

Demographic profile of patients with emergency and interval appendicectomy in central India

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Abstract

Objective : The aim of this retrospective study is to compile the epidemiological data in patients with acute appendicitis and to analyze statistics in patients with acute appendicitis to explain the demographic details. **Methods:** Retrospective study of 100 patients with appendicectomy, fulfilling all the inclusion criteria were included in this study. Following details of patients were recorded like age, sex, socioeconomic status, symptoms, seasonal trend, dietary habits and timing of appendicectomy. **Results:** Younger age group (21-40 years) was most common age group (66%) with males (n=66, 66%) preponderance. Majority of patient (n=67, 67%) belonged to middle socioeconomic status. Majority of appendicectomies occurred in summer (n=54, 54%). Appendicitis is more common in non-vegetarian mixed diet persons (n = 66, 66%). 77 (77%) emergency appendicectomy usually performed in comparison to interval appendicectomy (n=23, 23%) **Conclusion:** Present study concluded that there is a correlation between age, sex, socioeconomic status, seasonal trend, dietary pattern and appendicitis. This study gives the information that epidemiologic features of acute appendicitis in our institution are same with worldwide data

Keywords: Demographic profile, Emergency appendicectomy, Interval appendicectomy

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Introduction

Appendicitis is a very common [1%] gastrointestinal surgical emergency encountered in casualty; most of the time is symptomatic. Most of the patients with acute appendicitis presented with acute abdomen and usually diagnosed by clinical, laboratory and radiological examination. Incidence of appendicitis in India is very common especially in young patients.[24%] Appendicitis may present as acute, sub acute or chronic recurrent disease. The diagnosis of acute appendicitis is predominantly a clinical one; many patients present with a typical history and examination findings. The cause of acute appendicitis is unknown but is probably multifactorial; luminal obstruction and dietary and familial factors have all been suggested [1]. Symptomatic patients usually present with pain in umbilical region and right lower quadrant of abdomen with vomiting and fever. There is no confirmatory test for the diagnosis of acute appendicitis, and the diagnosis is made on clinical basis. No specific diagnostic test for appendicitis exists, but the judicious use of simple urine and blood tests, particularly inflammatory response variables, should allow exclusion of other pathologies and provide additional evidence to support a clinical diagnosis of appendicitis [2]. Ultrasonography and Computed tomography of abdomen is the supportive investigation, usually performed in the cases of acute appendicitis and in most of cases findings are confirmatory. The ideal treatment of acute appendicitis is appendicectomy. The aim of this retrospective study is to compile the epidemiological data in patients with acute appendicitis in the present institution.

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Materials and methods

Place of study: R.K.D.F Medical College and Hospital Bhopal (M.P.), India.

Type of study: Retrospective study.

Sampling Method: Consecutive.

Sample collection: Data were collected from medical record department.

Inclusion criteria: All patients above 10 years of age with appendicitis who were and undergone open emergency or interval appendicectomy were included in the study.

Exclusion criteria

- Pregnant female patients were excluded from study.
- Patients with co-morbid conditions were not included.
- Patients who were managed conservatively were also excluded from the study.
- Patients with appendicular mass were also excluded from the study.
- People who refused to participate in the study for any reason were also not included in the study.

Methodology

100 patients with appendicectomy, fulfilling all the inclusion criteria were included in this study. All the relevant details were obtained from medical record department with all demographic details. Data were tabulated using detailed proforma. Following details of patients were recorded like age, sex, socioeconomic status, symptoms, seasonal trend, dietary habits and timing of appendicectomy. In all case records of admitted patients with acute appendicitis, final diagnosis was made on the basis of detailed history, clinical examination, blood investigation (total and differential WBC counts and radiological investigation (ultrasound and C.T.). All these patients with appendicectomy included either emergency

appendicectomy within 48 hours of development of symptoms or interval open appendicectomy usually after 6 weeks of resolution of

symptoms of acute appendicitis. All the relevant collected data was compiled on master chart.

Observation chart

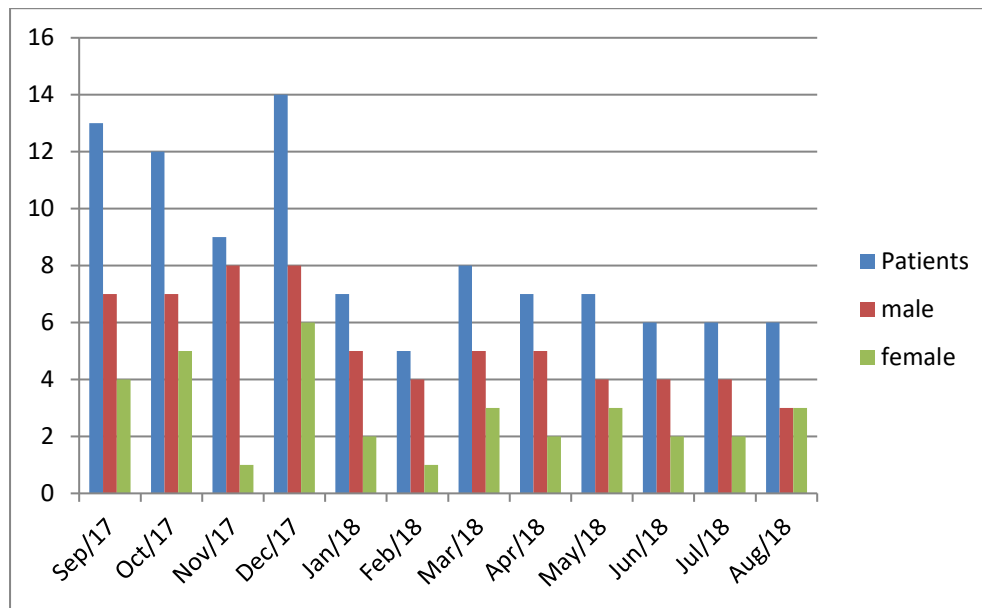


Fig 1 : Showing total no. of patients with sex distribution

Table 1:showing various variables in appendectomy patients characteristics

Characteristics		Number of patients	Percentage	p- value
Age group (years)	< 20	20	20%	
	21 – 40	66	66%	P<.05 (sig)
	41 – 60	11	11%	
	> 60	3	3%	
Sex	Male	66	66%	P<.05 (sig)
	Female	34	34%	
Socioeconomic status	Lower	19	19%	
	Middle	67	67%	P<.05 (sig)
	Higher	14	14%	
Seasonal trend	Summer	34	34%	P>.05 (insig)
	Rainy	18	18%	
	Winter	28	28%	
	Autumn	20	20%	
Dietary pattern	Vegetarian	14	14%	
	Non vegetarian	66	66%	P<.05 (sig)
	Mixed	20	20%	
Timing of appendicectomy	Emergency appendicectomy	77	77%	P<.05 (sig)
	Interval appendicectomy	23	23%	

Results

Records of patients with acute appendicitis who were admitted in surgical wards were obtained from medical record department and after analysis the data following observations and results were obtained.

1. Age: Younger age group (21-40 years) was most common age group (66%) in our study, followed by paediatric age group of < 20 years of age (20%) and middle age group of 41 to 60 years (11%). Only 3% patient belonged to old age group (> 60 years)
2. Sex: In present study, appendicitis is more common in males (n=66, 66%) in comparison to female (n=34,34%)
3. Socioeconomic status: Majority of patient (n=67, 67%) belonged to middle socioeconomic status, followed by lower

- socioeconomic status (n=19, 19%) and higher socioeconomic status (n=14, 14%)
4. Seasonal trend: In present study, incidence was somewhat more in summer (n=34, 34%) followed by winter (n=28, 28%) and rainy season (n=18, 18%)
 5. Dietary pattern: appendicitis is more common in non-vegetarian mixed diet persons (n = 66, 66%), followed by mixed diet (n=20, 20%) and Vegetarian diet (n=14, 14%)
 6. Timing of Appendicectomy: 77 (77%) emergency appendicectomy usually performed in comparison to interval appendicectomy (n=23, 23%)

Statistical analysis: Data was compiled using MS excel 2007 and analysis was done with the help of Epi-Info 7 software. Frequency and percentage were calculated & statistical test (Chi Square) was

applied wherever applicable; $p < 0.05$ was taken as statistically significant.

Discussion

Acute appendicitis is the acute inflammation of the appendix and is one of the common causes of acute abdominal colic presented frequently in emergency outdoor. Etiopathogenesis of acute appendicitis is increased intra-luminal pressure due to the obstruction of the appendiceal lumen by faecolith, foreign body, lymphoid hyperplasia, or malignancy. This leads to appendiceal inflammation and adhesion and finally ischemia and necrosis of appendix. Most of the patients present as acute appendicitis in with complaint of periumbilical abdominal colic migrating to right lower quadrant, fever, nausea, vomiting and fever. Diagnosis of appendicitis is usually made on clinical examination, supported by presence of leukocytosis in complete blood picture and by radiological investigations like abdominal CT scan and Ultrasonography

Incidence of appendicitis or appendectomy is around 100 per 100,000 person years globally [3] Acute appendicitis most commonly occurs in younger age group, between the ages of 10 and 30, with the highest incidence in children and adolescence [4, 5]. Somewhat similar results were obtained in our study, majority of patients (66%) belong to younger age group (21-40 years)

In present study, we found that appendicitis is more common in males ($n=69$, 69%), supported by a study of Al-Omran on epidemiological features of acute appendicitis which showed that appendicitis is more common in males, in those aged 11-20 years. In our study, majority of patient ($n=67$, 67%) belonged to middle socioeconomic status as most if the patients in our institution mostly comes from lower and middle socioeconomic status. Other studies also suggest same trend. According to a study by Kai-Biao Lin et al in Taiwan, the overall incidence of appendicitis was 34.99 % higher in the lower income population than in the normal population, and the incidence of perforated appendicitis was 40.40 % higher in the lower income population than in the normal population [7]. This seasonal variation of appendectomy, multiple factors work.

Seasonal trend have also impact on incidence of appendicitis. According to a study by Gallerani, Boari of St. Anna hospital, Italy in 2004 suggested seasonal variation of appendicitis with peak in summer and not in spring [8]. In present study, most common appendectomy occurred in summer ($n=34$, 34%). The incidence was not that high and was not statistically significant but still more cases were seen in summer. Wei et al observed the connection between the occurrence of an acute appendicitis and climatic components, including encompassing temperature, relative humidity, atmospheric pressure, rainfall, and long periods of sunshine [9]. Dietary pattern in our study suggested that appendicitis is more common in non-vegetarian mixed diet persons ($n = 66$, 66%), supported by a study which also suggest the same trend. The occurrence of appendicitis was more in the non-vegetarians than vegetarians. HP Lohar et al in this study suggested, that non-vegetarians constituted 53.8% while vegetarians constituted 15.3% while persons on mixed diet constituted 30.7% [10]. Fiber diet also have relation with appendicitis and found to be protective as suggested by study of Boyke Damanik et al. This study concluded with significant correlation between low-fiber diet with appendicitis incidence ($p=0.0001$). This study suggested that 19 patients with low-fiber diet, 14 of them (73.7%) had acute appendicitis and only 2 of the patients (12.5%) with high-fiber diet had acute appendicitis [11].

Open or laparoscopic Appendectomy is the most common treatment for appendicitis in emergency as well as in planned surgery. Most of the patients usually present as acute appendicitis. Some of the patients present with appendiceal mass or appendiceal perforation peritonitis. If patient present with appendiceal mass then treatment of choice is conservative as appendectomy in these cases can lead to bowel perforation and fistula formation due to severe adhesion and inflammation. Usually conservative management of appendiceal mass includes bowel rest, antibiotic coverage,

analgesics, supportive and symptomatic treatment. In these cases interval appendectomy is usually performed after four to six weeks. Most of the patients in our study had emergency appendectomy ($n=77$, 77%), only 23 patients (23%) presented with appendiceal mass who were kept on conservative management and after 6 weeks of resolution patients were planned for interval appendectomy.

Andersson et al. showed that emergency appendectomy was associated with thrice the morbidity of conservative treatment. Conservative management was successful in about 93% of the patients [12]. The risk of recurrence after nonsurgical treatment was less than 10% and was due to an appendicolith. The risk of recurrence was 7.2% in cases of conservative management which was lower than 7.4% in the analysis of studies that underwent emergency appendectomy. The recurrence is characterized by a milder course than the primary attack in most cases [13].

Various other studies done in other parts of India and were very similar to our study have results almost congruent with our study and that the epidemiologic features of acute appendicitis in our institution are same with panindia data. This demographic study of patients with appendectomy in central India can direct us to better understand the trends of the disease. This useful information may aid in the assessment and definitive care of patients. [14-16]

Conclusion

Present study concluded that there is a correlation between age, sex, socioeconomic status, seasonal trend, dietary pattern and appendicitis. This study gives the information that epidemiologic features of acute appendicitis in our institution are same with worldwide data. This demographic study of patients with appendectomy in central India can direct us to better understanding of the trends of this disease. This useful information may aid in the assessment and definitive care of these patients

What this study add to existing knowledge

This study on demographic profile of appendectomy suggest the frequency and pattern of Appendectomy in central india. This will help us to find out any potential causes and risk factors associated with appendicitis in this region. Also the statistical trend help us in evaluating the efficacy of emergency v/s interval appendectomy as the management of appendicitis. This information can be utilized to improve the decision making in management of appendectomy along with the possible management of complication of appendicitis.

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