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Associated Between of *Enterobius Vermicularis* and Appendicitis: Review Study

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Annotation: Although parasites are rarely found in combination with inflammation, appendicitis is one of the most main sources for urgent surgery. Enterobius vermicularis infestation is uncommom cause of acute appendicitis and it was found that about 0.2 to 41.8% of people globally associate with acute appendicitis. In children acute appendicitis could also be accompanied by no major clinical symptoms, ruptured appendicitis, chronic appendicitis, or acute appendicitis. Pinworm infestation is the most common intestinal helminthes infection in the globe, and concomitant Enterobius vermicularis infection accounts for fewer than 0.6% of appendicitis cases. Given that appendiceal inflammation is uncommon, it is likely that there is no link between appendicitis and pinworm infection. Because female pinworms lay their eggs within the anal cavity at night, the most significant clinical symptom of an Enterobius vermicularis infestation is nocturnal anal pruritus.

Keywords: Enterobius vermicularis, Adult, Egg, Diagnosis, Appendicitis.

1. INTRODUCTION

An infection known as enterobiasis is brought on by Enterobius vermicularis. Over a billion individuals worldwide are thought to be affected by what is regarded as the most widespread human parasite illness in the world, and it may be found in both industrialized and developing nations (1). Parasitic illnesses are widespread throughout the world and are prevalent in many impoverished nations, particularly in Africa where a warm, humid climate and poor hygienic practices prevail. However, due to immigration and increased international travel, parasitic infections are now more common than ever in developed countries (2). The majority of children may experience the neurological symptoms of enterobiasis, such as nervousness, anxiety, distraction, and irritability (3).

Pruritis ani is the most obvious indicator that develops as a consequence of female worms depositing eggs in the perianal skin (4). Scratching skin irritation can result in dermatitis, bleeding, and subsequent bacterial infections. Female pinworms can occasionally penetrate the female vaginal canal to deposit eggs, which can result in vulvar vaginitis. Additionally, ectopic infections of the kidneys, liver, and lungs may also manifest (5). When female pinworms lay their eggs in the female vaginal canal, it can lead to vulvar vaginitis. Additionally, pinworm infections reduce a child's Level of intelligence and negatively impact how well vitamin B12 is utilized (6). Despite the fact that enterobiasis has effective treatments available and has been for decades, control of the condition is problematic because of re-infection, insufficient treatment, and its easy spread (7). Health problems brought on by these disorders include undernourishment, pernicious anemia, and surgical morbidities such appendicitis, intestinal obstruction, cholecystitis, liver abscesses, and appendicitis that need for surgical intervention (8).One of the most frequent reasons for an urgent surgical procedure is acute appendicitis. Around 7% of people are said to have appendicitis, with male patients having a slightly greater rate. It can be noticed at any age, although older children and young adults have the highest incidence rates (9). Due to differing environmental exposures, Asia's newly industrialized states,

including the Middle East and South America see a higher incidence of appendicitis in the 21st century compared to Western nations (10).

According to the biota alteration theory, or biome depletion theory, changes in the ecosystem of the human body's symbionts have caused immunological malfunction and eventual disease, which may predispose to appendicitis (11). According to reports, ingested foreign objects, lymphoid hyperplasia, and parasite-associated fecal matter are the reasons of intraluminal block, lead to appendicitis (12). Appendicitis is categorized by inflammation of the wall of the appendix, however on a pretty wide range, ranging from mild inflammation to gangrenous inflammation. It typically manifests as abdominal pain, nausea, and lack of appetite. Despite the fact that some cases may resolve on their own or react to antibiotics alone, it is still a significant reason for urgent abdominal surgery (13). While appendectomy rates have declined and appendicitis rates have stabilized in Western nations, appendectomy and appendicitis rates are however high in recently industrialized nations in Asia, the Middle East, and Southern America (14). It is still debated if E. vermicularis causes acute appendicitis. However, It has also been shown that the parasite associated to ulceration and inflammation invades the appenddicle mucosa. Certain writers have hypothesized that The mucosa is invaded by the pinworm once the appendix has been removed, to prevent hypoxia (15) (16).

To understand the disease's epidemiology and public health implications, studies on enterobiasis are crucial. Studies give us fresh information with which to develop and carry out creative yet efficient control strategies. The socioeconomic elements that influence the spread of this illness, such as individual hygiene, knowledge of the illness, and intimate personal contact between people, are very important. indicates that males had a higher prevalence of sickness than females. On the other hand, several research have found a substantial correlation between gender and enterobiasis (17). The prevalence of enterobiasis among youngsters is high. Additionally, a single-dose regimen might not be sufficient to control it. Before undergoing an urgent appendectomy, patients should be clinically monitored and reevaluated. However, the gastrointestinal discomforts they exhibit and incorrect diagnosis result in a necessary surgical procedure. An appendectomy, whether open or laparoscopic, should be cautiously carried out if it is discovered that the appendix is not severely inflamed. The likelihood of resident worms in the vermiform appendix must be considered by the surgeon (18). All patients should routinely get antihelminthic medicine after having an appendectomy since it only addresses the symptoms and not the underlying cause of the disease. This will provide the best possible treatment result. The suggested therapies for E. vermicularis infection are pyrantel pamoate 11 mg/kg or mebendazole 100 mg orally, with a second dose given in two weeks to address any potential re-infection. To get rid of asymptomatic reservoirs and achieve eradication, it is also advised that family members receive treatment (19). Although E. vermicularis has long been associated with the etiology of appendicitis, it is still unknown how the parasite affects different forms of inflammation (20). Despite the possibility that E. vermicularis causes appendiceal pain and chronic inflammation as a result of obstructive events, majority of instances do not include acute inflammation. Fascinatingly, the existence of pinworms in the appendix can nevertheless result in the clinical condition described as "appendiceal syndrome" even if it does not immediately cause acute inflammation (21). The appendiceal lumen obstruction hypothesis can explain the intermittent right lower quadrant and pelvic discomfort that characterizes this "syndrome," also known as appendiceal colic. The situation is less obvious in situations of acute appendicitis. In the few situations where E. vermicularis is found in association with acute inflammation, it's possible that the worm was the one who first sparked the inflammatory response, despite the fact that this research and others suggest that its presence may be random (22).

The current study was aimed to determine if an E. vermicularis infection causes acute appendicitis and whether there is any connection between the two.

2. Diagnosis of parasitic

Examine the appendiceal faecolith of the luminal contents under a macroscope checking for structure, colour, odor, and the appearance of blood, mucous, and parasites. Direct smear analysis: additionally A pipette was used to add one or two drops of saline and mix it with the tip of the

pipette. According to Fleck and Moody, the specimen was next examined in low light conditions using a low power (10x) objective lens (1993).

According to Fleck and Moody, specimens were preserved in 10% formalin and afterwards analysed using the formal-ether concentration technique to identify intestinal parasite eggs and cysts (1993).

modified Ziehl-Nelsen stain was used to identify intestinal protozoa. Strong carbol fuchsin was used to stain feces for 15 to 20 minutes. They were decolored for 15 to 20 seconds using acid alcohol (1% HCl in methanol). According to Rosenblatt et al., they were then counterstained with 0.4% malachite green (or methylene blue) for 30 to 60 seconds (2009)

3. Identifying eggs of Enterobius vermicularis

The rectangular (2 x 3 cm) clear sticky cellulose tapes (scotch tape) are used to gather samples for the detection of Enterobius vermicularis eggs. Morning sample collection (before washing the perianal region). After then, scotch tapes were brought to the lab examination. Following that, Scotch tapes were mounted on glass slides and checked for the presence of E. vermicularis eggs under a light microscope. Each 2 x 3 cm scotch tape had its eggs counted and the total was recorded individually.

4. Conclusion:

An acute appendicitis diagnosis made clinically. Pinworms are typically found in normally healthy appendices, although they can also be seen in inflammatory and perforated appendices. Enterobius vermicularis is a helminthic illness that can occur anywhere in the world. There is a distinct predilection for children and the young despite the fact that it affects people of all ages and socioeconomic classes. The most typical symptom in children is pruritis ani, although other possible symptoms of infestation include appendicitis, salpingitis, mesenteric abscesses, ileocolitis, enterocutaneous fistula, and urinary tract infection.

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