## **Original Research Article**

DOI: http://dx.doi.org/10.18203/2349-2902.isj20171142

# A study of surgical profile of patients undergoing appendectomy

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**Received:** 16 January 2017 **Accepted:** 16 February 2017

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#### **ABSTRACT**

**Background:** The most common cause of acute abdomen in surgical is appendicitis. Among the surgeries of abdomen performed all over the world, appendectomy is the most common operation performed. Many studies have shown variations of age, gender in acute appendicitis as well as the seasonal variations in the occurrence of acute appendicitis, although the cause is not found yet. Objective was to study the surgical profile of patients undergoing appendectomy.

**Methods:** A total of 302 patients who have undergone appendectomy were included in the present study which was hospital based cross sectional study. The study was carried out for two years at Osmania General Hospital, Hyderabad, India. Permission from Institutional Ethics Committee permission was obtained. From each and every patient included in the study, initially Informed individual consent was taken.

**Results:** The incidence of appendicitis is much more in females i.e. 60% compared to only 40% in males. Appendicitis was most common in younger age groups of below 30 years of age. As the age increased the incidence of appendicitis decreased. From 83.2% at 30 or less than 30 of age it drastically dropped down to 15.9% in the age group of 30-49 years and in the age group of 50 and above, the incidence of appendicitis came down to less than one percentage. Only three cases were recorded above the age of 50 years.

**Conclusions:** Present study revealed more rates in females. The disease was more common in younger age groups. The most common presenting symptom was abdominal pain. Presence of abdominal mass was absent in the present study.

Keywords: Appendicitis, Abdominal mass, Right iliac fossa

### INTRODUCTION

The most common cause of acute abdomen in surgical is appendicitis. Among the surgeries of abdomen performed all over the world, appendectomy is the most common operation performed. Many studies have shown variations of age, gender in acute appendicitis as well as the seasonal variations in the occurrence of acute appendicitis, although the cause is not found yet. Patients presenting with acute appendicitis on surgery, have been found to have non-inflamed appendix. This hampers the results of studies on incidence of appendicitis. Thus the

actual incidence of appendicitis is difficult to predict.<sup>1</sup> There is no doubt that the most common cause of acute abdomen is surgically appendicitis. There has been no uniformity in the studies reporting incidence of appendicitis in relation to age, sex and season.<sup>2</sup>

Inter country differences are also seen in the incidence of appendicitis in addition to other factors. Most developed countries are showing declining rates like US and Europe. On the contrary, an increase could be seen in the developing countries. Although the reason for variations in the occurrence of acute appendicitis could not be

explained by many studies, the reason could not be established in these studies.<sup>3</sup>

Fitz RH was able to tell us about the pathophysiology as well as treatment of appendicitis almost 110 years ago. Presentation of appendicitis is so variable that even the most experienced surgeons are unable to accurately comment on it. The previous studies on appendicitis are useful as a light house for new surgeons.<sup>4</sup>

Hence present study was undertaken to study the profile of patients undergoing appendectomy.

#### **METHODS**

A total of 302 patients who have undergone appendectomy were included in the present study which was hospital based cross sectional study. The study was carried out for two years at Osmania General Hospital, Hyderabad, India. Permission from Institutional Ethics Committee permission was obtained. From each and every patient included in the study, initially Informed individual consent was taken.

236 patients have undergone open appendectomy while 66 patients have undergone laparoscopic appendectomy. Data was collected in pre-designed, pre-tested questionnaire. Detailed history included age, sex etc. as well as presenting complaints have been noted. Past history included history of diabetes mellitus, heart disease and any history of previous episodes of pain. Habits like alcohol intake, smoking and diet was enquired. Detailed systemic examination was carried pertaining to build and nutrition, presence of lymphadenopathy, cardiovascular system and respiratory system. Local examination included eliciting for right inguinal tenderness and presence of any abdominal mass. Blood pressure, pulse and temperature was recorded. All patients were investigated for hemoglobin, complete blood picture, and serum creatinine. All patients also underwent abdominal ultrasonography.

Percentage were used to analyze the data. The difference in percentage was statistically assessed using chi square test/Fisher's exact test. A p value of less than 0.05 was considered as statistically significant result.

#### **RESULTS**

Table 1 shows that the incidence of appendicitis is much more in females i.e. 60% compared to only 40% in males. It can also be observed from above table that appendicitis is most common in younger age groups of below 30 years of age. As the age increased the incidence of appendicitis decreased. From 83.2% at 30 or less than 30 of age it drastically dropped down to 15.9% in the age group of 30-49 years and in the age group of 50 and above, the incidence of appendicitis came down to less than one percentage. Only three cases were recorded above the age of 50 years.

Table 1: Distribution of study subjects as per their age and sex.

Characte	eristics	Number	Percentage
Sex	Male	119	39.4
sex	Female	183	60.6
Age in years	< 30	251	83.2
	30-49	48	15.9
	50 and above	03	00.9

Abdominal pain was reported by each and every patient. Next the most common symptom reported was loss of appetite in 88.4% of subjects followed by nausea in 86.1% of cases. Fever was found to be present in 72.8% of cases and 57.6% of cases suffered from vomiting. Thus abdominal pain was found to be universal in the present study (Table 2).

Table 2: Distribution of study subjects as per the presenting complaints.

Presenting complaint	Number	Percentage
Abdominal pain	302	100
Nausea	260	86.1
Vomiting	174	57.6
Fever	220	72.8
Loss of appetite	267	88.4

1.7% of cases were known diabetics and 3.9% of cases had experienced episodes of pain in the past. Only one case had previous history of heart disease. Smokers were 8.9% of the patients and 5.6% of the cases were taking alcohol. Only 8.6% were having vegetarian diet (Table 3 and 4).

Table 3: Distribution of study subjects as per the past history.

History of	Number	Percentage
Diabetes mellitus	05	1.7
Heart disease	01	0.3
Episodes of pain	12	3.9

Table 4: Distribution of study subjects as per the habits of the subjects.

Habits	Number	Percentage
Alcohol use	17	5.6
Smoking	27	8.9
Vegetarian diet	26	8.6

On systemic examination of the patients, it was found that only 14.2% of cases were in a state of good nutrition. No one was found to have lymphadenitis. The cardiovascular and respiratory examination revealed normal findings (Table 5).

Table 5: Distribution of study subjects as per the systemic examination.

Details of	Number	Percentage
Good nutrition	43	14.2
No lymphadenitis	302	100
Normal CVS	302	100
Normal RS	302	100

Table 6: Distribution of study subjects as per the local examination.

Local examination	Number	Percentage
Right iliac fossa tenderness	302	100
No abdominal mass	302	100

Right iliac fossa tenderness was found in all cases. But no patient was found to have abdominal mass on clinical local examination (Table 6).

Table 7: Distribution of study subjects as per the abdominal ultrasound results.

Results	Number	Percentage
Normal	274	90.7
Abnormal	18	9.3

The ultrasound was performed for the cases. it was found that 90.7% of cases had normal study. 9.3% of the cases revealed abnormal ultrasound results (Table 7).

## DISCUSSION

The incidence of appendicitis is much more in females i.e. 60% compared to only 40% in males. Appendicitis was most common in younger age groups of below 30 years of age. As the age increased the incidence of appendicitis decreased. From 83.2% at 30 or less than 30 of age it drastically dropped down to 15.9% in the age group of 30-49 years and in the age group of 50 and above, the incidence of appendicitis came down to less than one percentage. Only three cases were recorded above the age of 50 years. Abdominal pain was reported by each and every patient. Next the most common symptom reported was loss of appetite in 88.4% of subjects followed by nausea in 86.1% of cases. Fever was found to be present in 72.8% of cases and 57.6% of cases suffered from vomiting. Thus abdominal pain was found to be universal in the present study. 1.7% of cases were known diabetics and 3.9% of cases had experienced episodes of pain in the past. Only one case had previous history of heart disease. Smokers were 8.9% of the patients and 5.6% of the cases were taking alcohol. Only 8.6% were having vegetarian diet. On systemic examination of the patients, it was found that only 14.2% of cases were in a state of good nutrition. No one was found to have lymphadenitis. The cardiovascular and respiratory examination revealed normal findings. Right iliac fossa tenderness was found in all cases. But no

patient was found to have abdominal mass on clinical local examination. The ultrasound was performed for the cases. It was found that 90.7% of cases had normal study. 9.3% of the cases revealed abnormal ultrasound results.

Mungadi IA et al found that the incidence of acute appendicitis among the cases of abdominal surgical emergencies was 38.9%.<sup>5</sup> The younger age group of 20-29 years was found to be the most commonly affected age group. Males showed a slight preponderance to appendicitis in the ratio of 1.4:1. In their study, 4.44% of cases showed the associated Schistosoma haematobium. The morbidity and mortality rate in their study was 13.3% and 0.9% respectively.

Bakken IJ et al in their study observed that the age adjusted incidence was almost similar for both the sexes. It was 117 for males and 116 for females per 100000. Younger patients were the most commonly affected by acute appendicitis. The diagnostic accuracy rate was more in males as compared to females. The rates of perforation was 12-21% in males and 9-17% in cases of females. As the people are approaching more to the hospitals, author also stated that over the period of four years the number of appendicitis surgeries using the laparoscopic approach performed also increase for both the sexes. They also observed that the duration of hospital stay was less in cases operated laparoscopic method than the open method.

Luckmann R et al in their study compared the age and sex related incidence rates among 4 groups as separated by their race and ethnic. They observed that these rates were less in the age group of 5-29 years for blacks and the Asian groups as compared to whites and Hispanics. All groups showed more rates for males as compared to women. The highest rate was seen during July to September and the period of December showed lowest rates.

Addiss DG et al during their study period noted that 250000 cases of appendicitis were reported in US. Age group of 10-19 years was found to be the most operated group. In this study also, it was reported that males were affected more than females in all age groups. The white population had 1.5 times more rate of acute appendicitis as compared to black population. The authors also reported that the rate of appendicitis in women in the age group of 40-44 years was more in women as compared to men for the same age group.

Wolkomir A et al performed more than 12,000 appendectomies over a period of 56 years. They then tried to study the seasonal variation of all these documented appendectomies. Thus they found that the highest incidence was observed in spring and summer months. But statistically it was not significant. Blomqvist P et al studied almost more than 60,000 appendictomies cases that were operated during the period of 1989-1993 in Sweden. They also noted that the incidence rate of

appendicitis was more in males as compared to females. They noted that each year there was an increase of diagnostic accuracy. The rates did not increase for perforated appendicitis. Over the period of time the duration of hospital stay decreased.

Okafor PI et al found that the cases belonged to 15-60 years of age. The male to female ratio was 2:1. Fever was the most common presenting symptom followed by anorexia, pain. They also found a palpable mass in the right iliac fossa. But in the present study we did not find any case with palpable mass in the right iliac fossa. The author found that 23.3% of patients diagnosis was done during the surgery. <sup>11</sup>

#### **CONCLUSION**

Present study revealed more rates in females. The disease was more common in younger age groups. The most common presenting symptom was abdominal pain. Presence of abdominal mass was absent in the present study.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

institutional ethics committee

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**Cite this article as:** Dhruv K, Meshram S, Agrawal SN. A study of surgical profile of patients undergoing appendectomy. Int Surg J 2017;4:1360-3.