

Non-traumatic Acute Abdomen: Clinical Presentation and Outcomes

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1. ABSTRACT

1.1. Background: The 'acute abdomen' is defined as a sudden onset of severe abdominal pain of less than 24 hours duration. It accounts for 5% to 10% of all emergency department visits of 5 to 10 million patient encounters in the United States annually. The objective of this study is to determine the clinical presentation outcomes in patients with non-traumatic acute abdomen.

1.2. Patients and method: This is prospective descriptive hospital based study of 100 consecutive patients who were treated in Al-Gamhoorhiah hospital within a period between January to December 2016. Chi square, Fisher Exact and Student t-test were the mainly used statistical test with level of significance of < 0.05 . The main variables which were reviewed in this study were the demographics of patients with acute abdomen, clinical presentations, etiology, postoperative complications, mortality, types of treatment and hospital stay.

1.3. Results: the prevalence of acute abdomen was 14.03% (100) from the total population of non-traumatic acute abdomen with male to female ratio of 1.6:1 and average age of 29.13 ± 17.10 years ranged between (9-70 years) with mostly of patients (37%) with age group 15 - 24 years old. Local peritonitis was presented clinically in 57% of patients and acute appendicitis was the commonest responsible cause 53%. Out of 100 patients with acute abdomen, 16% were managed conservatively while 84% were operated. And out of (84) operated patients 66 (78.6) were had no post-operative complications but 18 (21.7) were had complications, and surgical site infection was the most post-operative complication 7 (38.9). Overall mortality in our study of acute non-traumatic abdominal pain was 2%, and hospital stay duration was ≤ 7 days represented 83% while >7 days represented only 17%.

1.4. Conclusion: Acute appendicitis was the main cause of non-traumatic patients with acute abdomen and mostly presented as local peritonitis. Most patients having acute abdomen are relatively young in the 2nd and 3rd decades of life and male was most involved. Early diagnosis and its management play an important role in a better clinical outcome. The vast majority of patients were treated surgically, and the surgical site infection was the most post-operative complication.

2. Keywords: Acute abdominal pain; Peritonitis; Infection

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3. INTRODUCTION

Acute abdomen is defined as a sudden onset of severe abdominal pain of less than 24 hours duration. It has a large number of possible causes and so a structured approach is required.^[1] The term acute abdomen designates symptoms and signs of intra-abdominal disease usually treated best by surgical operation. Many diseases some of which do not require surgical treatment, produce abdominal pain, so the evaluation of patients with abdominal pain must be methodical and careful.^[2] As it is the one of most 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 an "acute abdomen," as a result of serious intra-abdominal pathology necessitating emergency intervention.^[3] Abdominal pain accounts for 5% to 10% of all emergency department visits of 5 to 10 million patient encounters in the United States annually. Another study demonstrated that 25% of patients presenting to the emergency department complained of abdominal pain.^[4]

The Centres for Disease Control and prevention (CDC) using data from the 1999 through 2008 National Hospital Ambulatory Medical care survey report that 11% of emergency room department visit in 2008 were for abdominal pain accounted for 12.5% of emergent or urgent patient about one-third of abdominal pain patients are diagnosed with nonspecific abdominal pain.^[5]

The justification of this study was to determine the clinical presentation and outcomes of patients with non-traumatic acute in AL-Gamhouria teaching hospital during the study period.

4. PATIENTS AND METHOD

This is prospective descriptive hospital based study of 100 consecutive patients who were treated in Al-Gamhoorhiah hospital within a period between January to December 2016. Chi square, fisher exact and student t-test were the mainly used statistical test with level of significance of < 0.05. The main variables, which were reviewed in this study, were the demographics of patients with acute abdomen, clinical presentations, etiology, postoperative complications, mortality, and length of hospital stay.

5. RESULTS

The prevalence of acute abdomen was 14.03% (100) from the total population of non-traumatic acute abdomen with male to female ratio of 1.6:1 and average age of 29.13 ± 17.10 years ranged between (9-70 years) with mostly of patients (37%) with age group 15 - 24 years old (Table 1). Local peritonitis was presented clinically in 57% of patients and acute appendicitis was the commonest responsible cause 53%. Out of 100 patients with acute abdomen,

16% were managed conservatively while 84% were operated. Moreover, out of 84 operated patients, 18 (21.7%) were had post-operative complications. Surgical site infection 7 (38.9%) was the most common post-operative complication (Table 2). Overall mortality in our study of non-traumatic acute abdominal pain was 2%, and hospital stay duration was ≤ 7 days represented 83% while >7 days represented only 17%.

Table 1: Distribution by Clinical Presentation and Type of Treatment.

Variables	No	Percentage
Clinical Presentation		
Perforated viscus	7	7%
Colicky obstruction	21	21%
Local Peritonitis	57	57%
General peritonitis	15	15%
There were no patients with bleeding and ischemic bowel		
Type of treatment		
Medical	16	16%
Surgical	84	84%

Table 2: Distribution of Study Sample by Complications, Mortality and Hospital Stay

Variables	No	Percentage
Complications (surgical 84)		
No	66	78.60%
Yes	18	21.40%
Complications (only 18 cases)		
Surgical site infection	7	38.90%
Wound dehencsecy	4	22.20%
Residual abscesses	3	16.70%
Anastomosis leak	2	11.10%
Septicemia	2	11.10%
Mortality		
No	98	98%
Yes	2	2%
Hospital stay (mean 5.67 \pm 3.87)		
≤ 7 days	83	83%
>7 days	17	17%

6. DISCUSSION

Abdominal pain of sudden onset is the hallmark of most non-traumatic emergency surgical presentations, Agaboola 2016.^[6] Acute abdomen defines as any serious acute intra-abdominal condition (such as appendicitis) attended by pain, tenderness, and muscular rigidity, and for which emergency surgery must be considered. The causes of acute abdomen are several and their relative incidence varies in different populations, Gebre 2016.^[7]

Its wide variety in presentation of symptoms and broad spectrum of associated diseases complicates the isolation of the cause of abdominal pain, which may vary from life-threatening diseases requiring emergency surgery to mild

self-limiting causes, Laméris *et al.* 2009.^[8] Success in the treatment depends mostly on early diagnosis with early intervention and proper postoperative care, Mutyala 2019.^[9]

In this study, the prevalence of acute abdomen was 14.03% from the total population of non-traumatic acute abdomen admitted into Al-Gamhoria Teaching Hospital. In Thakur *et al.* study, about 15.0% of all emergency hospitalization patients were due to acute abdominal which is near to what reported in this study.^[10] Other studies reported 12.5% of emergent or urgent patients were acute abdomen pain, Patterson 2020.^[11] Mean age was 29.13 ± 17.10 in this study which near to Wossen *et al.* 2019,^[12] who reported a mean of 28.4 ± 19.5 years. Male considered 61% of study sample while female patients consisted 39% near to study did by Mutyala *et al.*^[9] Clinical presentation regarding to clinical presentation local peritonitis were the most presenting among patients in this study with 57%, follow by colicky obstruction with 21% then general peritonitis 15% while only 7% with perforated viscus in which near to reported by Malviya *et al.* 2017.^[13] Regarding to type of treatment surgical approach were 84% while medical 16%, 18.1% of patients with acute abdomen were not operated by Malviya *et al.* 2017.^[13] near our study.

The commonest cause of acute abdomen in this study was acute appendicitis highest frequency with 53% follow by acute calculus cholecystitis 13% and appendicular mass 10%, small and large bowel obstruction as follow 8% and 6%, perforated duodenal ulcer 7% with acute acaculus cholecystitis with lowest frequency of 3%.

Post-operative complications for surgical intervention in non-traumatic acute abdomen in this study were 21.4%. Complications rate significantly low in case of laparoscopic surgery than open surgery, Mutharaju *et al.* and in this study, all patients had open surgery.^[14]

More than 49 (16.1%) surgically treated of non-traumatic acute abdomen patients had one or more early postoperative complications Ayenew,^[15] and (20.5%) of operated patient had post-operative complication Gebre S. Ethiopia.^[7] Intestinal obstruction (28.4%), Wound infection (8.7%) and septicemia (4.8%) were among the post-operative complications, Asefa 2012.^[16]

Three patients developed surgical-site infections (3.3%), and one developed a minor anastomotic leak that was treated accordingly (1.1%) Gebre 2016,^[7] 31% had post-operative adhesions, Agaboola 2016,^[6] and 81% patients had satisfactory outcome without post-operative complications, Lakhotia.^[17]

Most common complication in Mutharaju study of acute abdomen is wound infection which constitutes 46.59% of all complicated cases, followed by enter cutaneous fistula (9%), anastomotic leaks (7.9%), respiratory complications (6.5%), burst abdomen (5.6%), drain site infections (5.6%) and post-operative gastrointestinal bleeding (1.1%).^[14]

And most common in this study were surgical site infection 38.9% follow by wound dehiscence 22.2 the residual abscess 16.7% then anastomosis leak and septicemia same frequency 11%. Thirty-four 20.5% of operated patient had early (in-hospital) post-operative complication. Of this wound infection 12.7% were the commonest post-operative complications, anastomosis leak 1.2% Gebre 2016.^[7]

Mortality in hospital for study population were 2% in which they are two female age older than 44 years, that near to study by Murata *et al.* 2014 (2.3%).^[18] The mean hospital stay was 5.67 ± 3.87 in this study, from all the patients admitted with acute abdominal pain were 83% stay in hospital ≤ 7 while 17% only stay > 7 .

In this study noticed emergency surgical operation for acute abdomen particularly for acute appendicitis was found to be the most common surgical emergency operations performed in same as what founded also by Woseen *et al.* 2019 in Ayder Hospital.^[12]

In relation between post-operative complications and age of patients the percentage as follow 38.9% were among age group (15-34) follow by age groups (35-44, and >55) with the same 16.2%. By types of complication the surgical site infection more common in second age group 15- 24 years with 57.1% while other age group (35-44, 45-55 and >55 years) have same prevalence 14.3% among. 50% Wound dehiscence complication also in second age group.

Anastomosis leak developed only in (15-24, 25-34 years) with 50% for each group, Also Septicemia developed only in (44-55, >55 years) with 50% for each group.

The mean hospital stay was 5.67 ± 3.87 in this study, from all the patients admitted with acute abdominal pain were 83% stay in hospital ≤ 7 while 17% only stay > 7 . The hospital numbers of day for patients older patients <14 years stay more than seven days with 25% while most of patients leave hospital early among patients age 44-55 years with 87.5%.

While by causes patients with perforated duodenal ulcer, appendicular mass and appendicitis stay less than seven days in hospital with 100%, 90% and 88.7% but other causes stay in equal period by less or more than seven days in hospital as follow small and large bowel obstruction with 50% for both.

In relation to complications wound dehiscence and septicemia show 50% different in stay at hospital with same percentage 50% while residual abscess and anastomosis leak stay more than seven days but patients with post-operative surgical site infection stay less than seven days in hospital. With study done by Murata,^[18] longer length of hospital stay (LOS and higher in-hospital mortality were observed in patients aged ≥ 80 years.

7. CONCLUSION

Acute appendicitis was the main cause of non-traumatic patients with acute abdomen and mostly presented as local peritonitis. Most patients having acute abdomen are relatively young in the 2nd and 3rd decades of life and male was most involved. Early diagnosis and its management play an important role in a better clinical outcome. The vast majority of patients were treated surgically, and the surgical site infection was the most post-operative complication, while the mortality rate did not exceed 2 percent.

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