.

Diagnosis	Male		Female	
	Number	Percent	Number	Percent
Acute Appendicitis	58	29%	38	19%
DU-Perforation	50	25%	6	3%
Ileal-Perforation	13	6.5%	5	2.5%
Large gut Obstruction	6	3%	5	2.5%
Small gut obstruction	6	3%	1	0.5%
Ruptured Ectopic pregnancy	0	0%	2	1%
Twisted ovarian cyst	0	0%	2	1%
Burst liver abscess	1	0.5%	0	0%
Stomach perforation	2	1%	1	0.5%
Large gut perforation	1	0.5%	0	0%
Gall bladder perforation	2	1%	0	0%
CBD Perforation	0	0%	1	0.5%

Above study shows that males are more affected by acute non traumatic abdominal diseases and undergone laparotomy (Table-6).

Table-7: Correlation between clinical diagnosis and operative findings.

Clinical diagnosis	Total	Confirmed on laparotomy N (%)		Inappropriate diagnosis N (%)	
Acute appendicitis	96	84	87.5	12	12.5
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 87.5%. In case of intestinal obstruction, it was 88.88% (Table-7).

DISCUSSION

In this study overall male predominance with a ratio of 2.3:1. In case of acute appendicitis was approximately 3:2; that is with male predominance. It is consistent with Williams *et al*., [4] and Miettinen *et al*., [5], who showed that acute appendicitis was most

frequently observed in young men. The study of Staniland *et al*., [6] showed male female ratio in acute appendicitis as 3:2. This is exactly that I found in my study. In this study, age distribution of the disease according to decades showed that most patients are from third decade of life (34%), followed by second decade (30%). This finding correlates with the study of Brewer *et al*., [7] and Irvin [8], who found the common age group as 10-29 years. It also correlates with the study of Iqbal [9]. This series also reveals that among males the predominant age group is also the third decade 35.97% and in case of female it is also the third decade about 40.9%. In both the cases second highest age group is 2nd decade of life, respectively 24.46% and 34.43%. These data correlate with the study of Iqbal [9]. This study shows that commonest cause of nontraumatic emergency laparotomy is acute appendicitis, 48%. The second commonest cause isduodenal ulcer perforation, 28%. Next is ileal perforation, 9%. 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. 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 ones [10].

CONCLUSION

The inconsistency between clinical diagnosis and preoperative findings can be minimized with more meticulous clinical examination and submitting the patients to more relevant investigations. Of course, the use of extensive laboratory aids may not be cost-effective, neither it is possible to afford in a poor country like ours. Meticulous clinical evaluation should remain the main stay for the diagnosis of nontraumatic emergency abdominal conditions. The peak age incidence was found in the third decade of life (34%). Overall male-female ratio was 2.3:1, but there were disease specific variations. 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. The inconsistency between clinical diagnosis and preoperative findings was due to inadequate history taking, meticulous physical examination dueto hurry on the part of clinician and reluctance on the part of the patient for exposure and inadequate access to the modern laboratory aids. The incidence of Non traumatic acute abdomen has increased exponentially and constitutes majority of the cases admitted through emergency room. Early diagnosis and its management play an important role in a better clinical outcome. The study is a humble attempt to document incidence of various diseases diagnosed and its management.

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