Harsukh Educational Charitable Society
International Journal of Community Health and Medical Research
Journal home page: www.ijchmr.com doi: 10.21276/ijchmr

Original Research
ISSN E: 2457-0117 **ISSN P:**2581-5040 **Index Copernicus** ICV 2018=62.61

RISK FACTORS ASSOCIATED WITH DEVELOPMENT OF APPENDICITIS

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ABSTRACT
Background: Acute appendicitis is a common condition in India and subsequent appendectomy is the most familiar surgical phenomena. Appendectomy is often the first major procedure carried out by any emerging junior surgeon in India. For the general population, the condition of appendicitis is considered to be common. Hence, we planned the present study to assess different risk factors for development of appendicitis. **Materials & methods:** A total of 50 appendicitis patients were included in the present study. Detailed demographic and clinical history of all the patients was obtained. Past family history was also obtained in all the patients. All the data was compiled in Microsoft excel sheet and was analyzed with SPSS software. **Results:** Patients with age of less than 25 years were more likely to develop appendicitis in comparison to patients of more than 25 years of age. Also males were more likely to develop appendicitis in comparison to females. Significant results were obtained while assessing age and gender as a risk factor for development of appendicitis. Positive family history of appendicitis was found to be present in 55 percent of the patients. Positive history of gastrointestinal infection was seen in 40 percent of the patients. Positive history of presence of any gastrointestinal ulcers or any abdominal injury was found to be present in 42 percent of the patients.**Conclusion:** Young aged males are more likely to develop acute appendicitis. Along with this, positive family history and presence of positive history of previous gastrointestinal pathology might also act as contributing factor.

Keywords: Appendicitis, Appendectomy, Risk Factors

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This article may be cited as: Srivastava AK,Mehrotra S Risk Factors Associated With Development Of Appendicitis .HECS Int J Comm Halth Med Res 2019; 5(3):42-44

INTRODUCTION

the subsequent appendectomy are the most familiar surgical phenomena for the general population and is considered a common surgical procedure.[1]

Appendicitis is the most common cause of non-traumatic acute abdominal pain, and the most common acute abdominal condition requiring surgery. Despite several studies on this issue, appendicitis and its further complications (including abscess, phlegmon and generalized peritonitis) still leads to considerable morbidity and mortality rates worldwide, due to high life-time prevalence of acute appendicitis.[2-4]

In the Netherlands, pre-operative imaging studies are promoted and considered mandatory in order to prevent negative appendectomies according to national guidelines, whereas in guidelines of other countries, it is not promoted nor considered mandatory. Inconsistency regarding the management of an unexpected "normal appendix" during diagnostic laparoscopy is another example.[5, 6]This heterogeneity prompted the need for European consensus development conference for the diagnosis and management of acute appendicitis.[7] Hence; we planned the present study to assess different risk factors for development of appendicitis.

MATERIALS & METHODS

The present study was conducted in the department of general surgery of the medical institute and it included assessment of risk factors for development appendicitis. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. Inclusion criteria for the present study included:

- Patients with appendicitis,
- Patients with negative history any other systemic illness,
- Patients with negative history of any known drug allergy,

A total of 50 appendicitis patients were included in the present study. Detailed demographic and clinical history of all the patients was obtained. Past family history was also obtained in all the patients. The diagnosis was established with the help of detailed history, clinical examination, hematological examination and abdominal ultrasound. In 4 cases, where a diagnosis was doubtful,

CT Scan was done. All the data was compiled in Microsoft excel sheet and was analyzed with SPSS software. Chi- square test was used to carry out the impact assessment using level of significance.

RESULTS

The present study was conducted in the department of general surgery of MAYO INSTITUTE OF MEDICAL SCIENCES, Barabanki and it included assessment of different risk factors for the development of appendicitis between a period of Sept. 2017 to Feb 2019. Data of a total of 50 patients was analyzed. While analyzed age and gender as a risk factor for development of appendicitis, it was observed that patients with age of less than 25 years were more likely to develop appendicitis in comparison to patients of more than 25 years of age. Also males were more likely to develop appendicitis in comparison to females. Significant results were obtained while assessing age and gender as a risk factor for development of appendicitis. Positive family history of appendicitis was found to be present in 55 percent of the patients. Positive history of gastrointestinal infection was seen in 40 percent of the patients. Positive history of presence of any gastrointestinal ulcers or any abdominal injury was found to be present in 42 percent of the patients. However; the results of these risk factors were found to be non- significant.

Table 1: Age and gender as a risk factor

Parameter		Number of patients	p- value
Age group (years)	Less than 25	33	0.04 (sig)
	More than 25	17	
Gender	Males	34	0.02 (sig)
	Females	16	

Table 2: Other risk factor for development of appendicitis

Risk factors		Number of patients	p-value
Positive family history of appendicitis	Present	27	0.52
	Absent	23	
Positive history of gastrointestinal infection	Present	20	0.35
	Absent	30	
Ulcers in the gastrointestinal tract/ abdominal injury	Present	21	0.44
	Absent	29	

DISCUSSION

However, the incidence of the disease in this age group seems to be rising due to recent increase in the life expectancy. As compared to younger age group, elderly patients have more underlying diseases and sluggish bodily physiological reactions resulting in a higher rate of morbidity and mortality.[8- 10]

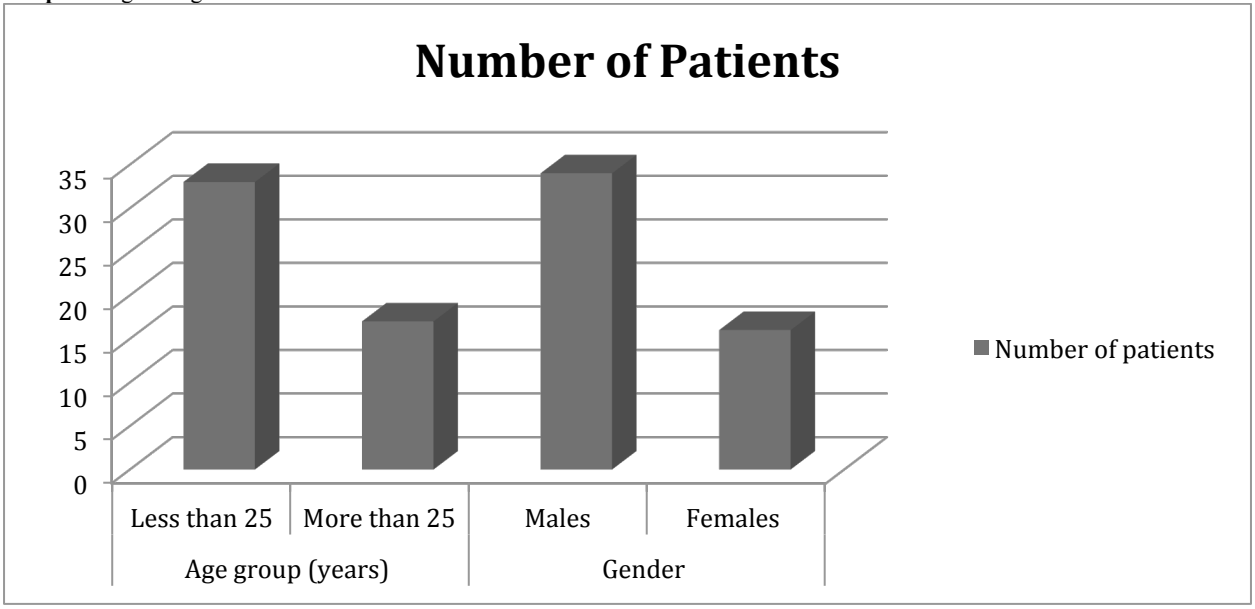
In the present study, data of a total of 100 patients was analyzed. While analyzed age and gender as a risk factor for development of appendicitis, it was observed that patients with age of less than 25 years were more likely to develop appendicitis in comparison to patients of more than 25 years of age. Also males were more likely to develop appendicitis in comparison to females. Significant results were obtained while assessing age and gender as a risk factor for development of appendicitis. Naderan N et al investigated the patient's history and physical examination information to find out risk factors associated with complicated appendicitis. Of the patients of suspected appendicitis admitted in our hospital between the period of September '17 to February '19, 50 cases were selected which were then included in our criteria. Based on multivariate analysis, risk factors for complicated appendicitis included patients presenting with epigastric pain, diarrhea or malaise, history of RLQ pain within the past 6 months, older age, being married, lack of anorexia and longer interval between onset of symptoms and admission. Conversely, higher (academic) education was associated with decreased odds for complicated appendicitis. Their findings suggested that a surgeon's clinical assessment is more reliable to make a judgment.[11]

In the present study, Positive family history of appendicitis was found to be present in 55 percent of the patients. Positive history of gastrointestinal infection was seen in 40 percent of the patients. Positive history of presence of any gastrointestinal ulcers or any abdominal injury was found to be present in 42 percent of the patients. However; the results of these risk factors were found to be non- significant. According to the data of the past literature, the cause of appendicitis is usually from an obstruction of the appendiceal lumen. This can be from an appendicolith (stone of the appendix), or from some other mechanical etiologies. Appendiceal tumors such as carcinoid tumors, intestinal parasites, and hypertrophied lymphatic tissue are all known causes of appendiceal obstruction and appendicitis. Often, the exact etiology of acute appendicitis is unknown. When the appendiceal lumen gets obstructed, bacteria will build up in the appendix and cause acute inflammation with perforation and abscess formation. One of the most popular misconceptions is the story of the death of Harry Houdini. After being unexpectedly punched in the abdomen, the rumor goes, his appendix ruptures causing immediate sepsis and death. The facts are that Houdini did die from sepsis and peritonitis from a ruptured appendix, but it had no connection to him being struck in the abdomen. It was more related to widespread peritonitis and the limited availability of effective antibiotics at the time.[11]

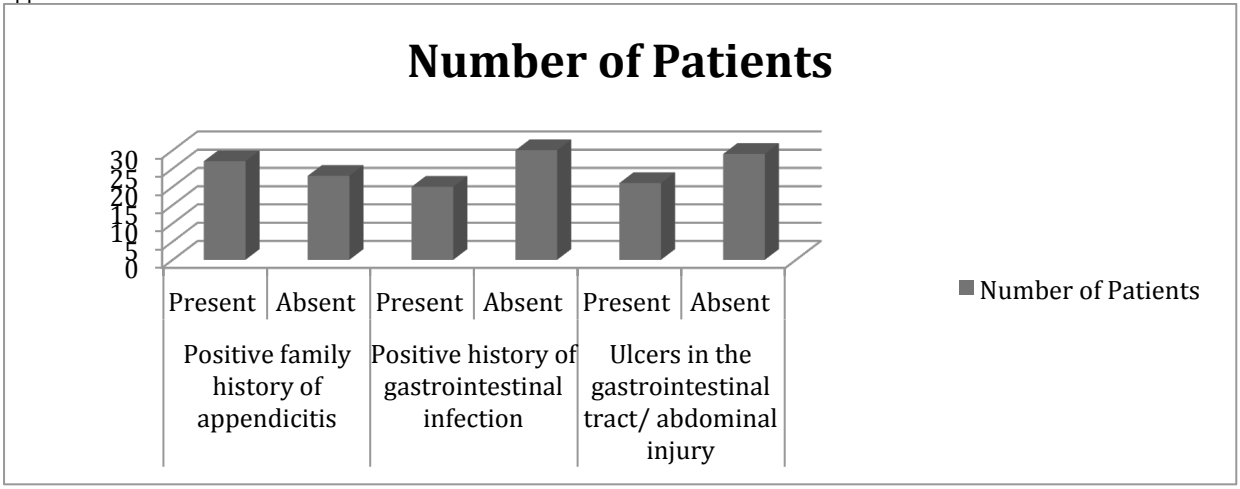
CONCLUSION

Under the light of above obtained results, the authors conclude that young aged males are more likely to develop acute appendicitis. Along with this, positive family history and presence of positive history of previous gastrointestinal pathology might also act as contributing factor. However; further studies are recommended using larger sample size.

Graph 1: Age and gender as a risk factor



Graph 2: Other risk factor for development of appendicitis



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