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A STUDY ON ACUTE APPENDICITIS, ITS RISK FACTORS, AND MANAGEMENT IN TERTIARY CARE CENTRE OF HALDIA: OBSERVATIONAL PROSPECTIVE STUDY

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ABSTRACT

Background: Appendicitis is the most common abdominal surgical emergency worldwide, and it can lead to serious complications, such as ileus, peritonitis, abscess, and even death, as well as significant costs to the healthcare system . The incidence of appendicitis is approximately 233 per 100,000 population per year, with a lifetime incidence risk ranging from 6.7 to 8.6%Acute appendicitis is a common surgical emergency characterized by inflammation of the vermiform appendix. **Objective**: This study aimed to evaluate the risk factors associated with acute appendicitis and analyse various management approaches in a sample of 32 patients. **Methods**: This is kind of cross-sectional study, before starting study required questionnaire was framed according to study. This study was conducted in a tertiary hospital. After obtaining institutional ethical committee approval It was conducted on 45 patients in the department of General Surgery admitted at a tertiary care centre Demographic detail, clinical presentation, risk factors, treatment modality, and outcomes were assessed. **Results**: In this study we found that prevalence of depends upon different variable, a mong them one of the important variables is age, in this study it was seen that 21 to 30 years age group more susceptible for appendicitis as compare to other age group Male were more prone to develop appendicitis s compare to female. In smoker its prevalence is 21.9%. Surgical intervention, primarily laparoscopic appendectomy, was the most common and effective treatment method. Early diagnosis and timely surgical management proved crucial in minimizing complications. **Conclusion**: Acute appendicitis is predominantly seen in young adults and males. Lifestyle factors like diet and smoking contribute significantly to the risk. Laparoscopic surgery remains the gold standard for treatment. Educating the public on modifiable risk factors and ensuring early diagnosis are key to improving outcomes.

KEYWORDS: Appendicitis, Global Burden of Disease Incidence.

INTRODUCTION

Acute appendicitis is one of the most frequent causes of acute abdominal pain requiring emergency surgery. Its incidence is highest in adolescents and young adults. Risk factors include dietary habits, infections, genetic predisposition, and environmental influences. If untreated, it can lead to perforation and peritonitis. This study investigates the demographic profile, predisposing factors, and management outcomes of patients with acute appendicitis[1].

Appendicitis is a common condition, particularly among young adults. Globally, the age-standardized prevalence rate is around 8.7 per 100,000 people. The lifetime risk of developing appendicitis is estimated to be around 8.6% for males and 6.7% for females[2].

Most Common Surgical Emergency: Appendicitis is the most frequent reason for emergency abdominal surgery. Age Range: It's most prevalent in the 10-30 age group. Lifetime Risk: While the lifetime risk is lower than 10%, the condition is still relatively common. Global Burden: While appendicitis is a global health concern, the burden is not uniform across all regions. Incidence: The global age-standardized incidence rate of appendicitis in 2019 was 229.9 per 100,000 population. Mortality: While the mortality rate has decreased significantly since 1990, appendicitis still results in deaths globally[3].

Appendicitis, an inflammation of the appendix, can affect anyone but is more common in certain demographics. Risk factors include age, specifically between 10 and 30, and being male. Other factors include a family history of appendicitis, a diet low in fibre, and certain medical conditions like cystic fibrosis. Infections and blockages in the appendix can also increase the risk[4].

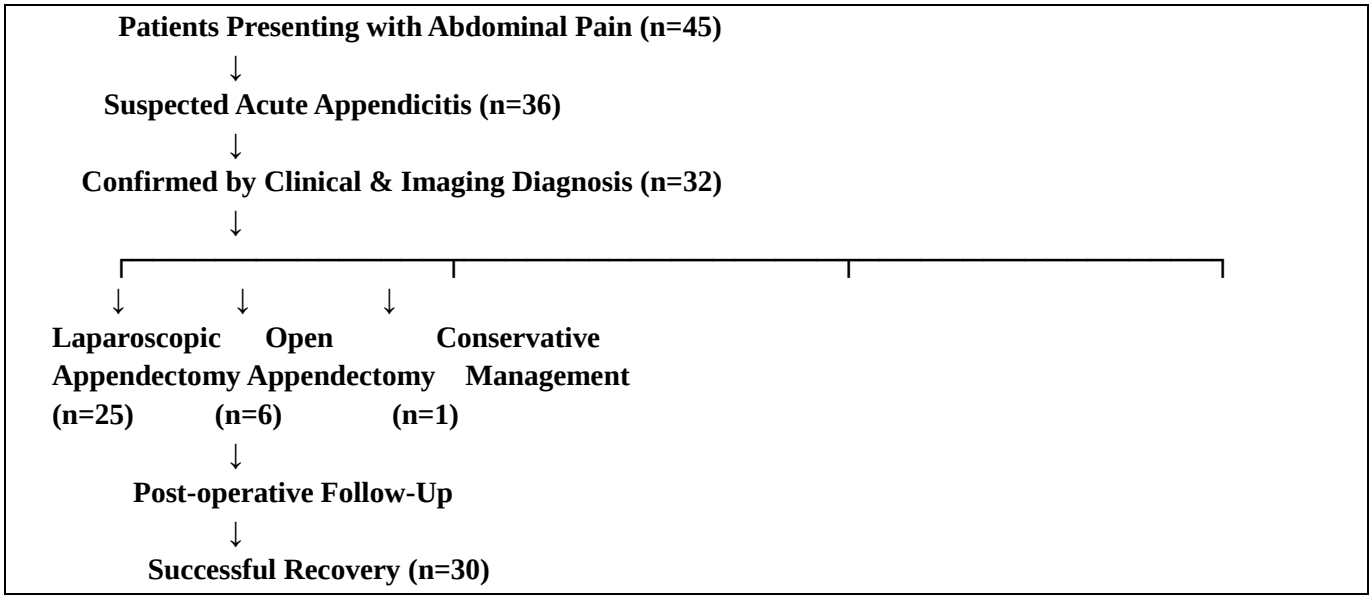
Detailed Risk Factors: Age: While appendicitis can occur at any age, it is most prevalent in individuals between 10 and 30 years old. Gender: Men are slightly more likely to develop appendicitis than women. Family History: Having a family history of appendicitis can increase the likelihood of experiencing it. Diet: A diet low in fibre can lead to harder stools, which may cause blockages in the appendix and trigger inflammation. Infections: Viral, bacterial, or parasitic infections in the digestive tract can contribute to appendicitis. Blockages: Obstructions in the appendix, such as faecal matter, tumours, or foreign objects, can lead to inflammation. Medical Conditions: Conditions like cystic fibrosis can increase the risk[5-8].

METHODS

This is kind of cross-sectional study, before starting study required questionnaire was framed according to study. This study was conducted in a tertiary hospital. After obtaining institutional ethical committee approval It was conducted on 45 patients in the department of General Surgery admitted at a tertiary care centre, from February/ 2017 to August/2017.

Total 45 participant were approached to project among them 9 were excluded due to non-fulfilling of eligibility criteria .

Suspected for acute appendicitis 36 and 32 were finally confirmed and included on the basis of fulling of the eligibility criteria The institute Ethics Committee approval was obtained before starting the sample collection. A written and informed consent was taken from the patient regarding the study in his/her vernacular language and English.



Minor Complications (n=2, wound infection)

- **Study Design:** Observational prospective study
- **Setting:** Tertiary care hospital
- **Sample Size:** 32 patients
- **Inclusion Criteria:** Patients clinically and radiologically diagnosed with acute appendicitis
- **Exclusion Criteria:** Patients with chronic appendicitis or prior abdominal surgeries
- **Data Collected:** Age, sex, BMI, symptoms, imaging findings, surgical method, postoperative complications
- **Analysis:** Descriptive statistics using percentages and means

RESULTS

In this study we found that prevalence of depends upon different variable, a mong them one of the important variables is age, in this study it was seen that 21 to 30 years age group more susceptible for appendicitis as compare to other age group

Male were more prone to develop appendicitis s compare to female. In smoker its prevalence is 21.9%.(Table 1)

Demographic Profile Table

Variable	Frequency (n=32)	Percentage (%)
Age Group		
10–20 years	8	25%
21–30 years	13	40.6%
31–40 years	6	18.8%
>40 years	5	15.6%
Gender		
Male	19	59.4%
Female	13	40.6%
BMI >25	9	28.1%
Smoker	7	21.9%

There is many risk factors for appendicitis mang them most important risk factor is Low fibre diet. it has been seen that 65.6% participants complaining of appendicitis due to low fibre diet.

18.8% were belong to family history and 9.3% were due to smoking habits (Table 2)

Risk Factors Table

Risk Factor	No. of Patients (n)	Percentage (%)
Low-fiber diet	21	65.6%
Family history of appendicitis	6	18.8%
Smoking	3	9.3%
Recent gastrointestinal infection	1	3.1%
Obesity (BMI >25)	1	3.1%

Management and Outcomes

- **Laparoscopic Appendectomy:** 25 patients (78.1%)
- **Open Appendectomy:** 6 patients (18.8%)
- **Conservative Management (Antibiotics):** 1 patient (3.1%)
- **Complications:** 2 cases of wound infection, no mortality
- **Average hospital stay:** 3.4 days

All the data is put in excel sheet then mean, median and association is analysed by SPSS version 20. Chi-square test was used as test of significance for qualitative data. Continuous data was represented as mean and SD. MS Excel and MS word was used to obtain various types of graphs such as bar diagram. P value (Probability that the result is true) of P value <0.05 was considered as statistically significant after assuming all the rules of statistical tests. Statistical software: MS Excel, SPSS version 22 (IBM SPSS Statistics, Somers NY, USA) was used to analyse data. Sample size is calculated by N master statistical software.

DISCUSSION

The study found that males aged 21–30 years were more commonly affected by acute appendicitis[9-11]. A low-fiber diet, smoking, and obesity emerged as prominent risk factors. Laparoscopic appendectomy remains the preferred approach due to its minimally invasive nature, faster recovery, and fewer complications. Early diagnosis using clinical and imaging tools such as ultrasound and CT scans significantly reduces the risk of perforation and post-operative complications[12-13].

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Appendicitis is one of the most common causes of abdominal pain in children and young adults, and occurs when the lumen of the vermiform appendix becomes inflamed, typically because of an obstruction[14-17]. The condition can lead to death as well as significant costs to the healthcare system . The incidence of appendicitis is 7.8% and a 2017 study showed it has increased in western countries in 1900 and declined until the middle of the 20th. However, the latest data show that the incidence of appendicitis has been on the rise and no complete and comprehensive study addressing these data has been published[18-19].

Detecting and controlling risk factors are important approaches in prevention strategies. The risk factors for appendicitis include geographic and socioeconomic factors, race, seasonal patterns (the risk is highest in the summer), air pollution, dietary fibre, luminal obstruction, gastrointestinal infection, and genetic factors. High temperatures in the summer, an important risk factor, must be considered in the development of regional- and national-level prevention programs, as well as global warming[20-21]. In Global burden of diseases 2019, risk factors for appendicitis such low fruit consumption, low vegetable consumption, education level and LDI were also evaluated in appendicitis mortality estimation S. Thus, policymakers should consider those risk factors in their policy making[22-24].

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The primary management of appendicitis is surgical removal of the appendix, known as an appendectomy. While antibiotics may be used in some cases, especially for mild or early appendicitis, surgery remains the definitive treatment to prevent complications like rupture and peritonitis[25].

Surgical Management: Appendectomy: This involves surgically removing the appendix. Laparoscopic Appendectomy: This minimally invasive approach is often preferred due to fewer complications and faster

recovery. Open Appendectomy: A larger incision is made, usually when the appendix has ruptured, or an abscess is present. Non-Surgical Management (Antibiotics): Early or Mild Appendicitis: Antibiotics may be used to treat uncomplicated cases, but close monitoring is crucial. Conservative Management: Some studies suggest that in certain cases, antibiotics alone can be effective, but there's a higher risk of readmission and recurrence. Interval Appendectomy: In some cases of perforated appendicitis with abscess formation, doctors may choose to manage with antibiotics initially and then perform an appendectomy later (interval appendectomy[26]

Important Considerations: Timing: Early diagnosis and treatment are crucial to prevent complications. Perforation: If the appendix ruptures, surgery is necessary to clean the abdominal cavity and remove the appendix. Peritonitis: If infection spreads to the abdominal cavity, it can lead to peritonitis, a serious and potentially life-threatening condition requiring immediate surgery. Post-operative Care: Includes pain management, wound care, and monitoring for signs of infection. Nursing Management: Essential aspects include preventing fluid volume deficit, infection, and promoting comfort

CONCLUSION

Acute appendicitis is predominantly seen in young adults and males. Lifestyle factors like diet and smoking contribute significantly to the risk. Laparoscopic surgery remains the gold standard for treatment. Educating the public on modifiable risk factors and ensuring early diagnosis are key to improving outcomes. In summary, appendicitis remains a major public health challenge globally. Globally, the age-standardized prevalence, incidence, and YLD rates increased from 1990 to 2019. The highest burden of appendicitis was in adolescents, and Increasing awareness of appendicitis and its risk factors and the importance of early diagnosis and treatment are warranted to reduce the burden of appendicitis.

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CONFLICT OF INTEREST

The authors report no conflicts of interest

SUBMISSION DECLARATION

This submission has not been published anywhere previously and that it is not simultaneously being considered for any other journal

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