

Original research article

An investigation into the diagnosis and treatment of non-traumatic acute abdomen

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Abstract

Background: Acute abdomen is when a patient complains of immediate, life-threatening abdominal symptoms that could indicate a disease. This condition may or may not necessitate immediate surgical intervention. Throughout his career, a general surgeon's routine tasks include diagnosing and treating acute abdomen.

Methods: From January 2022 to December 2022, the study was conducted at the Department of General Surgery, Ayaan Institute of Medical Sciences, Kanakamamidi Village, Moinabad Mandal, Rangareddy, Telangana, India. Study has been done on 75 cases. Only those severe cases that required surgery were included in this study so that a proper diagnosis could be made.

Results: In the second, third, and fourth decades of life, and in men, acute abdomen was more prevalent. The most frequent cause of acute abdominal pain is acute appendicitis. Intestinal obstruction is the third most frequent cause of acute abdomen, followed by hollow viscus perforation.

Conclusion: In our study, male: female ratio of 70:30 led to a higher prevalence of acute abdomen in the second to fourth decade of life. The most typical presenting symptom was abdominal pain. The most frequent reason is acute appendicitis. Retrocaecal appendix was the most frequent position, and non-perforated inflamed appendix was the pathological type for which an emergency appendectomy was performed with zero mortality. Intestinal obstruction and hollow viscus perforation were the two most frequent causes of acute abdomen, respectively.

Keywords: Non-traumatic acute abdomen, diagnosis, clinical study, investigation, management

Introduction

The primary cause of morbidity and mortality in emergency situations continues to be acute abdominal. Delaying in seeking a surgical opinion makes the situation worse. Since the case of an acute abdomen first presented^[1, 2]. Acute abdominal pain can range in intensity from mild dull ache to frank guarding and rigidity with accompanying systemic symptoms. It is important to understand the range of presentations as well as the most common ones^[3, 4]. The various causes of acute abdomen should be understood by the surgeon treating the patient. Therefore, it is necessary to list the various causes of acute abdominal pain and the most prevalent of these causes, in order to make a decision about how to handle a case like this as soon as possible^[5, 6]. An early surgery is always preferable to a late surgery. The investigative process should be such that it can quickly provide a conclusive diagnosis. Additionally, the way the case is managed once a diagnosis has been made is crucial^[7]. Therefore, the current study's primary focus was on the incidence of different causes, clinical characteristics, and treatment outcomes for non-traumatic acute abdomen in the Ayaan institute of Medical Sciences, with respect to age and sex^[8].

Patients who suffer from abdominal pain have traditionally presented a significant obstacle for general surgeons. Even after taking into account the patient's medical history as well as the results of the physical exam, laboratory tests, and imaging studies, the diagnosis is still not always possible^[9].

A laparoscopic approach has been the "gold standard" for many elective procedures and has been used for abdominal emergencies, both traumatic and non-traumatic, in referral centers. This approach has also been used for many elective procedures^[10].

In cases of acute abdomen, surgeons can use video laparoscopy for a number of different purposes, including:

1. Diagnosis only (for example, patients with abdominal pain due to endometriosis).
2. Diagnosis and treatment (for example, female patients with abdominal pain secondary to appendicitis).
3. Treatment only (for example, patients with acute cholecystitis).
4. Indicating the best place to do the incision in cases where conversion to laparotomy is absolutely

necessary ^[11].

Materials and Methods

From January 2022 to December 2022, 75 consecutive cases of non-traumatic acute abdomen and their management were studied at the Department of General Surgery, Ayaan Institute of Medical Sciences, Kanakamamidi Village, Moinabad Mandal, Rangareddy, Telangana, India. This study has only included acute abdominal cases that required surgery because only then could the proper diagnosis be made ^[12].

Patients who had experienced penetrating or blunt trauma were not included in the study. Children under the age of 14 were not included in the study. Referrals to the appropriate specialty were made for patients with an acute abdomen caused by non-surgical factors ^[13].

A proforma was used to collect data in a systematic manner. The proforma consists of a history, physical examination, the necessary minimal investigations, the treatment, and at least a 4-month post-operative follow-up to monitor complications and the effectiveness of the therapy. Routine tests like hemoglobin, bleeding and clotting times, total WBC counts, renal function tests, and sometimes radiological tests like X-rays and USG are performed. All patients provided informed consent prior to surgery; the majority of patients underwent laprotomy to establish a diagnosis and receive the appropriate care ^[14,15].

Results and Observation

Table 1: Acute abdominal conditions affected 75 people between January 2022 to December 2022

Sr. No	Reason of Acute Abdomen	Number of Cases	Rate of Mortality
1.	Appendicitis (Acute)	28	1
2.	Duodenal ulcer (Perforated)	22	3
3.	Perforation Ileal	08	2
4.	Gastric perforation	05	0
5.	Acute Intestinal Obstruction (AIO)	10	2
6.	LIVER Abscess (Ruptured)	02	0
Total		75	8

Acute appendicitis accounted for 37.33% of the 75 cases of acute abdominal conditions operated on at the Ayaan Institute of Medical sciences between January 2022 to December 2022, making it the most common cause of acute abdomen.

Table 2: Acute abdominal cases age wise distribution

Age (Yrs.)	Ac. App	Intestinal Obstruction	Perforation	Others	Total
14-20	9	3	2	-	14
21-30	16	3	6	-	25
31-40	5	5	9	1	20
41-50	2	2	4	-	8
51-60	-	-	2	-	2
61-70	-	-	2	-	2
71-80	-	-	0	2	2
81-90	2	-	-	-	2
91-100	-	-	-	-	-
Total	34	13	26	4	75

The majority of patients, as shown in the table, are between the ages of 21 and 30; only 2 patients were older than 60. The youngest and oldest patients in this group were both 14 years old.

Table 3: Acute Abdomen cases sex wise distribution

Sr. No	Disease	Male	%	Female	%	Total
1.	Appendicitis	22	66.66	11	33.33	33
2.	Hollow viscus perforation	17	68.00	08	32.00	25
3.	Intestinal obstruction	8	57.14	05	35.71	14
4.	Miscellaneous	0	00	04	100	04
Total		47		28		75

Out of 75 cases, 47 cases of the acute abdomen were in men, and 28 cases were in women. Men made up 22 of the 33 cases of acute appendicitis, while women made up 11. Out of 25 Hollow viscus perforation cases, 17 involved men and 8 involved women. In cases of intestinal obstruction, there were 5 female cases and 8 male cases. Males are more likely than females to have any type of acute abdomen.

Table 4: Appendix types

Sr. No.	Pathological Type	Number of Cases	Percentage (%)
1.	Inflamed appendix (without perforation)	34	70.83
2.	Gangrenous (without perforation)	6	12.50
3.	Mass appendicular	5	10.41
4.	Abscess appendicular	3	06.25
	Total	48	100

In our study, an inflamed appendix without a perforation was the most prevalent pathological type.

Table 5: Appendix Position

Sr. No.	Appendix Position	Number of Cases	Percentage (%)
1	Retrocaecal	28	58.33
2	Pelvic	10	20.83
3	Preileal	4	8.33
4	Paracaecal	3	6.25
5	Post Iliac	3	6.25
	Total	48	100

The most frequent position of the appendix in our study was retrocaecal, which made up approximately 58.33% of the 48 cases of acute appendicitis in which the position of the appendix was identified.

Table 6: Hollow viscus perforation (HVP) incidence

Sr. No.	Hollow Viscus Perforation	Number of Cases	Percentage (%)
1.	Duodenal ulcer (Perforated)	11	45.83
2.	Ileal perforation	9	37.5
3.	Gastric perforation	4	16.66
	Total	24	100

Out of 75 patients in our study, 11 (45.83%) had perforations in the duodenum, 9 (37.5%) had perforations in the ileum, and 4 (16.66%) had perforations in the stomach.

Table 7: Intestinal obstruction causes

Sr. No.	Cause of Intestinal Obstruction	Number of Cases	Percentage (%)
1.	Inguinal Hernia: Obstructed Right	4	33.33
2.	Volvulus Sigmoid	2	16.66
3.	Epigastric Hernia: Obstructed	0	0
4.	Incisional Hernia: Obstructed	2	16.66
5.	Intussusception	1	08.33
6.	Postoperative Int adhesions	3	25.0
	Total	12	100

Out of 12 cases of intestinal obstruction, postoperative int adhesions and obstructed inguinal hernias accounted for three cases (25.0%).

Table 8: Types of hernia causing obstruction

Sr. No.	Type of Hernia	Number of Cases	Percentage (%)
1.	Inguinal hernia: Right	4	57.14
2.	Incisional hernia	3	42.85
	Total	7	100

The most frequent factor in our study, accounting for 57.14% of cases, was an obstructed right inguinal hernia.

Discussion

The investigation encompassed a total of 75 cases. In order to guarantee an accurate diagnosis, acute abdomens caused by trauma were purposefully excluded from this study. The most common cause of acute abdomen was acute appendicitis, which accounted for 37.33 percent of cases. In those cases, appendectomy was performed in 28 cases, and the mortality rate was one. The perforated duodenal ulcer was the second most common cause of acute abdomen, accounting for 29.33% of cases and producing a mortality rate of 13.63% (3 cases). Ileal perforation was the third most frequent cause, accounting for 10.66% of cases and contributing to 25% of fatalities (2 case). 10% of cases are caused by acute intestinal obstruction, which results in a mortality rate of 20%^[16, 17].

Acute appendicitis was by far the most common reason for acute abdominal pain. Appendicectomy was performed on 37 of the inflamed cases and six of the gangrenous cases out of a total of 48 cases that were studied. Conservative treatment was administered to 8 patients, 5 of whom were diagnosed with appendicular mass, and 3 of whom had appendicular abscess. It was possible to close the appendicular mass without disturbing the mass itself. In addition, drainage was performed on the appendicular abscess, and the right flank was lined with corrugated drainage. After a period of six weeks, an interval appendicectomy was performed on both patients. The retrocaecal 28 position of the appendix was the one that was observed the most frequently (58.33%)^[18, 19].

Four of the twelve cases of intestinal obstruction were caused by obstructed hernias, and the other two were caused by post-operative adhesions. 3 because of sigmoid volvulus, 1 because of intussusception, and 1 because of both. There were a total of 3 cases of hernias that were obstructed, with 1 being an obstructed right inguinal hernia and 1 being an obstructed epigastric hernia. In 1 instance of obstruction caused by an obstructed inguinal hernia, resection and anastomosis were performed because gangrenous changes were observed in the patient's bowel^[20].

The remaining four patients had an obstruction in their right inguinal hernia, which was treated with hernioplasty to remove the obstruction. Hernia caused by the incision was reduced, and anatomical repair was performed. Sigmoid volvulus that required derotation and correction in order to be treated. The other two causes are intussusception, which required reduction, and post-operative intestinal adhesions, which required release of adhesions^[21]. Intussusception required reduction. Perforation of the hollow viscus, in 24 cases of acute abdomen, the diagnosis was hollow viscus perforation. Eleven of the cases involved duodenal perforation, nine involved ileal perforation, and four involved gastric perforation. Simple closure and pedicle omental grafts, also known as Graham's patches, were used to treat every instance of duodenal and gastric perforation that was present. The second and third decades of life were more likely to be affected by acute appendicitis. The youngest patient in our study was a male who was 14 years old. After forty years, it is a rare occurrence. Intestinal obstruction was seen more frequently in patients in their 30s and 40s^[22].

Peritonitis caused by a perforation of the hollow viscus was observed in patients in the age range of 20 to 60 years. The clinical condition known as acute abdomen is one that affects young adults and middle-aged people the most frequently. 41 men and 19 women were found to have an acute abdomen out of a total of 75 cases. There were 33 cases of acute appendicitis, with 22 occurring in males and 11 occurring in females. 17 males and 8 females were diagnosed with hollow viscus perforation out of a total of 25 cases. Eight males and five females were diagnosed with intestinal obstruction out of a total of 25 cases^[23].

In general, males have a higher risk for developing acute abdominal conditions than females do. There were 75 cases of acute abdomen that required surgery, and three of those patients passed away during the post-operative period. 4 of the deaths were caused by ileal perforations and 2 others were the result of intestinal obstruction caused by a strangulated inguinal hernia^[24].

The acute intestinal obstruction was brought on by a strangulated inguinal hernia. Because of the gangrenous condition of the distal ileal, resection and ileo-ileal anastomosis had to be performed. The patient developed a fecal fistula on the sixth postoperative day, and he ultimately passed away on the eighteenth postoperative day due to septicaemia. In one patient, a ruptured liver abscess was the cause of the condition, which required a laparotomy and peritoneal lavage to treat. As a preventative measure against enteric perforation, cephalosporins of the third generation were given to all patients, and this treatment lasted until the seventh day after surgery^[25].

Conclusion

Acute abdominal pain is frequently a situation that requires immediate medical attention and presents a challenge to any surgeon. In 75 cases of acute abdomen, 37.33 percent of patients had acute appendicitis, and 45.83 percent of patients had perforation. The most common age range was between 31 and 40 years old. The male incidence rate was 68.00%, while the female incidence rate was 32.00%. Pain in the abdomen was the most common symptom of an acute abdomen, occurring in 68% of cases, followed by vomiting in 55.00% of cases. 34 of the 48 cases of appendicitis were caused by inflammation only, without perforation, and 58.33% of the cases were in the retro caecal position.

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