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Original Research Article

Evaluating the Clinical and Etiological Characteristics and Outcomes of Patients with Acute Appendicitis

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Abstract

Background: Abdominal pain is one of the most common complaints of patients visiting in an emergency department. Diagnosis and management of abdominal pain are challenging due to the varied clinical spectrum of presentation.

Material and Methods: This prospective observational study was done in the department of surgery, at NMCH Jamuhar Sasaram, Study duration of Two years. 64 cases of acute appendicitis were included in this study. Cases were analyzed as per age, sex, symptoms, signs, ultrasound findings, complication, duration of the hospital stay and outcome. Complete blood count and other routine blood tests were done. Ultrasonography was the imaging modality used for diagnosis.

Results: In the present study, the maximum number of cases (71.87%) was male and 28.13% were female. The maximum number of cases [n=30] belonged to the age group of 20-29 years. Symptom such as pain in the abdomen was present in all cases; this was followed by nausea and vomiting, which was seen in 90% of cases. Tenderness over MC Burney's point was present in all cases. The next common sign was rebound tenderness which was seen in 93.75% of the cases, which is suggestive of the presence of an inflamed appendix in the pelvis. The complete blood count parameters were normal except for the leucocyte count, which was raised in 92% of the cases. In our study, thickening of the wall of the appendix was the commonest finding, seen in all thirty cases. Complications were seen in 4 cases. In most of the cases, 95.31% [n=61] were treated with surgical appendectomy. Three cases [4.69%] had appendicular mass, which was managed conservatively on the basis of the ochsner Sherren regimen.

Conclusion: Acute appendicitis is one of the leading causes of surgical acute abdomen worldwide. Emergency appendectomy is considered as the treatment of choice, but conservative management also has a role.

Keywords: Acute Appendicitis, Ultrasonography, Treatment.

Introduction

Abdominal pain is one of the most common complaints of patients visiting in an emergency department. Diagnosis and management of abdominal pain are challenging due to the varied clinical spectrum of presentation. Acute appendicitis, Gastroenteritis, and abdominal trauma are common causes of pain abdomen in the younger group of patients, whereas appendicitis, cholecystitis, intestinal obstruction, acute gastritis, and diverticulitis are frequently seen in the mid- age population [1]. Appendicitis is the most common abdominal emergency. The lifetime risk of developing appendicitis is approximately 7% - 8% [2] and usually requires surgical treatment. The overall incidence of this condition is approximately 11 cases per 10,000 populations per year. Acute appendicitis is rare in old age, but it can occur at any age. It was seen that its incidence increased in white skin patients between the ages of 15 and 30 years during which time the incidence increases to 23 per 10,000 populations per year. Thereafter, the disease incidence declines with age [3-6]. Diagnosis is mainly based on symptoms, signs, and laboratory data. Appendectomy is considered the treatment of choice for acute appendicitis. Appendectomy has a very low Mortality rate, which may range from 0.07 to 0.7%, rising to 0.5 to 2.4% in patients without and with perforation [7,8]. Overall postoperative complication rates for appendicectomy ranged between 10 and 19% for uncomplicated acute appendicitis and reached 30% in cases of complicated acute appendicitis [9]. The aim of the present study was to assess of Clinical and etiological profile of Acute Appendicitis.

Material and Methods

A prospective observational study was done in the

Department of Surgery, at Narayan Medical College and Hospital Jamuhar Sasaram, Study duration of Two years. A total of 64 patients with appendicitis were enrolled in the study. Cases were analyzed per age, sex, symptoms, signs, ultrasound findings, complications, duration of hospital stay, and outcome. Complete blood count and other routine blood tests were done. Ultrasonography (USG) was the imaging modality used for diagnosis.

Inclusion Criteria

1) Age more than 13 years.
2) Patients with confirmed acute appendicitis clinically as well as on USG.

Exclusion Criteria

1) Acute abdomen of cause other than appendicitis.

Results

In our study we found that maximum number of cases (71.87%) were male patients and 28.13% of cases were female patients (Fig-1). Maximum number of cases [n=30] belonged to the age group of 20-29 years. Minimum number of cases [n=1] was seen in age group of above 50 years (fig 2). The incidence was 1.56%. It was also seen that most of patients [n=64] had pain abdomen and nausea, and Incidence was 100%. 90.6% (Table 1).

Table 1: Symptom Wise

Symptom	Number of Patients	percentage
Pain Abdomen	64	100
Nausea	58	90.63
Vomiting	45	70.31
Fever	40	62.50

It was also seen that all patients of acute appendicitis [n=64] had tenderness over MC Burney's point and incidence was 100%. Minimum number of cases [n=4] had ilio-psoas sign positive 6.25% (Table-2).

Table 2: Clinical Signs in Patients with Acute Appendicitis

	Number of Patients	Percentage
Mc Burney's point tenderness	64	100
Rebound tenderness	60	93.75
Rovsing's sign	10	15.63
Obturator sign	12	18.75
Iliopsoas sign	4	6.25

In the present study, it was also seen that, All of patients of acute appendicitis [n=46] had leucocytosis. In radiological finding, most of patients [n=64] had appendicular wall thickening. Incidence was 100% and minimum number of cases [n=8] has periappendiceal fluid collection, with an incidence of 12.5% In our study, Maximum number of cases [n=61] were treated with surgical appendectomy. Three cases had appendicular mass and were treated conservatively (Ochsner-sherren regimen) (Table-3). We also found that 6.25% [n=4] patients presenting with complication (Table-4), of which maximum number of cases [n=3] had appendicular abscess andsingle patient had mucocele.

Table 3: Management in Cases of Acute Appendicitis

	Number of patients	Percentage
Surgical –Appendectomy	61	95.31
Conservative	3	4.69

In our study, we also found maximum number of cases [n=34] stayed in hospital for three daysand followed by two days [n=26] and minimum number of cases [n=4] stayed in hospital for 4days. There was no mortality in our study. All the 64 cases recovered completely (Table-4).

Table 4: Outcome in Cases of Acute Appendicitis

Outcome	Number of Cases	Percentage
Complications	4	6.25
Mortality	0	0
Recovery	64	100

Discussion

Acute appendicitis is one of the most common clinical challenges of emergency surgeons due to its diagnostic workup. Presentation of acute appendicitis may vary from mild symptoms (like moderate pain abdomen or fever) to severe scenarios (like peritonitis, or sepsis) [9,10,]. The appendix is a tubular organ, which is present near the ileocecal valve, at the base of the cecum where the taenia-coli converge on

the cecum. Inflammation of the appendix is known as appendicitis, which is caused by obstruction of the appendiceal orifice, which is the case by lymphoid hyperplasia, fecoliths, foreign body, or even worm. Obstruction of the appendicular orifice causes increased intramural pressure, which leads to small vessel occlusion, lymphatic stasis, and lumen filled with mucus later on the wall of the appendix become ischemic, necrosis and bacterial overgrowth may occur (common organisms are Eschericherichia coli, streptococcus, Pseudomonas and Bacteroides). It may lead to the formation of a localized abscess or sometimes perforation also [11]. The estimated overall lifetime incidence of acute appendicitis is approximately 10% and there is evidence that this is increasing nowadays [12]. Acute appendicitis is relatively rare in infants, and becomes increasingly common in childhood and early adult life, reaching a peak incidence in the teens and early 20s [13]. Kazarian et al, (1970) reported the maximum number of cases was present in the second and third decades [14] and Lewis et al., (1975) reported males were the commonest victim of acute appendicitis [15]. Whereas in our study it was also seen that males were the commonest victim of acute appendicitis. Clinical presentation of appendicitis varies, which are as follows- vague peri-umbilical pain, acute pain in the right iliac fossa, lack of appetite, nausea, vomiting, fever, constipation, etc. In our study pain in the abdomen and nausea were present in all cases. This was followed by nausea & vomiting, which was seen in 90.63% & 70.311% respectively. Our study correlates with the study done by Earley et al., (2006) where pain abdomen, nausea, and vomiting were the commonest symptoms [16]. Tenderness over Burney's point and rebound tenderness are the confirmatory sign of acute appendicitis, another sign such as the obturator sign, Rovsing sign, and iliopsoas sign was also seen in acute appendicitis. The Obturator sign was positive in 18.75%, which is suggestive of the presence of an inflamed appendix in the pelvis. Rovsing's sign was positive in 15.63% [n=10] of cases. Danny O in 2015 reported that the patients whose Iliopsoas signs were positive indicate the presence of retro cecal appendicitis [17]. In 2014, Drake et al., reported that most patients with acute appendicitis had leukocytosis [18], which was also seen in our cases. The most commonly used scoring systems for acute appendicitis are the Alvarado score19, AIR—Appendicitis Inflammatory Response (Andersson) score [19] grading systemproposed by the World Society of Emergency Surgery (WSES) [20]. Clinical examination and blood investigation confirm the diagnosis of acute appendicitis. Radiological imaging helps to support the diagnosis and also rule out other causes of acute abdomen. Lee and Ho (2003) reported that the commonest USG finding of appendicitis patients was the thickening of the wall of the appendix [21]. In the case of acute appendicitis, the treatment of choice is an appendectomy, which has a very low Mortality rate, ranging from 0.07 to 0.7%, rising to 0.5 to 2.4% in patients without and with perforation. Overall postoperative complication rates for appendicectomy ranged between 10 and 19% for uncomplicated acute appendicitis and reached 30% in cases of complicated acute appendicitis. If an acute appendicitis patient is left untreated, then it may lead to complications such as appendicular mass, appendix abscess, or rupture, with generalized peritonitis. Ingraham et al., (2010) reported the formation of appendicular mass was the commonest complication [22]

Conclusion

Acute appendicitis is one of the leading causes of surgical acute abdomen worldwide. Emergency appendectomy is considered as the treatment of choice, but conservative management also has a role. Advances in modern radiographic imaging have improved diagnostic accuracy, however, the diagnosis of acute appendicitis is clinical mainly, but laboratory investigations and USG also help in decision-making. Typical clinical presentations of acute appendicitis are not commonly observed in this study. This study validates comparative literature finding about the clinical and epidemiological profile of appendicitis as well as helps us in tailored to the clinical profile and etiology in our region.

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