

## Descriptive Study of Acute Appendicitis in Khost Specialized Hospital

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www.jrasb.com || Vol. 2 No. 1 (2023): February Issue

Received: 15-01-2023

Revised: 05-02-2023

Accepted: 15-02-2023

### ABSTRACT

**Background:** Acute appendicitis is one of the most common acute surgical conditions in the United States. In 1886, Dr. Reginald Fitz first used the term acute appendicitis to describe an inflammatory condition of the right lower quadrant that was starting to be treated surgically with success <sup>(1)</sup>. In the nineteenth century, Dr. Charles McBurney went on to author a series of papers describing appendicitis definitively as a surgical disease. According to his observation, this condition was commonly associated with focal pain and tenderness at one specific location in the right lower quadrant later became widely known as “McBurney’s point” <sup>(2, 3)</sup>.

**Methods:** This study was conducted in the surgical ward of the post graduated hospital Khost in (1400-1401) hejri Shamsi year on 423 patients who were diagnosed and treated with acute appendicitis.

The purpose of this study is to compare the incidence of disease with other studies which have been done in others countries in the terms of gender, age, and complications.

**Conclusions:** The result of this research shows that acute appendicitis is more in men than women. Out of this group, 282 (66.66%) patients are men, and the remaining 143 (80.33%) are women. 316 (77.74%) Patients who has Appendicitis are form Khost province and the remaining 107 (25.29%) patients are form neighboring provinces. The ratio between men and women is 1.97:1.

**Keywords-** acute appendicitis, sex, complications, treatment.

### I. SUMMARY

Inflammation of appendix is called acute Appendicitis. Appendicitis is an urgent event that need for urgent surgery which occurs more in some Western and less in Eastern countries. These diseases occur at any age, but more often occur in the 15-30 year of age. In 2019 there were 17.7 million cases of acute appendicitis worldwide, which was 177 cases per 100,000 people. There were 33,400 deaths that occurred in every 100,000 people (188).

This study was conducted in an observational manner in the Department of Surgery, Khost post graduated Hospital between (1401-1400) on 2628

patients who were admitted to the Surgical Department of this hospital, among them (423) patients were diagnosed with acute appendicitis. The frequencies are shown in different tables. Out of 423 patients, 66.66% (282) were males and the rest (143) 33.80% were females. The ratio between male and female sex is 1.97:1. From the point of view of residence, 316 (74.70%) lived in the city and the rest 107 (25.29%) live in suburb area. Surgical treatment was done and the remaining 31(7.32%) patients, treated conservatively. 31 had pre-operative and 27 post-operative complications. From the anatomo-pathological point of view, 98 patients were in the catarrhal stage, 292 in the phlegmoneus stage and the remaining 27 were in the

gangrenous stage. In terms of age, 310 (73.28%) are between 15-25 years old and the rest (113) who are (26.61%) were between 30-60 years old. The study showed that the incidence of acute appendicitis is higher in men than in women (1.97:1). Similarly, in terms of age, most cases occurred in the age group (15-25).

## II. INTRODUCTION

Appendix is a cylinder-type appendage that is located approximately 2.5 cm below the ileocecal valve in the posteromedial wall of cecum. The size of the inner and outer diameter is different, the outer diameter is (7-8 cm) and the inner diameter is (1-2 cm) and it is the only organ that does not have a fixed position. From the point view of topography, the appendix reaches a point called Mc Burney's on the anterior wall of the abdomen between umbilical and anterior superior iliac spine.

The appendix wall has four layers which are mucosa, sub mucous, muscular and serosa <sup>(4,5)</sup>.

### **Definition:**

Inflammation of appendix is called acute Appendicitis. Appendicitis is an urgent event that need for urgent surgery which occurs more in some Western and less in Eastern countries. These diseases occur at any age, but more often occur in the 15-30 year of age. It occurs rarely in infants, so there is a relationship between appendicitis and an increased appendicular lymphoid follicle <sup>(1, 2, and 3)</sup>.

### **Causes:**

The only factor that plays an important role in the development of acute appendicitis is the obstruction of proximal part (lumen) of the appendix. Fecal stone, hypertrophy of lymphoid tissues, seeds of fruit, Ascaris worms and the presence of ductal bands around the appendix cause the obstruction of the appendix lumen.

Hypertrophy of the lymphoid tissue of the appendix is caused by diet. People who use foods that have little residue or that consume acidic or non-absorbable substances are concentrated in the cecum for a long time are the reason for this, Because the internal pressure of the cecum and the activity of bacteria, the lymphoid cells of the cecum wall and appendix become swollen and hypertrophic which are causes narrowing of the lumen <sup>(1, 2, 3)</sup>.

### **Pathogenesis**

When the proximal part of lumen blocked, a closed loop obstruction occurs in the appendix, as the secretions of the mucous membrane are accumulated in the distal part of the appendix, and the appendix expands and distends parallel to this secretion.

The lumen of the normal appendix has a capacity of approximately 0.1 ml, and when approximately 5 ml of secretions are trapped in the appendix, intraluminal pressure rises up to approximately 60 cm of H<sub>2</sub>O and the wall of the appendix expands. Due to dilatation of appendix the visceral layer of appendix wall stimulates the nerve

fibers that are responsible for pain, at that time the patient feels pain in the epigastric area or the middle part of the abdomen. Similarly, due to the stimulation of these nerve fibers, the colonic movements also increase in the first stage, and in addition to the pain in this area, sometimes some female patient feels cramp-like pain in the vagina. After a few hours, the expansion of the appendix occurs not only due to the blockage of the secretions of the appendix, but also due to the activity of bacteria in the secretions of blocked appendix, the internal pressure of appendix increases and the expansion is further increased. As a result, pressure is placed on the blood circulation and the blood flow is stagnated, therefore congestion occurs in the appendix, which causes irritation of the stomach and at that time the patient develops nausea and vomiting. Since the appendix is very expanded, it puts pressure on the serous layer and the surrounding tissue, causing localized pain and the patient typically feels pain in the R.L.Q. Due to congestion of appendix, the arterial flow also disturbed, the mucous membrane becomes necrosis and then infected, bacteria those present in the lumen of appendix penetrate into the deeper layers. due to the absorption of dead tissues and toxin. The patient develops fever, Tachycardia, Leukocytosis, due to the increase of microbial interference and airway obstruction, the appendix is destroyed. In some cases, the acute inflammatory condition of the appendix is silenced spontaneously in its initial stages.

We are faced with many patients who have had multiple attacks of the appendix and the inflammatory condition has disappeared. This happens when the mouth of the appendix is blocked by a soft stool and due to the increase in luminal pressure of appendix, the stone is displaced from the lumen of appendix near to caecum. As a result of the opening of appendix lumen, the accumulated secretions flowed to caecum, expansion of appendix is decreased and the acute inflammation of appendix is eliminated.

### **Clinical signs and symptoms**

The physical symptoms of acute appendicitis vary depending on the person and age, here are some classic appendicitis manifestations:

Clinical signs and symptoms are as follows:

#### **A: symptoms**

In acute appendicitis, as a rule, there are symptoms of indigestion, Loss of appetite, pain, nausea/vomiting, flatulence, constipation, sometimes diarrhea, constipation, and also urinary system Sign/Symptoms are present. Body temperature usually rises to subfebrile values.

#### **B: Signs Rovsing's Sign**

This sign is positive in acute appendicitis. When right iliac fossa deeply palpated and patient feels pain on right iliac fossa. This may be due to migration of gas from the left colon to the cecum. Or direct soft tissues stress on inflammatory process.

**Obturator Sign**

This sign is positive in acute appendicitis. Doctor lifts the patient's right leg with the knee flexion and then rotates the leg at the hip. Increasing abdominal pain indicates appendicitis.

**Psoas sign**

Psoas sign, also known as Cope's psoas sign or Exemplary sign, is a medical sign that indicates irritation in the iliopsoas muscle group of the hip flexors in the abdomen, This technique determining the sign of the lumbar muscle is carried out on the patient's right leg. The patient lies on his left side with his knees extended. The examiner holds the patient by the right thigh and passively extends the thigh. Alternatively, the patient lies on their back and the examiner asks the patient to actively flex the right thigh against the examiner's arm. During acute appendicitis patient feel pain in right iliac fossa.

**Diagnosis:**

Most cases of acute appendicitis were diagnosed with the help of physical examination, ultrasound and laboratory tests in Khost Specialized Hospital, and only 28 patients were diagnosed with X-ray and the remaining 5 patients were diagnosed with the help of CT scan.

**III. MATERIALS AND PROCEDURE**

A: This study was conducted in the surgical ward of the post graduated hospital Khost in (1400-1401) hejri Shamsi year on 423 patients who were diagnosed and treated with acute appendicitis.

B: The purpose of this study is to compare the incidence of disease with other studies which have been done in others countries in the terms of gender, age, and complications.

C: This is an observational study in which the information has been collected from patient files, history, physical examination and other diagnostic investigation such as Ultrasound, x-rays and CT scan. The data were analyzed by MS Excel and also all ethical principles of the research have been strictly observed.

**IV. RESULT**

This study was conducted in an observational manner in the surgical department of post graduated hospital Khost between (1400-1401) on 2628 patients, who were admitted to the surgical department of this hospital and among them 423 patients had acute appendicitis. The frequencies are shown in various tables with the help of MS Excel, and the ethical principles of the research have been observed. Out of 423 patients, 66.66% (282) are male and the rest (143) 33.80% are female. The male to female ratio is 1.97:1. From the point view of residence, 316 people (74.70%) live in the city and the rest 107 (25.29%) are from suburban area. All patient were treated surgically but 31(7.32%) people were treated conservatively. 31 patient had pre-operative

complications and 27 people had post-operative complications. From the anatomo-pathological point of view, 98 patients were in the catarrhal stage, 292 were in the phlegmoneous stage and the remaining 27 were in the gangrenous stage. According to age, 310 (83.28%) patient were between 15-25 years and the rest 113 (26.71%) patients were between (30-60) years. Our research has shown that the incidence of acute appendicitis is higher in males than in females (1.97:1), according to age most cases were in 15-25 years.

A total of 2,628 patients were admitted in the general surgery department. Among them, 423 patients were diagnosed with acute appendicitis, which is 09%, 16% (table 1.1).

**Table 1-1: Number of patient that has acute appendicitis compared to all admitted patient**

Total patients	2628	100 %
Acute appendicitis	423	16.09 %
Other surgical diseases	2202	83.09 %

**Table 1-2: Incidence of acute appendicitis according to sex 282 (66.66%) patients were men, and the remaining 141 (33.33%) of them were women. The ratio between men and women is 1.97:1, see table 1-2.**

Acute appendicitis	423	100 %
Male patients	282	66.66%
Female patients	141	33.33%

**Table 1-3: The incidence of acute appendicitis according to residency.**

Acute appendicitis	423	100 %
Khost province residents	316	74.70%
others provinces residents	107	25.29%

From the point of view of residency, 316 (74.70%) patients with acute appendicitis lived in Khost province, the remaining 107 (25.29%) patients came from other provinces, which are shown in (Table 1-3).

**Table 1-4: Post-operative complication.**

All operated patient	432	100%
Post operated complications	27	6.25%
superficial wound infection	15	3.47%
deep wound infections	9	2.083%
incisional hernia	3	0.69%
faecal fistula	1	0.23%

27 patients had postoperative complications, among them 15 patients had superficial wound infection, 9 patients had deep wound infections, 3 patients had incisional hernia and the remaining one had faecal fistula.

**Table 1-5: according to age of patients. 310 (73.28%) patients were between (15-25) years old and the remaining 113 (26.71%) patients were between (30-60) years old, which is shown in below table.**

All patients	423	100 %
Age (15-25)	310	73.28%
Age (30-60)	113	26.71%

## V. CONCLUSION

The result of this research shows that in our country, patient don't go to the hospital for treatment on time. The incidence of acute appendicitis is more in men than women. 316 (77.74%) Patients who has Appendicitis are from Khost province and the remaining 107 (25.29%) patients are from neighboring provinces. out of this group, 282 (66.66%) patients are men, and the remaining 143 (80.33%) are women. The ratio between men and women is 1.97:1.

The results of our research are similar to the results of India and Pakistan and no difference is seen. The study conducted by Waqas Ahmed and colleagues at the Lahore Military Hospital in Pakistan in 2018 concluded that men were more likely suffer from acute appendicitis than women (8).

The research that was conducted in India in 2013 and 2014 among the inpatients of an intermediate surgical hospital, 60% are men and the remaining 40% are women, who suffering from acute appendicitis. From the point view of age, 34.54% were between 21-30 years, 26.46% were between 11-20 years and 34.5% were between 31-60 years old.

The research that was done with the help of Kumar and colleagues in 2020, in the surgical department of Shamila tertiary care Hospital of Indragandhi College in North India, has the result that the average age ( $12.28 \pm$ ) is 12.26,48 for men ( 58%) were female (42%). from the point view of gender, the incidence was higher in male than female, which is also similar with the results of our research (10).

## SUGGESTIONS

Recommendations to the Ministry of Public Health:

1- CT Scan for the diagnosis of appendicitis, which has more than 99% efficiency, our hospital doesn't have CT scan facility.

2- We know that acute appendicitis is an urgent surgical cases, if the patient is not diagnosed on time, it

will have a bad result, so appendectomy is the way to treat the patient after diagnosis.

3- Patients with acute appendicitis should avoid from symptomatic treatment and painkillers in case of abdominal pain. I advice the patient to share their problem with surgeon and take his advice.

4- Research department is an important part of a hospital, so a special budget and technical personnel are needed for research.

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