



# The Incidence and Awareness of Appendicitis among Female Students in Student's Dorm of Mohamed Osman Saror in Almatama Town, 2021

Younis A<sup>1</sup> and Ali ASMA<sup>2\*</sup>

Shendi University, Sudan

\*Corresponding author: Dr. Alhaj Saad Mohamed Ahmed Ali, Shendi University, Sudan, Tel: +249923224164; Email: alhajsm198@gmail.com

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## Abstract

**Background:** Appendicitis is inflammation of appendix, which a small tube attached to large intestine.

**Material and Methods:** This cross-sectional descriptive study was carried out from Sep to Dec, 2021, in student dorm of M.O. Saror, in Almatama town. Aimed to measuring the incidence of Appendicitis among female students and her awareness about disease. One Hundred female students was selected and interviewed randomly, and questionnaire was used to collecting data from respondents. The findings of this study showed that the incidence of appendicitis was 16% during the year 2021. 85% was known appendicitis, Also the psychological and economic factors are most effects resulting from appendicitis.

**Recommendations:** Study recommended to decreasing intake spicy and seeds foods carefully, and intake foods can prevent from appendicitis like fenugreek, and barley.

**Keywords:** Appendicitis; Caecum; Bacterial Infection

## Introduction

The vermiform appendix is considered by most to be vestigial organ, it is important in surgery results only from its propensity for inflammation clinical syndrome know as (acute appendicitis). Acute appendicitis is the most cause of an (acute abdomen) in young adult. Appendicitis is sufficiently common that appendectomy (termed appendectomy in North American) is most frequently performed urgent abdominal operation and often the first major procedure performed by a surgeon in training. At birth the appendix is short and board at its junction with the caecum, but differential growth of the caecum produces the typical tubular structure by about age of two years; during childhood continued growth of caecum commonly rotates the appendix into retrocaecal but inter peritoneal position [1].

The appendix is a thintial tube or appendage growing

out of the caecum which is part of the large intestine located on the lower right side of the abdomen. The precise function of the appendix in the human body is something of a mystery, although it clearly plays role in the digestion for animal species. Food or fecal matter can sometime lodge in the narrow tube of appendix and the blockage become infected with bacteria, if the appendix bursts it is infected contacts will spread throughout the abdominal cavity. Infection of lining of the abdominal cavity can be life threaten without prompt treatment.

## Function of Appendix

For many years the appendix was considered useless, doctor found that patients were apparently healthy after removing their appendix, the image has changed more recently, researchers have found that your appendix plays an important role in boosting your immune system, and helping

you recover faster, it also seems to protect against Chrons Disease and common chronic bowel disease [2].

**Appendicitis:** Mean inflammation of appendix, which a small tube attached to the large intestine.

### Symptoms of Appendicitis

- Pain centered around the navel, which progress to a sharp pain in the lower right side of the abdomen,
- Pain in the lower back, hamstring or rectum (less commonly),
- Fever,
- Vomiting,
- Diarrhea or constipation,
- Loss of appetite [3,4].

### Causes of Appendicitis

1. **Infection:** Infection is one of the most common causes of appendicitis a viral or bacterial infection causes appendix to swell and fill with pus. The inflammation blocks blood flow to appendix, which then start to die; at this point the appendix can develop holes or tears or may even burst if it is not treated, if that happens stool, pus and mucus can leak in to abdominal cavity, resulting in a life threatening infection.
2. **Blockage:** Sometimes appendicitis can be caused by fecal blockage of the large intestine. Normally the appendix is open to the large intestine; when stool or bacteria from an infection enters the appendix the tube joining appendix to the large intestine becomes blocked, this blocked lead to inflammation and swelling.
3. **Tumors:** Rarely appendicitis can be caused by tumor, both benign (non cancerous ) and malignant ( cancerous). This tumors are usually discovered when appendicitis removed because appendicitis or during diagnostic tests for other issues.
4. **Inflammatory Bowel Disease:** Is term that refers to inflammatory disease of the intestines such as Chron's disease and ulcerative colitis; chronic inflammation can lead to appendicitis.
5. **Abdominal Trauma:** Though it is fairly infrequent abdominal trauma can lead to appendicitis; this happens when there is a serious injury to the abdomen that causes blockage of appendix [5].
  - **Obstruction:** Appendicitis is caused by obstruction of appendicular lumen; the causes of obstruction include lymphoid hyperplasia secondary to irritable bowel disease, or infection.
  - **Infection:** Various specific bacteria, viruses, fungi and parasites can be responsible agent of infection that affect in the appendix including yersinia species, histoplasma, taenia solium and strongyloides stercoralis.

- **Dietary factors:** It may be related to westernization of food –a diet rich in meat precipitates causing appendicitis and a diet rich in fiber (cellulose) protects the person from appendicitis [6].

### The Following Foods Causes' Appendicitis

**Seeds of Fruits:** Eating fruits that contain seeds in them such as grapes, orange and guavas can cause appendicitis. This is because the seeds of the fruits are difficult to digest by the intestines and can eventually clog the appendix. However that does not mean you should not eat these fruits at all, you still eat fruit with seeds after removing the seeds fruits.

**Spicy Food:** Spicy foods such as sillies and peppers are often referred to as food causes appendicitis; this is because consuming too much spicy food can irritate the gastrointestinal tract, thus triggering appendicitis. In some cases doctors often found chili paprika seeds during appendectomy process; this leads to the assumption that chili and paprika seeds are difficult to digest causing blockage and inflammation of the appendicitis [7].

### The Risk Factors for Appendicitis

There is no way to predict who will get appendicitis; but scientists have un covered several risk factors for condition these include:

- Being teenager or in your twenties; most cases of appendicitis occur in this age group.
- 2-Having long –lasting inflammatory bowel disease such as Chron's disease or ulcerative colitis.
- 3-Studies have suggest that family play role, a study published in 2014 in the western journal of emergency medicine found that among adult at an emergency room who presented with appendicitis that a known family history were more likely to have the condition and study publish in 2001 in the journal of pediatric surgery found that “heredity is a significant factor“ in children who have appendicitis.

There is also link between air pollution in particular high level of Ozone and appendicitis. Scientists are not sure why air pollution is associated with an increase risk of appendicitis; but it may be that high level of Ozone increase intestinal inflammation or susceptibility to bacterial and viral infection. Studies suggest that people get appendicitis more during the summer than at other times of the year; it is not clear why but a review of over 40 years of research published in February 2014 in anal of medical and health sciences research conclude that it is likely due to combination of increase exposure to air pollution and more GI infections during summer months [8].

## Types of Appendicitis

- **Acute appendicitis:** Is finger like, size offshoot from the intestine where the small intestine and colon join in the lower right hand of the abdomen. Identification: pain which may wake the suffer in the right, starting in the middle of abdomen but shifting in a few hours to the right lower quadrant.
- **Age:** Rare before two years, increasingly common through childhood, peak age 15 years and (18-30) years then gradual decline. Treatment by operation to remove the appendix as soon as possible [9]. The vast majority of patients with (A) present with marked localized pain and tenderness in the iliac fossa. Typically the pain commons as a central peri-umbilical colic with shifts after approximately 6 hours to the right iliac fossa or more accurately to the site of inflamed appendix. Occasionally the tip of the inflamed appendix extend over to the left iliac fossa and pain may localized there [10].

## Etiology of (AA)

There is no unifying hypothesis regarding the a etiology of (AA) decrease dietary fiber and increased consumption of refined carbohydrate may be important as with colonic diverticulitis, the incidence of appendicitis is lowest in societies with a high dietary fiber intake, in developing countries that are adopting more refined western type diet the incidence continues to rise. No reason has been established for these paradoxical changes; however improved hygiene and change in the pattern of childhood gastrointestinal infection related to the increase use of antibiotics may be responsible. While appendicitis is clearly associated with bacterial proliferation in the appendix no single organism is responsible [11]. The spread of microorganism takes place in the loose of sub mucosa and from there through the muscularis alone the line of the penetrating vessels to the sub serious coat.

By the time the appendix is removed the muscularis and peritoneal surface are usually also inflamed, the appendix is swollen and elongated and bright red in color.

## Prevention of Appendicitis

Appendicitis can be prevented by choosing the right food in your diet and having a balanced diet.

**Foods you should Eat:** Food rich in fiber are recommended to prevent disease like appendicitis these include:

- Oats or wheat gram over breakfast cereals
- Whole wheat flour instead of all purpose flour
- Brown rice instead of white rice
- Fresh fruits for dessert

**Foods You Should Avoid:** If you are wondering wheat food

can cause appendicitis, here is the list of food that can causes appendicitis:

- Fried food are fatty and can irritate the digestive system.
- Alcohol harms the liver and thus affects digestion Red meat contains a lot of fat and is difficult to digest.
- Cakes, pastries etc. that contain too much sugar [12].

## Prevalence of Appendicitis in World

AA is a very common disease with a life time risk of approximately is 8.6% for males and 6.7 for females. (AA) represents the most common abdominal emergency but its diagnosis can be challenge even for experienced surgeon, as its mainly based on anamnesis and older than 50 years, pre hospital admission later than 12 hours; fecal as the a etiology of the luminal obstruction and leukocyte count > 15000 cell/mm<sup>3</sup> where considered as risk factor for perforated acute appendicitis. (AA) is one of the most common acute surgical emergencies with incidence of approximately 100 per 100000 people; its incidence change according to age, geographic location and diet. The pathogenesis of (AA) is believed to reflect an initial insult to the mucosa resulting from luminal obstruction by fecal, a fragment of un digested food, or lymphoid hyperplasia followed by bacterial infection that progressively spread from the mucosa into the wall [13].

## Incidence of Appendicitis in the Sudan

According to the latest WHO data published in 2018 appendicitis deaths in Sudan reached 325 or 0.13% of total deaths, the adjusted death rate is 1.17 per 100000 of population rank Sudan 64 in the world [14-19].

## Material and Methods

A cross-sectional descriptive study was carried out from Sep to Dec, 2021, conducted among female students in student's dorm of M.O. Saror, in Almatma town. The study population included female students in Shendi University from faculties of health and law. The sample size was 100 students were selected of 600 female students by used stratified random sampling were selected according to level of semester. The study was conducted using structure questionnaire; the questionnaire contained socio-demographic characteristics of the female students like age, married status and monthly extensive. The questionnaire also included question about appendicitis like previous illness, awareness about causes, sign, prevention and complications of appendicitis.

## Results

A total of 100 female students in the student dorm were interviewed, most of them are from the age group 20-25 with

a percentage of 67%, and 33% of the age group is less than 20 years, 90% of the female students who were interviewed are not married, 5% are married and 5% Others are divorced. The level of monthly expenses was somewhat low, as only 29% of their monthly expenses were above 30,000 SDG, 45% their monthly expenses ranged between 15,000- 30,000 SDG, and 26% their monthly expenses were less than 15,000 SDG. Those who contracted appendicitis during this year (2021) were 16%. With regard to the level of awareness of the disease, 85% of the female respondents indicated that they know the disease, but there is a discrepancy in the answers with regard to general information about the disease. Table 2 shows that the knowledge of the symptoms and signs of the disease was 52%, among the most prominent signs that were unanimously agreed by most of the respondents were Sign of pain in the lower right abdomen, it was 94%. As for

the knowledge of the causes of the disease, 30% explained their knowledge of that (Table 2). Some sample members mentioned that there are foods that protect against disease, and their percentage was 21%. Some sample members mentioned that there are foods that protect against disease, and their percentage was 21%. The most of study sample members answered in others foods causes like fried foods, lemon seeds, and Birdseye. There is a set of effects resulting from the disease represented in the social, economic and psychological effects; were The study showed for several effects resulting from the illness 66%, the highest effect was psychological represented 32% that decrease more activities in community, economic effect 24% others effects was 8%, social effect 11% represented the lest effect, and total of them 18.5%.

Demographic information	Count	Percent
Age		
Less than 20 years	33	33%
20 to 25 years	67	67%
Monthly extensive (SDG)		
Less than 15000	26	26%
15000 – 30000	45	45%
More than 30000	29	29%
Married status		
Married	5	5%
Non married	90	90%
Divorced	5	5%

**Table 1:** the Demographic characteristics of female students in student's dorm of M.O Saror, almatama, (n=100).

Variables	Yes	No	N
Do you know appendicitis	85%	15%	100
<b>Awareness about sign and symptoms</b>			
the signs and symptoms of disease	94%	6%	85
Nausea	37%	63%	85
Vomiting	43%	57%	85
Fever	36%	64%	85
<b>Awareness about causes of appendicitis</b>			
Do you know causes of appendicitis	79%	21%	85
some foods	69%	31%	85
Blockage of large intestinal	14%	86%	85
tumor of appendix	29%	71%	85
Is the appendicitis infectious disease	10%	90%	85
Do you know any foods play rule in causes of disease	86%	14%	85

Seeds fruits	16%	84%	85
Spicy foods	70%	30%	85
<b>Awareness about disease prevention</b>			
is there any foods prevent from the disease	55%	45%	85
Fenugreek	22%	78%	85
Mint	32%	68%	85
<b>Appendicitis effects</b>			
Economic effects	24%	76%	85
Social effects	11%	89%	85
Psychological effects	32%	68%	85

**Table 2:** The awareness about appendicitis among female students in student's dorm of M.O Saror, almatama, River Nile state, Sudan.

## Discussion

This study was conducted in Shendi University female students residing in the student dorm and included students from the faculties of Health and Law, and it was noted that appendicitis is still a health problem that can affect female students socially, academically, economically and psychologically. It was found that the incidence of appendicitis was high by 16% in the study sample, and thus it is a major health problem that needs intervention. In this study, it was found that there is an increase in the level of awareness about appendicitis, as 85% of the study sample know the disease, where the level of awareness of the signs and symptoms reached 52.3%, and the response about the sign (pain in the lower right abdomen) represents the highest percentage (94%) of Other symptoms, fever less symptoms 36% Although pain and fever are the first signs of appendicitis, this may be due to the association of these symptoms with other diseases. Other signs that were mentioned by 14% of the respondents were: obstruction of the large intestine; It was mentioned in the source [3] that obstruction sometimes causes appendicitis, there was a great awareness about appendicitis that it is not a contagious disease by 90% as shown in Table 2. There was good awareness about the contribution of food to disease by 86% (and respondents indicated that some foods cause disease and mentioned seeds of fruits and hot spices, as described in Table 2. The study showed that there are 21.6% of foods that can prevent diseases and this low level of awareness about foods that prevent disease can be one of the risks of exposure to appendicitis. The study showed that there are several effects resulting from the disease, the highest psychological impact was 32% as it reduced community activities, and the economic impact was 24% Other effects, including an academic effect of 8%, examined most of the previous studies and concluded that there are foods other than those mentioned by the sample members as causes of disease

such as fried foods, lemon seeds (16) (8) and foods that can prevent appendicitis, namely vegetables, barley and maize [15]. The study showed that there was a high knowledge of complications 89%, but appendicitis was high because the most common incidence is generally 87%, abscess 7%, gangrene 4%, and other complications 3% [16-19].

## Conclusion and Study Recommendation

The findings of this study indicate that appendicitis still healthy problem can effect in the female students, 85% of study population known the appendicitis, 79% of study population known causes of disease, 90% of study population known that appendicitis was not infectious disease.

The study recommended to:

- Early detection if you have a pain in the lower right of abdomen near to the umbilicus to avoiding serious complications.
- Decrease eats of spicy foods.
- Avoid fried foods and seeds fruits that difficult to digest by intestinal.
- Intake diets contain fiber (cellulose) that helping in prevent of disease like barley.
- Recommendation to the female students' internal restaurant workers to reduce addition of hot spiciest in foods.

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