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A Report

**THE APPENDIX: A REPORT****Amna Akbar<sup>1</sup>, Taufeeq Ahmed Khan<sup>2</sup>, Sarosh Khan Jadoon<sup>3</sup>, Sabahat Tasneem<sup>4</sup>,  
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**Abstract:**

*Appendix is a small finger-like tube, about 7cm to 10cm long, attached to the cecum just below ileocecal valve. It was considered a vestigial organ for a long time, but recent studies correlate its important role in immune function and maintenance of gut micro biota. Inflammation of appendix is called acute appendicitis. The incidence of appendicitis all over the world is 233 per 100,000 populations per year<sup>1</sup>. Appendectomy (surgical removal of appendix) is the most common abdominal surgical emergency worldwide. More research needs to be done to establish the exact cause of increased incidence of acute appendicitis during (time mentioned). Only in this way we can avoid such an outbreak in future.*

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**APPENDIX:**

Appendix is a small finger-like tube, about 7cm to 10cm long, attached to the cecum just below ileocecal valve. It was considered a vestigial organ for a long time, but recent studies correlate its important role in immune function and maintenance of gut micro biota. Inflammation of appendix is called acute appendicitis. The incidence of appendicitis all over the world is 233 per 100,000 populations per year<sup>1</sup>. Appendectomy (surgical removal of appendix) is the most common abdominal surgical emergency worldwide.

Causes of acute appendicitis are broadly divided into obstructive and non-obstructive. Obstructive causes include fecolith, tumors, calculi, foreign body and intestinal worms that directly occlude the appendicular lumen. Non-obstructive causes include direct infection of lymphoid follicles by bacteria or virus leading to lymphoid hyperplasia. Irrespective of cause, the lumen of appendix gets blocked and mucus flow is disrupted. Mucus accumulation leads to an increase in intraluminal and intramural pressures. This causes appendiceal distention and pain. Ultimately bacteria and white blood cells invade the lumen. Progressive edema leads to ischemia and thrombosis of surrounding vessels and thinning of luminal walls. If not treated in time, this stage may progress to complications such as gangrene formation, necrosis and perforation, and phlegmon formation. Alternatively, it may resolve spontaneously or may lead to chronic or recurrent appendicitis.

Risk factors<sup>2</sup> associated with acute appendicitis are not clearly understood. Factors such as gender (male > female), age (teens and early twenties), diet (less fibers, increased refined carbohydrates and decreased water intake), genetics (increase in 1<sup>st</sup> degree relatives) and seasons (more in summers than winters) can affect the incidence of acute appendicitis. Although acute appendicitis is a disease that surgeons have to deal with throughout the year, outbursts of cases have been reported in different regions of the world at different times. Similar outburst occur in Muzaffarabad Azad Kashmir during the time period of August 2022 – October 2022 leading to more than 300 appendectomies in the said region.

The exact cause of the outburst is still unknown but certain theories related to the affected region support the cause. Use of stream water is common among the natives of rural regions. Even piped water in urban areas is sourced through some nearby streams. This water is not only used for drinking purposes but also for waste disposal. Use of this untreated water makes it a potential source for water borne infections<sup>3</sup>. These include bacteria like Salmonella, E. coli,

Campylobacter, and viruses like adenovirus and parasites like Ascaris, Entamoeba<sup>4</sup>, Schistosoma<sup>5</sup> and Strongyloides. These microbes can induce appendicitis by directly invading the appendicular lymphoid follicles or by obstructing the appendicular lumen.

Contents of minerals in stream water are also an important factor in acute appendicitis. Calcium concentration increases during monsoon season. Intake of such water can encourage the formation of fecolith causing obstruction of appendicular lumen which can lead towards acute appendicitis.

Poor hygiene<sup>6</sup> is common in rural areas of the region. Poor waste disposal, improper hand hygiene before meals and after bowel movement, inappropriate preservation of water and food products all lead to increased incidence of diseases associated with feco-oral route. Another issue faced by poor hygiene is rapid spread of viral infections causing hyperplasia of lymphoid tissue. This ultimately leads towards increased incidence of acute appendicitis.

**DISCUSSION:**

Acute appendicitis is the most common surgical emergency faced by surgeons all over the world. It imposes a great burden on a healthcare setup if an outburst occurs. As discussed earlier, the exact cause of the outburst in the region of Muzaffarabad Azad Kashmir is still unknown but certain theories have been discussed. These all factors are modifiable. Proper measures should be taken to make treated water available even in the remote areas of this region. This can lower the incidence of water borne infections and subsequently, incidence of acute appendicitis will be decreased. Hygiene measures should be encouraged on a community level. Proper training of community health workers regarding hand hygiene, waste disposal and preservation of food and water should be done so they can teach the locals. Connection between water source, amount of minerals in drinking water, proper hygiene and incidence of acute appendicitis should be investigated as a priority. More research needs to be done to establish the exact cause of increased incidence of acute appendicitis during (time mentioned). Only in this way we can avoid such an outbreak in future.

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