

EPIDEMIOLOGY AND SOCIOECONOMIC FEATURES OF APPENDICITIS AMONG PATIENTS DURING ONE YEAR**Dr. Aws Mohammed Salih***

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ABSTRACT

Background: - One of the most common acute surgical disorders of the abdomen is appendicitis. We describe the socioeconomic characteristics of appendicitis over the study period. **Methods:** - Two hundred patients who were admitted between the 1st of January and the 31 of December 2021 were included. Investigated were the demographic traits and environmental elements. We contrasted the effects of the environment with those seen in other nations. **Results:** - Our results are based on the larger proportion. There were 33.5 percent of them between the ages of 21 and 30 and 24.5 percent between the ages of 11 and 20. There were 66 percent more male cases than female instances. They had primary education to the tune of 28.5%. greater percentage There was no statistically significant difference in the number of cases between males and females (25.514.9 years old and 25.315.1 years old, respectively) during the winter season, which accounted for 26.9% of cases (P=0.29). **Conclusion:** - In every instance, pain predominated over other symptoms, which included anorexia, nausea/vomiting, burning urination, and bowel problems like diarrhea and constipation. Tenderness was the clinical symptom that was noted the most frequently, followed by guarding, rebound tenderness, the rovsing sign, and the psoas test. The mean age and the length of the hospital stay showed a statistically significant link with a P value under 0.05.

KEYWORD: Appendicitis, SE, Tenderness, Bowel disturbance.**INTRODUCTION**

Early appendectomy has long been recommended to reduce the risk of appendicular perforation because appendicitis is still a frequent cause for urgent surgical intervention in children of all ages.^[1-2] According to the population, age, sex, socioeconomic position, and race, appendicitis might occur more frequently or less frequently.^[3-4] Although dietary habits and hygiene procedures have also been proposed to play a part, such a relationship is now not universally accepted.^[5] Patients who report with acute abdominal pain are more likely to have acute appendicitis (AA), which is also the most prevalent cause for urgent abdominal surgery.^[6-7] The second decade of life is when acute appendicitis is most common, and it frequently necessitates abdominal surgery in children.^[8-9] Males are more likely to experience it than females are (ratio: 1.4:1).^[10] Even while up to 33% of affected children may initially have prominent stomach pain, followed by pain localization in the right lower quadrant, nausea, and vomiting, young children may exhibit delayed or unusual symptom presentation.^[11-12] When the diagnosis is made, perforation may already be present in 30% to 75% of kids, with young kids being at higher risk.^[13] Over the previous few decades, appendicitis incidence rates have varied between nations.^[14] The prevalence of this condition peaked in Western nations in the late 19th

century and then began to decline in the middle of the 20th. On the other hand, the prevalence of appendicitis in emerging nations was extremely low in the 20th century; however, it rose sharply towards the start of the 21st century.^[15] Planning for new health services and assessing the general health of the population both involve data from epidemiological research. The onset of appendicitis and some environmental elements, including the season,^[16] humidity,^[17] and viruses, have recently been linked by a number of researchers.^[18-19] However, there aren't many data available, and the subject is still debatable, therefore more research is required. The current investigation's goal is to examine the socioeconomic aspects and epidemiology of appendicitis during the time frame of the investigation.

METHODOLOGY

A prospective study of 200 patients admitted to Al-Naman General Hospital's various surgical units with a diagnosis of acute appendicitis that was strong enough to warrant surgery was carried out for a year, beginning on January 1 and ending on December 31, 2021.

Inclusion Criteria

During the study period, patients having a clinical diagnosis of acute appendicitis at Al-Naman General

Hospital's General Surgery Units and Pediatric Surgery Unit were included.

Exclusion Criteria

1. Patients who arrive with any type of pain that is not iliac crest-related, such as right upper quadrant pain.
2. Patients who had previously undergone an appendectomy along with another emergency laparotomy.
3. People with appendicular lumps.
4. Patients who elect to have appendectomies after finding an appendicular mass.

Women who are expecting.

Diagnostic Criteria for Acute appendicitis

- 1. Patients who come with any type of non-right iliac fossa discomfort, such as right upper quadrant pain, etc.
- 2. Patients who had previously undergone an emergency laparotomy during which an appendectomy was also done.
- 3. Patients having an appendicular mass.
- 4. Patients who underwent elective appendectomies following an appendicular lump.
- 5. Women who are expecting.

Initial testing includes a complete blood count, a regular urine check, an abdominal USG, and a peripheral smear for a shift to the left. Surgical observations and histopathological analysis of the appendectomy specimen are used to confirm the diagnosis of acute appendicitis. It is noted that the histology report for the appendix samples was sent. A diagnosis made via histopathology is thought to be conclusive. The study's goals, risks, advantages, flexibility to take the survey at their discretion, and anonymity were explained to the subjects. It was then done with informed consent.

Statistical testing was carried out using SPSS 17.0, a statistical software application for social science. Continuous variables are shown as mean SD, while categorical variables are shown as absolute numbers and percentages. The Student's t test was used to compare normally distributed continuous variables between groups. The Chi-squared test or Fisher's exact test, if applicable, was used to compare nominal categorical data between the groups. A p value of 0.05 or less was used to define a significant difference for all statistical tests.

RESULTS

Out of 200 cases of Appendicitis, there were 33.5% of them in the age groups 21 to 30years old; trailed by 24.5% in the groups 11 to 20years old and the least frequency 8% in the age less than 10 years old. The male cases 66% were more than female cases 34%. 28.5% of them had primary education and 22.5 had secondary certificates [Table 1]. The results of seasonal variation based on number of cases are illustrated in Figure 1. The higher percentage 26.9% of cases occurred during winter

season, followed by 25.4% during spring and 24.5 during summer season. There was no statistically significant difference between males (25.514.9 years) and females (25.315.1 years) in terms of mean age ($P=0.29$). Additionally, the mean age of patients who resided in cities (24.414.2 years) was substantially lower than that of patients who resided in rural and suburban areas (29.518.0 years; $P<0.001$). Regarding to the hospital stay, the mean age of those who stayed in the hospital for less than 5 days (24.37 ± 14.69) was statistically significant than those who living for more than 5 days (30.41 ± 21.43 ; $p<0.00$) [Table 2]. In table 3 shows the right iliac fossa pain was the most consistent symptom present in 50% of the patients. Migration of pain was observed in 18% patients. Fourteen percent of patients (43.5%) had anorexia. 38 percent of patients reported feeling sick or throwing up, while 21% of patients reported having a fever. In Figure 2 show the most of the patients (70%) had pain of duration for <48hrs. RIF's tenderness was the most consistent sign present in 97% of the patients. Guarding was observed in 59% patients. Rebound tenderness was present in 73% patients. Obturator sign in 9%, Rovsing Sign in 34% and, Psoas sign were present in 18% of patients [Figure 3]. Retrocaecal and Pelvic are the two most common position of appendix observed [Figure 4]. The majority (57%) of the research respondents habituate fruits consumption (figure 5). Only 43% of them regularly ate veggies. 26.5 percent of weekly meat consumption was noted. Only 43% of them regularly ate veggies. 26.5 percent of weekly meat consumption was noted. Regular bowel habit was found in 67.5%. Constipation was observed in 32.5% as shown in [Figure 6].

Table 1: The sociodemographic profile of the study participants.

Age groups	Frequency (n=200)	Percent
<10 years	16	8.0
11-20	49	24.5
21-30	67	33.5
31-40	47	23.5
41-50	21	10.5
Gender		
Male	132	66
Female	68	34
Education		
Illiterate	41	20.5
Primary	57	28.5
Secondary	45	22.5
Diploma and Bachelors'	38	19.0
Master and PhD	19	9.5

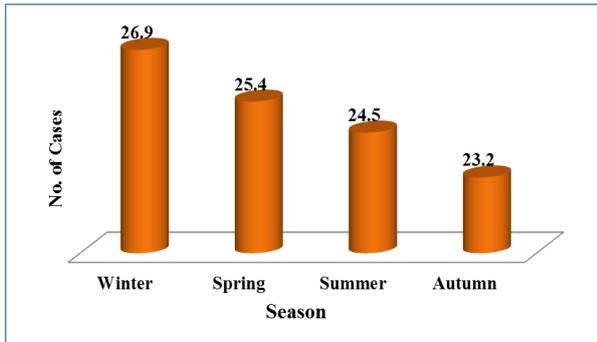


Figure 1: Distribution of appendicitis according to seasons.

Table 2: compares the average age of patients based on gender, place of residence, and length of hospital stay.

Category	Mean ± Sd	P-Value
Gender		
Male	25.5 ± 14.9	0.29
Female	25.3 ± 15.1	
Residence		
Urban	24.4 ± 14.2	< 0.001
Rural	29.5±18.0	
Hospital stay		
1-5 days	24.37±14.69	0.00
> 5 days	30.41±21.43	

Table 3: Frequency of symptoms of Appendicitis.

Symptoms	Frequency *	Percent
Pain in right iliac fossa	100	50
RIF migratory pain	36	18
Anorexia	87	43.5
Nausea & vomiting	76	38
Fever	42	21
Constipation	20	10
Diarrhea	15	0.6
Burning micturition	21	10.5

*Each case had one or more symptoms

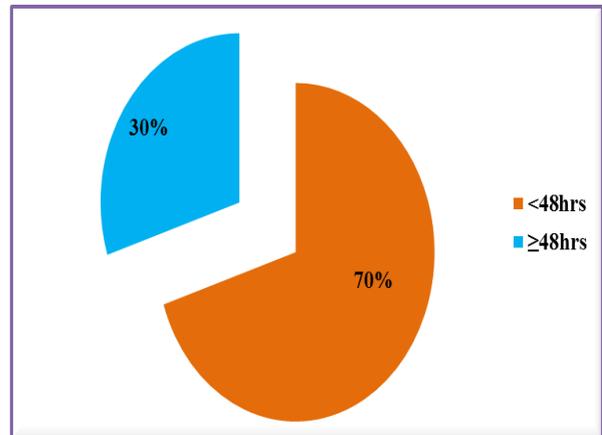


Figure 2: Duration of Pain among appendicitis cases.

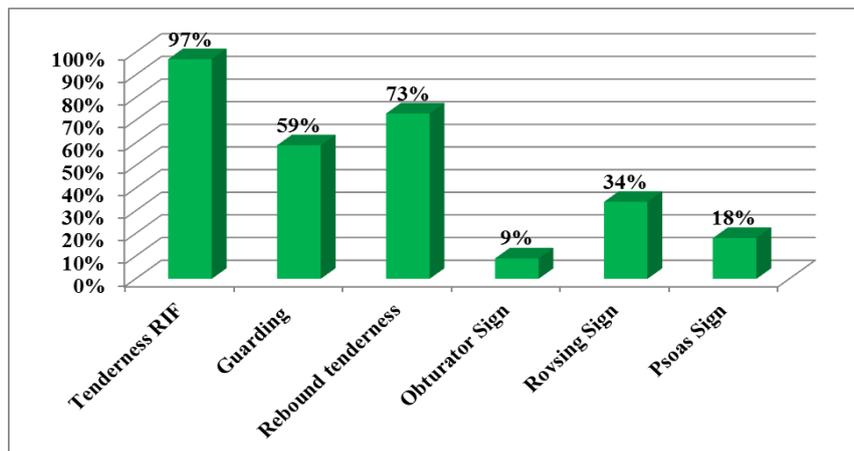


Figure 3: Graphical representation of frequency of signs.

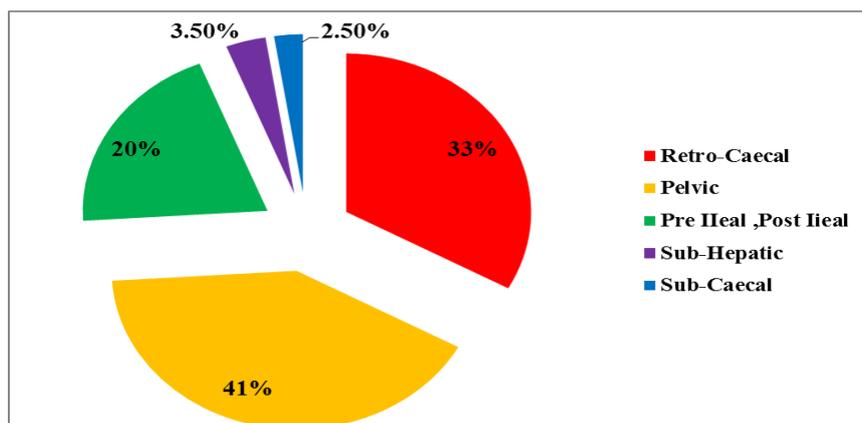


Figure 4: Graphical representation of position of appendix.

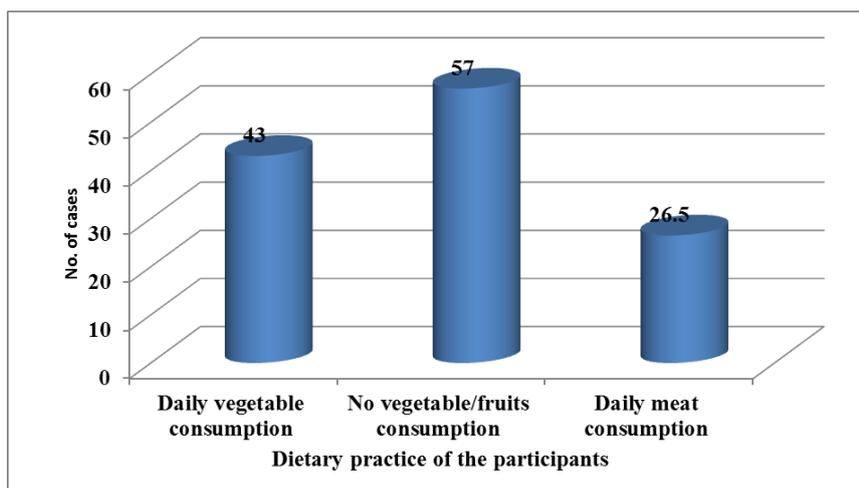


Figure 5: Graphical representation of dietary practice of the participants.

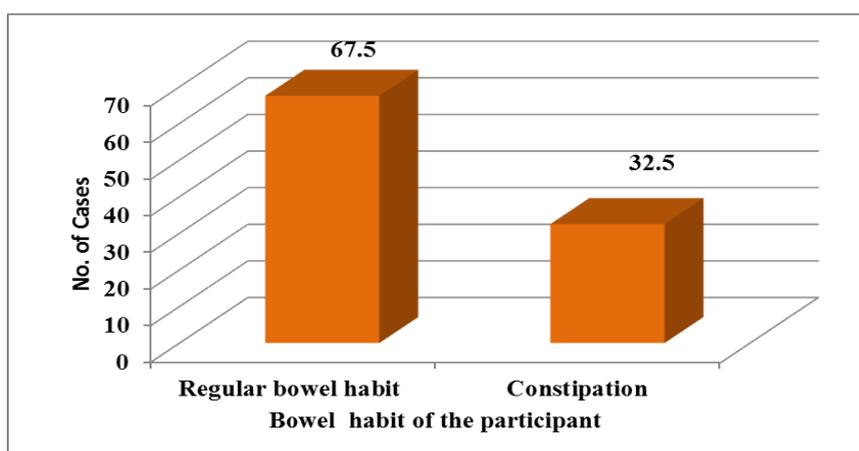


Figure 6: Graphical representation of bowel habit of the participants.

DISCUSSION

In this study a total of 200 patients were included. There were 33.5% of them in the age groups 21 to 30 years old; tailed through 24.5% in the groups 11 to 20 years old and the least frequency 8% in the age less than 10 years old. A study conducted by Zenon *et al.*, they reported the positive correlation between the rate of perforation and the age of patients was found.^[20] In Turkey^[21], the author's Males had a mean age of 20.87 ± 14.11 years and females had a mean age of 20.94 ± 13.66 years (range: 1-80 years). Some researchers found that the mean age of the patients (92 male, 100 female) was 25.1 ± 12.7 years. The reason of the slightly higher mean age in our study was that we have not included patients with ages over 50 years. According to other research, patients with appendicitis are most commonly found between the ages of 22 and 40, with a mean age of 31.3 years.^[21-23] Of the male cases, 66% were more than female cases 34%. There was no statistically significant difference between males and females in terms of mean age ($P=0.29$). Males were 25.514.9 years old, and females were 25.315.1 years old. In a study conducted in Turkey^[21], With a male to female ratio of 1.07:1.00 (154.7 per 100,000 men/year and 144.6 per 100,000 In females/year), the scientists discovered that 1001 were males (53.5%) and 870 were females (46.5%). 28.5% of

them had primary education and 22.5 had secondary certificates In Bangladesh^[24], The study's findings revealed that 68 (34.0%) of the patients were female and 132 (66.0%) of the patients were male. The ratio of men to women was 1.94:1. The majority of patients' educational levels were lower secondary school diploma (45; 22.5%) and higher secondary school diploma (32; 16.0 percent). Rural areas had the highest percentage of illiterate patients (27 percent).

In this study, found the higher percentage 26.9% of cases occurred during winter season, followed by 25.4% during spring and 24.5 during summer season and compared to another study done it in Turkey, the authors found appendicitis was most frequent during winter while perforation had the lowest frequency during that season (18.2%, $n=35$) ($p<0.05$).^[2] The mean age of the patients who lived in cities was also considerably lower (24.4 14.2 years) than that of the patients who resided in rural and suburban areas (29.5 18.0 years; $P=0.001$). In a study carried out in Bangladesh by Iqbal^[24], the patient's mean age was determined to be 23.37 11.54 years in the urban group and 25.69 11.34 years in the rural group. In the current study, the mean age of those who stayed in the hospital for less than 5 days (24.37 ± 14.69) was statistically significant than those who staying for more

than 5 days (30.41 ± 21.43 ; $p < 0.00$). Median duration of stay in our patients without appendicular perforation was 3 (Range 1-10) and with perforation it was 4 (range 2-10). Statistical analysis showed that patients with perforation have increased duration of hospital stay (p value 0.004). In study by Chong FC *et al.*^[25], the mean duration of hospital stay was 4.3 ± 2.0 (range 1–18) days. In a different study, patients in rural areas had a mean hospital stay of 8.41 2.44 days, compared to 4.37 1.69 days for urban patients.^[24] Additionally, we noticed that the average duration or presentation was delayed since it was nearly twice as long in rural patients as it was in the urban group. This shows that rural areas have limited access to healthcare. Delays in hospitalisation contribute to illness progression, the emergence of complications, and eventually negative outcomes. In this study, the results show that the right iliac fossa pain was the most consistent symptom and it was present in 50% of the patients, followed by migration of pain 18%, anorexia 43.5%, nausea and vomiting 38% patients and Fever 21%. A study conducted in India^[1], they reported the 63% (68) of patients presented with fever, 93.5% (101) of patients presented with pain abdomen. 56.5% (61) of patients presented with vomiting, 58.3% (63) of patients presented with anorexia, and 56.5% (61) of patients presented with nausea, and 48.1% (52) of patients presented with diarrhea.

In the current study, the result show that the RIF tenderness was the most consistent sign present in 97% of the patients, followed by guarding 59%, rebound tenderness 73%, obturator sign 9%, rovsing sign in 34% and, psoas sign in 18% patients. Compared with another study done in India^[1], the researchers found the 84.3% (91) Of patients presented with localized right iliac fossa tenderness, 87% (94) of patients had rebound tenderness, 52.8% (57) of patients had diffuse tenderness, 51.9% (56) of patients presented with voluntary guarding. In a study by Shrivastava UK *et al.*^[26], tenderness in right iliac fossa was found in 170 (91.8%) cases, rebound tenderness in 149 (80.54%) cases, elevated temperature in 156 (84.32%) cases and Rovsing's sign in 103 (55.67%) cases. In the present study TLC was increased in 62 % of cases with shift to left noted in 74% of cases. Both of these variables are statistically significant.

Retrocaecal and pelvic were two most common positions seen in our study in 33% and 41% cases respectively. In a study by Chong CF^[27], relative incidence of positions is as Retrocolic and Retrocaecal – 74%, Pelvic – 21%, Subcaecal – 1.5 %, Pre Ileal – 1%, Post Ileal – 0.5%. In another study by Fitz RH^[28], pelvic position was the predominant position (in 33.3%) followed by retrocaecal in 32.4%, preileal in 18.8% and subcaecal in 12.8% respectively. So there is considerable variation in different studies.

According to the findings of the current study, 57 percent of the participants consumed fruits everyday, whereas only 43 percent included vegetables in their diet. A daily

meat consumption percentage of 26.5 percent was noted. 67.5 percent of people reported having regular bowel movements. 32.5 percent of people reported experiencing constipation. According to the authors of a prospective analytical study conducted by Iqbal^[24], the majority (52 percent) of research participants from rural areas regularly consume vegetables, whereas just 34 percent of patients in urban areas do the same. Patients in urban areas consumed 29% of their daily recommended meat intake, whereas patients in rural areas consumed 24%. 49 percent of patients in urban areas and 86 percent of patients in rural areas had regular bowel habits. 51 percent of patients in urban areas and 14 percent in rural areas experienced constipation. At $p < 0.05$, the result is significant.

CONCLUSION

There are more cases of male appendicitis than female cases. The most common age range for appendicitis cases was 21 to 30. Pain was consistently the most prevalent symptom, followed in every case by anorexia, nausea/vomiting, burning micturition, bowel disturbances including diarrhea, constipation, and pain. The most frequent clinically observed symptom was tenderness, which was followed by guarding, rebound tenderness, rovsing sign, and the psoas test. In our analysis, the two most typical locations were retrocaecal and pelvic.

RECOMMENDATION

In addition to early and accurate disease diagnosis, evaluation of the condition, and development of a strategy for appropriate therapy, the following recommendations should be taken into consideration: Early diagnosis and prompt treatment for those with suspected appendicitis are crucial for lowering morbidity and mortality. To prevent complications, it is important to constantly monitor and treat patients with severe appendicitis after surgery.

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