Original Article

Frequency of Normal Appendicectomy in a Tertiary Care Hospital

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ABSTRACT

Objective: To determine the frequency of normal appendicectomy in a tertiary care hospital.

Study Design: Prospective observational study.

Place and Duration of Study: This study was carried out in Surgical Unit-I, Liaquat University Hospital Hyderabad, from Oct 2010 to Oct 2011.

Materials and Methods: This study consisted of hundred patients admitted through the outpatient department, as well as from casualty department of Liaquat University Hospital Jamshoro/Hyderabad. Detailed History was taken from all the patients with special regard to the Pain in RIF, Pain starting around umbilicus, nausea, vomiting , fever and Altered bowel habits. Detailed Clinical examination of the patient was done .Site of right iliac fossa was especially examined for assessment of tenderness and recorded in proforma. Systemic review was also done to see any co-morbidity. All patients underwent base line and specific investigations especially ultrasound of abdomen as diagnostic modality for assessment of acute appendicitis. Inclusion criteria were all these patients who after counseling for this study and gave written consent. Irrespective of their age and sex admitted in Surgical Unit-I through outpatient department/ casualty and diagnosed as case of acute appendicitis. Exclusion criteria included all patients with features of generalized peritonitis, patients with palpable mass in right iliac fossa and patients with history of previous operation on lower abdomen. Follow up of all these patients was done. Results were prepared with help of tables and graphs. Data was analyzed through SPSS software.

Results: Out of 100 patients included in this study 64 were male (64%) and 36 patients were female (36%); with male to female ratio of 1.7:1. There was wide variation of age ranging from a minimum of 10 year to 70 year. The mean age was 26.78 year. Symptoms of patients were pain in RIF in 99 (99%), pain starting around umbilicus in 42 (42%), nausea in 65 (65%), vomiting 52 (52%), fever in 35 (35%) and altered bowel habits in 18 (18%). Clinical examination of patients revealed tenderness at Mc Burney's point in 99 (99%) patients, while guarding was present in 80(80%) patients, rebound tenderness was present in 84(84%) patients and 33 (33%) patients had fever. Ultrasonographic findings revealed Wall thickness of appendix in 58(58%) patients where as normal appendix in 42(42%) patients, Free fluid in the R.I.F and pelvis was found in 36(36%) patients, Thickening of the surround intestinal lobes was seen in 40(40%) patients and Mass of abscess formation in 8(8%) patients. Operative and histopathological findings were acute appendicitis in 59(59%) patients where as normal appendix in 21(21%) patients, adherent to bowel or omentum was found in 7(7%) patients, pus was seen in 5(5%) patients and perforated 3(3%) patients.

Conclusion:- In conclusion, we found 21 % of appendices to be histopathologically normal after emergency appendicectomies performed in this hospital. There was no mortality.

Key Words: Normal appendicectomy, Histopathologically, Emergency appendicectomies.

INTRODUCTION

Appendicitis is a major surgical emergency [1] . There is no age limit, though the highest incidence is seen in the 2nd and 3rd decades [2] with a slight male predominance [3]. The diagnosis is based on well-established symptoms, signs and physician's experience[1]. The signs and symptoms that are most predictive of acute appendicitis are pain in the right lower quadrant, abdominal rigidity, and migration of pain from the periumbilical region to the right lower quadrant, presenting along with fever, nausea and vomiting, although this occurs in 70% of cases [4,5]. It is easy to diagnose clinically typical cases of this disease, but diagnosing atypical cases can be quite difficult at times.The preoperative clinical diagnosis is straight forward in 70-80% [6] cases with an overall negative appendectomy rate of 15-25%[7]. A high negative appendectomy rate is considered acceptable in order to minimize the incidence of perforation [8]. The common conditions that mimic acute appendicitis include pelvic inflammatory disease, gastroenteritis, abdominal pain of unknown origin, urinary tract infection, ruptured ovarian follicle, and ectopic pregnancy [5]. Accurate preoperative diagnosis has long been a great challenge even to experienced surgeons. Various imaging modalities, biochemical markers and scoring systems followed by an early surgery help to lower the negative appendectomy rate [9,10].These have

helped to minimize morbidity and drop in perforation rate from 27% to 12.5% [11]. Females of child bearing age have the highest negative appendectomy rate of 35-45% [11] because of gynaecological conditions simulating appendicitis. Despite availability of modern diagnostic investigations, the rate of negative appendicectomies remain quite high even in well equipped western hospitals.

MATERIALS AND METHODS

This study was carried out in the General Surgical Unit-I at Liaquat University Hospital Hyderabad, Sindh , Pakistan from from Oct 2010 to Oct 2011. This study consisted of hundred patients admitted through the outpatient department, as well as from casualty department of Liaquat University Hospital Jamshoro/Hyderabad. It is a prospective observational study of normal appendicectomy of patients admitted in Surgical Unit-I, who came for acute appendicitis as assessed by pre-operative workup. All data was entered in a specified proforma designed for this purpose. Detailed History was taken from all the patients with special regard to the Pain in RIF, Pain starting around umbilicus, nausea, vomiting, fever and Altered bowel habits . Detailed Clinical examination of the patient was done .Site of right iliac fossa was especially examined for assessment of tenderness and recorded in proforma. Systemic review was also done to see any co-morbidity. All patients underwent base line and specific investigations especially ultrasound of abdomen as diagnostic modality for assessment of acute appendicitis. Inclusion criteria were all these patients who after counseling for this study and gave written consent. Irrespective of their age and sex admitted in Surgical Unit-I through outpatient department/ casualty and diagnosed as case of acute appendicitis. Exclusion criteria included all patients with features of generalized peritonitis, patients with palpable mass in right iliac fossa and patients with history of previous operation on lower abdomen. Follow up of all these patients was done . Results were prepared with help of tables and graphs. Data was analyzed through SPSS software version 16.0.

RESULTS

The 100 cases of consecutive acute appendicitis were operated . Out of 100 patients included in this study 64 were male (64%) and 36 patients were female (36%); with male to female ratio of 1.7:1 . There was wide variation of age ranging from a minimum of 10 year to 70 year. The mean age was 26.78 year.

Symptoms of patients were pain in RIF in 99 (99%), pain starting around umbilicus in 42 (42%), nausea in 65 (65%), vomiting 52 (52%), fever in 35 (35%) and altered bowel habits in 18 (18%). Clinical examination of patients revealed tenderness at Mc Burney's point in 99 (99%) patients, while guarding was present in 80(80%) patients, rebound tenderness was present in 84(84%) patients and 33 (33%) patients had fever (Figure 1). Alvarado score were $\geq$ 7 in 82(82%) patients and $\leq$ 7 in 18(18%) patients . Leucocyte count found more than >11000/ cu mm were in 95(95%) patients and <11000/cu mm was only in 5 (5%) patient (Table 1). Ultrasonographic findings revealed Wall thickness of appendix in 58(58%) patients where as normal appendix in 42(42%) patients, Free fluid in the R.I.F and pelvis was found in 36(36%) patients, Thickening of the surround intestinal lobes was seen in 40(40%) patients and Mass of abscess formation in 8(8%) patients (Table 2). Operative and histopathological findings revealed acute appendicitis in 59(59%) patients where as normal appendix in 21(21%) patients, adherent to bowel or omentum was found in 7(7%) patients, pus was seen in 5(5%) patients and perforated 3(3%) patients (Figure.2).

Table No.1: Different characteristics in patients with percentage.

Characteristics	No. of Patients (n-100)	Percentage (%)
Alvarado Score		
• Alvarado score were $\geq$ 7	92	82%
• Alvarado score were $\leq$ 7	18	18%
Leucocyte count		
• Leucocyte count found more than > 11000 cu mm	95	95%
• Leucocyte count found less than < 11000 cu mm	5	5%

Table No.2: Different Ultrasonographic findings in patients with percentage.

Ultrasonographic Findings	No. of Patients (n-100)	Percentage (%)
Wall thickness of appendix	58	58%
Free fluid in the R.I.F. and pelvis	36	36%
Thickening of the surround intestinal lobes.	40	40$
Mass of abscess formation	8	8%
Normal Appendix	42	42%

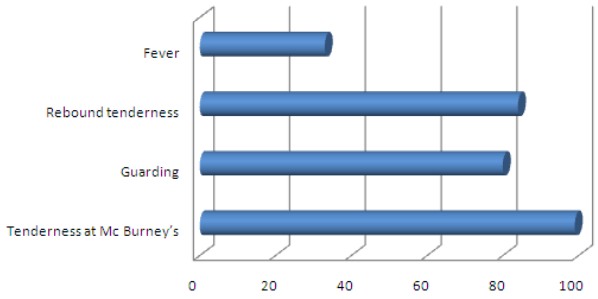

Figure No.1: Clinical examination of patients

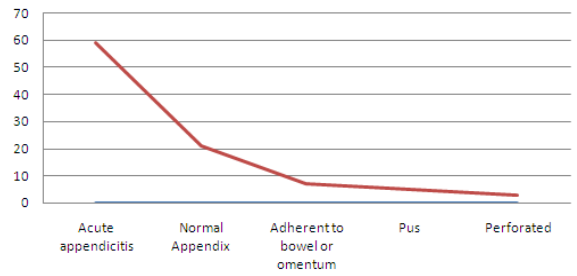

Figure No.2: Operative and histopathological findings

DISCUSSION

Acute appendicitis is the most common surgical condition encountered in emergency room. The first description of the appendix date to the sixteenth centuryAlthough first sketched in the anatomic notebooks of Leonardo da Vinci around 1500, the appendix was not formally described until 1524 by da Capri and 1543 by Vesalius. Perhaps the first description of a case of appendicitis was by Fernel in 1554. First recorded appendectomy was performed by Amyand in 1736, when he operated on a boy with an enterocutaneous fistula within an inguinal hernia.On exploration of the hernia sac, he discovered the appendix, which had been perforated by a pin resulting in a fecal fistula [12].

In our study sex ratio showed predominance of males. Out of 100 patients 64% were males and only 36% were females. Male to female ratio was 1:7.1. However the male to female ratio given by Muhammad A [13] was 1.3:1.

The age ranged from 10 to 70 years with mean age of 26.78 years. The peak age group in our study were 2nd and 3rd decade of life which is comparable to other study where peak incidence was given in the 3rd decade of Life [14] .However in an other study age ranged from 15 to 65 years with a median age of 28 years [15].

In our study the pain in right iliac fossa was the main presentation in 99% of patients followed by pain starting around umbilicus in 42 (42%), nausea in 65 (65%), vomiting 52 (52%), fever in 35 (35%) and altered bowel habits in 18 (18%). However in study of Soomro BA [16] pain in right iliac fossa was presentation in 98.27% of patients, anorexia was seen in 86.20% patients, vomiting occurred in 68.96% and fever in 43.10% patients.

The clinical parameters were further supported by clinical examination which revealed that tenderness at Mc Burney's was present in 99 (99%) patients, while guarding was present in 80(80%) patients, rebound tenderness was present in 84(84%) patients and 33 (33%) patients had fever. Clinical examination findings described by Paulson EK [17] et al in their study show Rebound tenderness in 63%, guarding in 39 to 74% and Fever in 67%.

There is some improvement in the diagnosis of acute appendicitis due to modern imaging techniques and the development of different scoring system, based on the clinical symptoms and signs and laboratory investigations [18]. Amongest them the Alvarado score is simple , cheap and easily applicable [19].In our study Alvarado score was > 7 in 82(82%) patients and < 7 in 18(18%) patients. However Alvarado score reported by Jan H [14] in a series of 100 patients was > 7 in 61% patients .

The characteristic abdominal pain in acute appendicitis correlated with histologically infiltration of neutrophils within the appendiceal wall. White blood cell count has been considered to be a useful finding in the diagnosis of acute appendicitis. The increase in leucocyte count was an early marker of acute appendiceal inflammation. In this study, leucocyte count was raised >11000/ cu mm in 95% of patients while in study of Ata Ul Lateef showed leucocyte count was raised in 79.6% of patients with acute appendicitis [20].

In our study approximately 21% of histopathological normal appendices were removed from patients with preoperative diagnosis of acute appendicitis. Local studies have reported a negative appendectomy rate ranging from 10% to 15% [21-22]. A 12.3% rate of negative exploration represents good clinical performance, because a rate of 15% is still considered acceptable in literature [15]. Despite many trials to improve these results it has become apparent that, in most surgical units the rate of normal appendix removal remains around 15% [23,24]

CONCLUSION

We conclude that 21 % of appendices were histopathologically normal after emergency appendicectomies performed in this hospital. There was no mortality.

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