APPENDICITIS: YOUNG ADULTS ARE SUSCEPTIBLE

Somashekhar V. Hiremath[1]

[1]*Resident, Department of General Surgery, KIMS Hospital, Hubli, Karnataka.*

ABSTRACT

CONTEXT

Appendicitis is the one of the most common emergencies of the acute abdomen encountered by the clinicians; peritonitis is the common cause due to appendicular perforation. Ultrasonography of abdomen is the preferred method of diagnosis of acute appendicitis. The study is done to diagnose acute appendicitis in a tertiary care hospital to ascertain early diagnosis prevalent in this part of the country, which might differ from other studies.

AIM

To ascertain prevalence, presentation and management of appendicitis in this part of India in a tertiary care government hospital with provisional diagnosis of appendicitis.

MATERIAL AND METHODS

Cases of acute abdomen, clinical diagnosis of acute appendicitis admitted in KIMS Hospital, Hubli, a tertiary care government hospital, from January 2014 to January 2015 for materials of this study. 100 cases have been taken for study; cases included in this study are acute appendicitis, appendicular abscess; method used is USG abdomen, a simple diagnostic tool.

RESULTS

In present study, 100 cases of acute abdomen with clinical diagnosis of acute appendicitis were taken and laparotomy was done for 98 cases and two cases of appendicular abscess. Youngest patient was 7 years old and oldest was 65 years. Peak incidence between 11 to 30 years of age group and male to female ratio is 3:2. Postoperative wound infection was a common complication in 21 cases and retention of urine was noticed in 7 cases, and there was a death in one case due to septicaemia.

CONCLUSION

Acute appendicitis is a second most common indication for early laparotomy in KIMS Hospital, Hubli, first being perforative peritonitis. Acute appendicitis is common between 11 to 30 years of age group, early diagnosis and intervention is required to prevent appendicular perforation and its complications. Diagnosis of acute appendicitis is to be done in patients presenting with atypical pain, absence of vomiting does not rule out appendicitis. Anorexia is an important symptom and fever is late presentation. Economic and early diagnostic tool is USG of the abdomen and sometimes diagnostic laparoscopy, computed tomography, and magnetic resonance image do help in concluding the diagnosis.

KEYWORDS

Appendicitis, USG Abdomen, Laparotomy.

HOW TO CITE THIS ARTICLE: Hiremath SV. Appendicitis: Young adults are susceptible. J. Evid. Based Med. Healthc. 2016; 3(64), 3466-3469. DOI: 10.18410/jebmh/2016/746

INTRODUCTION: Appendicitis is presented to the surgeon as one of the following sequelae, acute appendicitis, chronic appendicitis, recurrent appendicitis, appendicular mass, or appendicular abscess. Acute appendicitis is a most common condition of the abdomen and may occur at all ages, but is most commonly seen in the second and third decades of life and diminishes progressively with the age. Males are affected more commonly than females. The disease is more often seen in individuals of higher socioeconomic group rather than poor class individuals, although most common in teenage and young adults.

Financial or Other, Competing Interest: None.
Submission 05-07-2016, Peer Review 15-07-2016,
Acceptance 25-07-2016, Published 10-08-2016.
Corresponding Author:
Dr. Somashekhar V. Hiremath,
H. No. B-4, Navaniketan Apartment, "Sambhram Nest",
Ashoknagar, Hubli-580032, Dharwad Dist., Karnataka.
E-mail: dhspacedom@gmail.com
DOI: 10.18410/jebmh/2016/746

No age is exceptional and it is reported even in children and babies who are breast-fed. Nowadays, it is seen more often in young females who frequently eat junk foods and bakery items. There is remarkable improvement in the prognosis of the appendicitis. Mortality of the appendicitis is less than 1 in 500, which is unlikely to decrease further because of the aged population. The mortality is high at extremes of age. The way to decrease the morbidity and mortality is to do appendicectomy before the appendix has perforated. Diagnosis of appendicitis in infants and children is difficult because disease progresses more rapidly leading to gangrene and rupture occurs sooner. Rupture ranges from 50 to 80%. Appendicitis in elderly, rigidity is minimal due to lax abdominal wall which may delay diagnosis. So, gangrene and perforation may occur more frequently. Appendicitis in pregnancy is the most common extrauterine condition with simple appendicitis leading to foetal motility of 9%. It has been reported that it is 36% in peritonitis.

If it is peritonitis and not appendicectomy, early operation is advisable in pregnant women. Mother's condition is always taken into consideration and treatment given usually for both. Appendicitis is a common problem in this hospital. Also, the present study is undertaken to study the age incidence, sex distribution, various clinical presentations, treatment and complication of the appendicitis. The treatment of acute appendicitis is always appendicectomy; the sooner it is done the better.

MATERIALS AND METHODS: Cases of acute appendicitis admitted in KIMS Hospital, Hubli, Karnataka, from January 2014 to January 2015, form the materials of the study. The cases included are acute appendicitis and appendicular abscess.

RESULTS:

Age in Yrs.	No. of Patients	Percentage (%)
0-10	4	4
11-20	40	40
21-30	36	36
31-40	13	13
41-50	5	5
51-60	1	1
61-70	1	1
Total	**100**	**100**

Table 1: Prevalence of Cases Clinically and Age Wise

The present study is based on the study of 100 cases of clinically suspected acute appendicitis admitted to KIMS Hospital, Hubli, between January 2014 to January 2015, a tertiary government hospital. The cases included are the cases of acute appendicitis for which emergency appendicectomy was done and those of appendicular abscesses. A total of 100 cases were taken up for study from the cases admitted during this period. These patients were admitted in all 6 units of this hospital. All the patients admitted with the diagnosis of suspected acute appendicitis were examined and subsequently the diagnosis was proved otherwise at laparotomy in some cases. Negative cases have been excluded from the study. The patients were followed up for early and late postoperative complications. The peak incidence was between 11-30 years of age. The minimum age was 7 years and the maximum was 65 years. The mean age being 24.37. There were 60 males and 40 females in the study. The male to female ratio being 3:2. Appendicitis is not common before the age of 2.[1,2,3]

Duration of Illness	No. of Cases	Percentage (%)
1D	35	35
2D	45	45
3D	14	14
4D	5	5
>5D	1	1

Table 2: Presentation of Patients on Appearance of Symptoms

The duration of the illness time between appearance of the first symptom and presentation to hospital varied between 1 day to 5 days. Most of our patients come from rural areas and they are locally seen by unqualified practitioners and treated symptomatically. They were referred to hospital when symptoms exaggerate.[2]

Tenderness	No. of Cases	% of Total
In right iliac fossa	89	89
Generalised	11	11
Total	**100**	**100**

Table 3: Clinical Assessment of Symptoms and Signs

Generally, tenderness is present in right iliac fossa in all most all cases. The rebound tenderness was present in 74 cases, guarding was present in 80 cases in right iliac fossa and extended beyond right iliac fossa in 16 cases, rigidity was found in right iliac fossa in 27 cases, and generalised rigidity in 11 cases.

- Rovsing's Test: This test was positive in 29 cases.
- Cope's psoas Test: This test was positive in 10 cases.
- Obturator Test: This test was positive in 8 cases.
- Baldwin's Test: This test was positive in 11 cases.

Appendicular mass was found in 3 cases of which 2 cases were appendicular abscess. On percussion, 9 patients had obliteration of liver dullness suggestive of early gas in the abdomen. On auscultation, bowel sounds were absent in 14 cases and faintly heard in 27 cases. This suggests early onset of subacute intestinal obstruction.[1,2,3]

Diagnosis	No. of Cases
Acute appendicitis	86
Perforative peritonitis	11
Appendicular abscess	2
Intestinal obstruction	1

Table 4: Surgical Management

Of all the clinical diagnoses, 100 were operated laparotomy, 86 patients were acute appendicitis and appendicular abscess in 2 patients as patient came to hospital at very late stage due to negligence. intestinal obstruction was noticed due to infection and spreading to bowels were late presentation sequelae. Perforation in 11 cases led to the gangrene at tip of the appendicitis and led to generalised peritonitis.[4,5,6]

Complications	No. of Cases
Wound infection	21
Retention of urine	7
Prolonged ileus	4
Thrombophlebitis	1
UTI following catheterisation	4

Table 5: Postoperative Complications and Management

A total of 37 postoperative complications were noticed in 30 patients. One patient had multiple complications in the present study.

One patient expired due to perforated appendicitis. He was 65 years of age who presented to the hospital after 4 days after the onset of symptoms who had generalised peritonitis on admission. The cause of the death was septicaemia. Thus, mortality rate is 1%, wound infection rate is 2% suggestive of nosocomial infections.[1,3]

HPR	No. of Cases	Percentage (%)
Acute appendicitis	70	71.4
Chronic appendicitis	28	28.6

Table 6: Tissue Diagnosis

Histopathology of 98 patients with appendicectomy- 70 specimen showed acute appendicitis, i.e. 71.40% suggestive of catarrhal infection, chronic appendicitis in 78 specimens, they could be faecolith and obstruction and obliteration of lumen of the appendicitis due to worm infestation or infective block.[2, 3]

	Appendix With Perforation	Complications	%	Appendix Without Perforation	Complications	%
Per Jess et al	23	9	39	119	9	8
Present study	11	6	54.5	87	20	23

Table 7: Postoperative Complications Comparison

Postoperative complication rate was higher in patients with perforated appendicitis when compared to patients without perforated appendix. This was consistent with the study of Per Jess et al where the postoperative complications following perforation was higher as compared to when there was no perforation. Wound infection was the commonest complication. Hence the technique of delayed closure of the wound can prevent the above complications. The next common complications was retention of urine, which may be because spinal anaesthesia was given to most of the patients.[2,3]

DISCUSSION: Cases found in patients of 0-10 years in this study were four, it amounts to 4% of the cases. This is less under age of 10 and it is uncommon below the age of 2, as these groups of patients have no irregular feeding habits. Ages between 11 and 20- In this age group, there are 14 cases and it amounts to 40%. These have irregular food habits and consume junk foods and bakery items more. It is more so in females and more so in fatty persons between 21-30 years of age. In this study, I found 36 patients have irregular food habits and they do not consume foods which have fibre. Therefore, they are more prone for appendicitis in the age group 31-40 years. In this study, I found 13 patients which amounts to 13% in the age group of 41-50. As age advances incidence gradually comes down and their food habits must be regular.

In this study, I found only 5 patients that amount 5% these group are of middle age having consistent food habits and they have good resistance power in the age group of 51-60 year and age group of 61-70 year. In this study, I found 1 and 1 patients respectively and that amounts 1% in each group. These are they older patients the incidence of reduced as the age advances. In this study, pittance of appendix as these have come to the hospital on appearance of the symptoms from first day to five days thirty five patients amounting to 35% have come to hospital on first day of the symptoms because of intolerable pain and vomiting. 45 patients amounting to 45% came to the hospital on onset of symptoms on 2nd day because of severe abdominal pain, vomiting, and mild degree of fever. Fourteen cases of appendicitis amounting to 14% came to the hospital on onset of symptoms after 3 days, probably they would have taken local treatment there. Symptoms and signs must have reduced and flared up subsequently and came to hospital late. 5 patients in this study came to the hospital on 4th day after onset of symptoms, they must have ignored the underlying disease or must have been treated by local doctors symptomatically. Only one patient in this study that is 1% came to the hospital on 5th day after the appearance of symptoms, this may be subclinical and non-infectious.

In this study, 89 cases of suspected appendicitis came to the hospital with pain in the right iliac fossa. This is one of the diagnosed point in any form of appendicitis, but there are many differential diagnoses of which the most common is ureteric calculi, which is to be diagnosed by usually ultrasonography. 11 patients came to the hospital with generalised pain in abdomen. This amounts to 11%. In this study what is most confusing to the clinician is the number of patients who presented with generalised abdominal pain. In such cases, ultrasonography is usually done, but sometimes higher diagnostic tools like CT and MRI will be required.

In this study of 100 cases of appendicitis, 86 were acute appendicitis, all of them underwent appendectomy operation after the ultrasonographic diagnosis. 11 patients came to the hospital with perforative peritonitis due to the perforation of hollow viscus and there may be appendicular gangrenous tip. There are 2 patients in this study who came to the hospital with appendicular abscess. This clearly shows that patients must have ignored the disease or they must have taken local treatment, and there must be some problem in going to the hospital or shortage of funds for treatment. Common complication in this study is wound infection. There are 21 cases of simple wound infections. They have been treated with appropriate antibiotics and autoclave dressing materials even then local toileting with soap and water is preferred.

In this study, seven cases of retention of urine was noticed postoperatively. This could be due to reflex spasm of muscles. Some of them were encouraged to pass urine and some were catheterised. In this study, 4 patients had prolonged ileus. This could be because of more handling of abdominal organs more so small bowel. This required parenteral fluids and nil by mouth for three to four days and it was corrected automatically. One patient had thrombophlebitis. This could be due to non-ambulation, so early ambulation is advised postoperatively and this patient was treated with suitable antibiotics and thrombolysis. 4 patients in this study had urinary tract infection due to catheterisation. This is a known and common complication in the patients undergoing catheter insertion. This was treated with assurance and injection of more liquids orally.

In this study, seventy cases of acute appendicitis have been operated. All of them have histopathological study of the specimen done and 71.4% of the tissue diagnosis is correct and another 28 cases of chronic appendicitis specimen has been sent for HP or study that shows 28.6%. Therefore, the appendicitis in any form has been definitive inspection of appendix. In this study, appendix perforation is less when compared to Per Jess et al. study and complication rate is also less. Appendix with perforation in this study is less and complication is little higher, that clearly shows improvement in the management of appendicitis.

CONCLUSION: Acute appendicitis is the second common indication for early laparotomy in KIMS Hospital, Hubli, first being perforative peritonitis. Prevalence in my study is 40% in 11 to 20 years age group of patients and 36% in 21 to 30 years age group of patients. Acute appendicitis is common between 11-30 years age group. Early diagnosis and intervention is required to prevent the perforation and its complications. Ultrasonography is the choice of diagnostic modality in acute appendicitis. Computed tomography and magnetic resonance imaging may be required in complicated cases of appendicitis.[7] Early diagnosis and intervention are essential in appendicitis even in pregnancy. Pregnancy is not contraindicated for surgery.[8] Stump appendicitis is noted in laparoscopic appendicitis. Therefore, short stump and burring of the stump is preferred. Appendicectomy is the choice of treatment in any form of appendicitis.

ACKNOWLEDGEMENT:

1. Dr. B.S Madakatti, Ex-Professor & HOD Dept. of Surgery, KIMS Hospital, Hubli Karnataka and Ex-Director, KIMS, Hubli for his consistent advice to me for pursuing Postgraduation in Surgery and for his valid suggestions, encouragement and guidance during the study.
2. Late Dr. K.G Nayak, Ex-Professor, Dept. of Surgery, KIMS, Hospital who gave valid suggestions, guidance, advice and encouragement to me during my internship period.
3. Late Dr. Girigouda, Prof. of Surgery, who used to encourage me in every aspect and his teachings during my UG period which attracted me to take up my postgraduate studies in surgery. He taught me hands-on training in surgery period.
4. Mrs. Tejaswini, my wife who supported me a lot and encouraged me towards taking up postgraduation studies and took care of family even in my absence.

REFERENCES

1. Das S. A Concise Textbook of Surgery. 1st edn. Calcutta: Das 1996:966-979.
2. Das S. Manual of clinical surgery. 4th edn. Calcutta: Das 1998:335-356.
3. Bailey and Love's Short Practice of Surgery. 22nd edn. London: Champion Hall, ELBS 1995:828-841.
4. Rintul RF, ed. Farquharson's Textbook of Operative Surgery. 18th edn. Edinborge: Churchill Livingstone 1995:451-458.
5. Zinner MJ, Schwarts I, Ellis H, eds. Maingot's abdominal operations. 10th edn. New York: Appleton and Lange 1997:1244-1254.
6. Jess P, Bjerregaard B, Brynitz S, et al. Acute appendicitis prospective trial concerning diagnostic accuracy and complications. Am J Surg 1981;141(2):232-234.
7. Zeidan BS, Wasser J, Nicholas GG. Ultrasonography in the Diagnosis of Acute Appendicitis. Jour Roy Coll Surg Edinb 1997;42:234-236.
8. Masters K, Levine BA. Gaskill HV, et al. Diagnosis of appendicitis during pregnancy Am J Surg 1984;148:768-771.