

A study of clinical profile of acute appendicitis in a tertiary care hospital

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Abstract

Background: Acute abdomen remains the important cause of morbidity and mortality in emergency. It requires careful history taking and thorough evaluation of symptoms, clinical examination and judicious use of radiological investigation which simplify the evaluation of disease. **Aim And Objectives:** A Study Of Clinical Profile Of Acute Appendicitis Among Subjects Attending Emergency In A Tertiary Care Hospital. **Materials And Method:** A prospective observational study of non-traumatic acute abdomen was carried out at Sahyadri Narayana Multispeciality Hospital, Shimoga, Karnataka. Total of 78 cases of acute abdomen patients were evaluated and operated over a period from December 2018 to February 2020 and included in the study group. Pediatric age group (12 years and below), traumatic cases (blunt and penetrating), acute abdomen in pregnancy and gynecological causes of acute abdomen, urological cases, and conservatively managed cases were excluded from the study. Detailed history was taken and relevant physical examination performed. All patients underwent hematological and biochemical investigations, appropriate radiological investigation (USG, AXR and CT-scan) were performed based on clinical suspicion. **Result:** The most common age group was 20-60 years with male preponderance. Pain in abdomen was commonest symptom followed by vomiting, anorexia and fever. Tenderness was commonest clinical sign observed followed by rebound tenderness, tachycardia and guarding/rigidity. Conclusion: The study strongly suggested that with thorough history taking and proper clinical examination, clinical diagnosis was required for proper identification of cases with Acute Appendicitis. Radiological investigations help in confirming clinical suspicion and giving added information of underlying pathology with accuracy.


Key Words: Acute Abdomen, Appendicitis, Clinical Signs, Pain and Tenderness.

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INTRODUCTION

The term “appendicitis” was used for the first time by Reginald H. Fitz in 1886, who emphasized that most inflammatory disease of the right lower quadrant begin in the appendix and he was the first author to publish on the need for early diagnosis and surgery for acute

appendicitis.¹ Acute appendicitis is the most common cause of an acute abdomen requiring surgery, with a lifetime risk of about 7 %.² The diagnosis of acute appendicitis is predominantly a clinical one; many patient present with typical history and examination finding. The cause of appendicitis is unknown but is probably multifactorial; luminal obstruction and dietary and familial factors have all been suggested.¹³ Appendicitis is most common between the age of 10 to 20 years, but no age is exempted. A male preponderance exists, with a male to female ratio of 1.4:1.⁴ Abdominal pain is the primary presenting complaint of patient with acute appendicitis. The diagnostic sequence of central abdominal pain followed by vomiting with migration of the pain to the right iliac fossa was first described by Murphy, but may be present in 50 % of patients.⁵ The Alvarado score using for risk stratification in patients presenting with abdominal pain, linking the possibility of

appendicitis to recommendation regarding discharge, observation or surgical intervention.⁶ The presence of pyrexia with tachycardia is common. Abdominal examination reveals localized tenderness and muscular rigidity after localization of the pain to right iliac fossa. Rebound tenderness is present. The site of maximum tenderness is often to be over McBurney’s point, which lies two third of the way along a line drawn from the umbilicus to the anterior superior iliac spine.⁷ Further examination technique that may aid in the diagnosis of appendicitis are Rovsing’s sign (Palpation of the left iliac fossa cause pain in the right iliac fossa), Psoas stretch sign, and the obturator sign.⁸ On USG of abdomen, the typical appearance of an inflamed appendix is that of a concentrically layered, non-compressible sausage-like structure demonstrated in a fixed position at the site of maximum tenderness. The average maximum diameter is 9 mm with a variation from 7 to 17 mm.⁹

Objectives: A study of clinical profile of acute appendicitis among subjects attending emergency in a tertiary care hospital.

MATERIALS AND METHODS

The present observational study was conducted by the department of Surgery at Sahyadri Narayana Multispecialty Hospital, Shimoga from December 2019 to February 2020. A total of 74 cases were selected for the purpose of the study during the study period.

Inclusion criteria: Patients presented with acute abdomen who underwent surgery were included.

Exclusion Criteria: Pediatric age group (12 years and below). Traumatic cases (blunt and penetrating). Acute

abdomen in pregnancy and gynecological causes of acute abdomen. Urological cases. Conservatively managed cases

The general data of patients regarding name, age, sex, religion, occupation, socioeconomic status and address was collected. The symptoms studied were pain, anorexia, vomiting, fever, constipation, diarrhea and lump in abdomen. Pain was the most important symptom recorded with special attention to duration, site, onset and progression. The nature of pain along with its intensity, aggravating and relieving factors were recorded. The associated symptoms like abdominal lump, nausea, vomiting, anorexia and fever were recorded. Data was collected using structured questionnaire method. All patients presenting with acute abdomen who met inclusion criteria were included in the study. History and relevant physical examination was performed in all patients and recorded in the questionnaire. Hemogram, total leukocyte count, differential leukocyte count were done in all the cases whereas X-ray abdomen, ultrasound abdomen and CT-scan was performed in selected patients according to suspected disease.

Data Analysis: Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square test was used as test of significance for qualitative data. Graphical representation of data: MS Excel and MS word was used to obtain various types of graphs such as bar diagram, Pie diagram. Statistical software: MS Excel, SPSS version 22 (IBM SPSS Statistics, Somers NY, USA) was used to analyze data.

RESULTS

Total 78 patients meeting the inclusion criteria were selected for the study. The clinical details of patients in the study were entered in a specially prepared proforma. The analysis was done to study the various clinical parameters.

Table 1: Social Profile of the study subjects

		Total No. of cases	Percentage %
Age (years)	15-25	13	16.67
	26-35	17	21.79
	36-45	13	16.67
	46-55	8	10.26
	56-65	16	20.51
	>65	11	14.10
Gender	Male	42	53.85%
	Female	36	46.15%

The above table shows gender wise distribution of patients in the study group. 36 patients (46.15 %) were male and remaining 42 patients (53.85 %) were female. With majority of them belonging to the age group of 25 to 35 years with a mean age of 32.8 years.

Table 2: Distribution of pain among the study subjects

	REGION	N	%
Pain	Diffuse	19	24.36%
	Epigastric +Right Hypochondrium	1	1.28%
	Right Hypochondrium	10	12.82%
	Right Hypochondrium+ Epigastric+Umbilical	1	1.28%
	Right Hypochondrium+ Left Hypochondrium+ Epigastric	1	1.28%
	Right Iliac Fossa	36	46.15%
	Right Iliac Fossa+ Left Iliac Fossa+HC	1	1.28%
	Right Lumbar region	1	1.28%
	Right upper quadrant	1	1.28%
	Umbilical	7	8.97%

In the study 46.15% had pain in Right iliac fossa, 24.36% had diffuse pain, 12.82% had pain in Right hypochondrium and 8.97% had pain in Umbilicus

Table 3: Distribution of clinical symptoms among the study

SYMPTOMS	N	%
Pain	78	100%
Vomiting	60	76.92%
Fever	32	41.03%
Anorexia	48	61.54%
Diarrhea	5	6.41%
Constipation	12	15.38%
Lump	10	12.82%

Above table shows symptoms wise distribution of cases in the study group. All 78 patients had abdominal pain, vomiting seen in 60 (76.92%) patients, anorexia in 48 (61.54 %) patients, fever in 32 (41.03 %) patients, diarrhoea in 5 (6.41%) patients, constipation in 12 (15.38%) patients, and lump seen in 10 (12.82 %) patients.

Table 4: Distribution of clinical signs

Clinical sign	N	%
Tachycardia	26	33.33%
Tenderness	77	98.72%
Rebound tenderness	26	33.33%
Guarding/Rigidity	18	23.08%
Distention	17	21.79%

Above table shows clinical signs wise distribution of patients in the study group. 77 out of 78 patients (98.72%) had tenderness, rebound tenderness observed in 26 (33.33 %) patients, Guarding /rigidity in 18 (23.08%) patients, distension in 17 (21.79%) patients, tachycardia in 26 (33.33%) patients

Table 5: Bowel Sound Distribution among subjects

Clinical sign	N	%	
Bowel sound	Exaggerated(E)	26	33.33%
	Nil(N)	77	98.72%
	Sluggish(S)	26	33.33%
	Present(Y)	17	21.79%

In the study, 67.95% had normal bowel sound, 17.95% had sluggish bowel sound, 7.69% had absent bowel sound and 6.41% had Exaggerated bowel sound.

DISCUSSION

Acute abdomen encompasses a significant number of emergency admissions. An early diagnosis and prompt treatment is paramount for a successful management. Accurate diagnosis of non-traumatic acute abdominal diseases is challenging but can be achieved by detailed history, proper clinical examination and judicious use of appropriate radiological investigations.¹ Majority of patients in our study belong to the age group of 26-35 years (n=17, 21.79%), followed by age group of 56-65 years (n=16, 20.51%) and in the age group of 16-25 years (n=13, 16.67%) and 36-45 years (n=13, 16.67%). This may be a reflection of the population demographics of our country where the majority of the population is young adults. Acute appendicitis is relatively rare in infants and becomes increasingly common in childhood and peaks in early adult life. After middle age, the risk of developing appendicitis is quite small.⁷⁴ In our study acute appendicitis was commonly seen in age group of 15 to 45 years (31 out of 36 patients). Acute cholecystitis was commonly seen in age group of 36 to 65 years (9 out of 12 patients) and perforation peritonitis, intestinal obstruction and acute mesenteric ischemia were predominantly seen in the elderly age group (19 out of 30 patients were > 55 years age). Similar results were observed in the study done by Batra *et al.*¹⁰ where most common age group of acute abdomen was 26 - 35 years, while another study done by Sabhnani and Tomar¹¹ also reported most common age group for acute abdomen as 21-40 years. In another study of Reddy *et al.*¹² and Arora *et al.*¹³ the predominant age group for acute abdomen was 21-30 years. In a study done by Samir *et al.*¹⁴, acute appendicitis was common in middle age group and perforation peritonitis, intestinal obstruction were common in old age group. In our study out of 78 patients, 42 (53.85 %) were males and 36 (46.15%) were females. Similar findings were reported in other studies on acute abdomen done by Reddy *et al.*¹² and Batra *et al.*¹⁰ Another study done by Kumar *et al.*¹⁵ also reported more number of male patients than female with a ratio of 2.74:1. In another large study of 125 patients of acute abdomen done by Arora *et al.*¹³, majority of patients were male.

SYMPTOMS: In our study, abdominal pain was present in all patients. Pain was in right iliac fossa in 46.15%, 24.36% had pain in all quadrants of the abdomen, 8.97 % had pain in umbilical region and 12.82% had pain in right hypochondrium.

Location of pain helps to identify underlying site of pathology. Pain from foregut structures, which includes the stomach, pancreas, liver, biliary system, and proximal duodenum, is typically localized to the epigastric region. Pain from midgut structures, which includes, the rest of the small bowel and the proximal third of colon, including the appendix, perceived in the periumbilical region. Hindgut structures, such as distal

two-thirds of the colon and pelvic genitourinary organs, usually cause pain in the suprapubic region. Pain is often reported in the back for retroperitoneal structures, such as aorta and kidneys. In appendicitis, typical presentation begins with periumbilical pain (due to activation of visceral afferent neurons). The pain then localizes to the right lower quadrant as the inflammatory process progresses to involve the parietal peritoneum overlying the appendix.^{16,17} In patients of intestinal obstruction; pain is colicky and diffuse, which waxes and wanes over 5-minute intervals. Nausea, vomiting, distention, and obstipation are associated with pain.⁸⁰ Perforation peritonitis patients present with sudden onset severe pain which quickly becomes diffuse as generalized peritonitis ensues.⁸ Pain caused by biliary diseases is typically in the right upper quadrant and/or epigastrium and may radiate to the back or right shoulder. Pain may be precipitated by fatty food intake. Patients with acute mesenteric ischemia present with an acute onset of severe periumbilical pain which may become diffuse and pain is often out of proportion and requires opioids. In our study, other common symptom was vomiting which was seen in 60 (76.92%) patients, anorexia in 48 patients (61.54 %), fever in 32 patients (41.03 %), constipation in 12 patients (15.38%), and diarrhoea in 5 (6.41%) patients. Pain generally precedes vomiting in surgical conditions, with exception of esophageal rupture from forceful emesis. Vomiting is usually present in small bowel obstruction. Nature of the vomiting is diagnostically helpful. With small bowel obstruction, a progression from gastric contents to bilious to feculent emesis is anticipated as the duration of the illness increases. Results reported in literature about symptomatology in acute abdomen are similar to our study. In a study done by Reddy *et al.*¹² and Arora *et al.*¹³ vomiting was second most common symptom and anorexia was third most common symptom after abdominal pain. In study done by Momin *et al.*¹⁸ and Al-Aquli HA *et al.*,¹⁹ most common symptoms with abdominal pain were nausea and vomiting. In another study done by Kumar *et al.*,¹⁵ pain abdomen was the most common symptom of acute abdomen followed by vomiting and distension of abdomen.

CLINICAL SIGNS

In our study, tenderness was the most common clinical sign observed in almost all patients of acute abdomen (n=77, 98.72%). Rebound tenderness was observed in 26 patients (33.33 %) and Tachycardia was present in 26 patients (33.33%), Guarding/rigidity was observed in 18 patients (23.08%). Distension was present in 17 patients (21.79%) and Abnormal bowel sounds were observed in 25 patients (31.05 %), Bowel sounds were exaggerated in 5 patients, all belonging to obstructive pathology while bowel sounds were sluggish in 14 patients and bowel sounds absent in 6 patients. After a

thorough history, a focused physical examination was performed. Tachycardia should alert the clinician to a serious cause of the abdominal pain. However, the presence of normal pulse rate does not exclude a serious diagnosis. Abdominal tenderness is the objective expression of pain from palpation. Location of abdominal tenderness helps to identify underlying site of pathology.⁷⁸ In patients of appendicitis, maximum tenderness is observed over McBurney's point; this point is situated at the junction of the lateral 1/3 and medial 2/3 of the right spino-umbilical line joining the right anterior superior iliac spine and umbilicus. Findings observed in study done by Arora *et al.* 5 the commonest clinical sign was tenderness present in 117 out of 125 patients followed by guarding in 78 out of 125 patients, tachycardia in 58 out of 125 patients, distension in 43 out of 125 patients, rigidity in 29 out of 125 patients and rebound tenderness in 22 out of 125 patients. In a study done by Momin *et al.*¹⁸ and Al-Aquli HA *et al.*¹⁹ the most common clinical signs were abdominal tenderness followed by voluntary guarding and rebound tenderness.

CONCLUSION

The study strongly suggested that with thorough history taking and proper clinical examination, clinical diagnosis was required for proper identification of cases with Acute Appendicitis. Radiological investigations help in confirming clinical suspicion and giving added information of underlying pathology with accuracy.

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