

# Pin Worm Causing Acute Appendicitis: Case Report

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## Abstract

Vermiform appendix should not be considered a vestigial organ in human beings. It is a lymphoid organ which when inflamed causes serious trouble. The most common cause of acute appendicitis is obstruction of its lumen. Among all the causes of appendicitis *Enterobius vermicularis* is a rare cause. It is commonly seen in children. It mimics the features of acute appendicitis but may not always be responsible for acute appendicitis. Mostly pinworms are seen in the appendices after appendicectomy but there may not be any evidence of acute appendicitis. Anthelmintic treatment should be given to the patient after appendicectomy before the patient is discharged from the wards and all other family members should be given the same treatment.

**Keywords:** Acute appendicitis; Emergency appendectomy; *Enterobius vermicularis*; Alvarado score

## Introduction

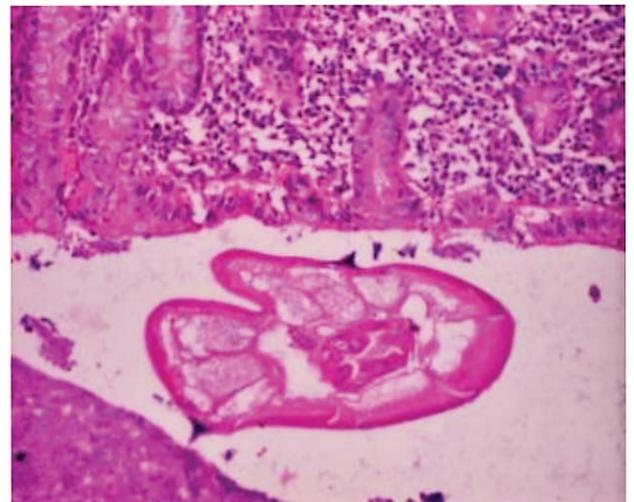
The vermiform appendix is a tubular structure found just below the ileocecal junction on the cecum. It has got an immune function and is no longer a vestigial organ. Most important implication of the appendix is acute appendicitis which is the most common surgical emergency worldwide [1]. The inflammation of appendix is generally secondary to obstruction of the lumen of the appendix. Most commonly it is caused by lymphoid hyperplasia, fecoliths, foreign bodies, tumors or parasites. Among the parasites most common is *Enterobius vermicularis*. Mostly it is seen in children however no age is immune to this infection. *Enterobius vermicularis* can lead to acute appendicitis rarely but it is mostly diagnosed after surgery. Whether *Enterobius vermicularis* is responsible for acute appendicitis is not definitely clear but *Enterobius vermicularis* infestation can mimic the features of acute appendicitis. A course of anthelmintic treatment is required to get rid of the parasite from the alimentary tract after appendicectomy [2].

## Case Report

We present the case of an 11 year old female who presented to the emergency room with acute pain abdomen around the umbilicus. She gave history of two episodes of vomiting. History of anorexia was there. There was no migration of pain. She has had few episodes of similar pain in past. The patient didn't give any history of passage of worms in stools. The patient was febrile (100 degree centigrade) and had tachycardia (104/minute). There was tenderness in whole of the abdomen but most marked in right iliac fossa and the periumbilical region. Total leucocytes count was raised (13500/cubic millimeter) with 78% neutrophils, 18% lymphocytes and 4% other cells. Ultrasound of the abdomen was suggestive of acute appendicitis. Abdominal X-rays showed few ileal loops with air fluid levels in right iliac fossa. So the patient was taken up for surgery. During surgery an inflamed and turgid appendix was found in pelvic position and was about 6 centimeter long. The histopathological report confirmed the diagnosis of acute appendicitis and *Enterobius vermicularis* in its lumen (Figure 1). The patient was given a single oral dose of 400 mg of albendazole and was discharged on fourth post operative day after uneventful hospital stay to be followed up on outpatient basis. Other family members were also given same treatment and were followed up to repeat another dose of 400 mg of albendazole after two weeks. The patient has recovered well and is still in follow up.

## Discussion

Appendix is an innocent looking organ situated below the ileocecal



**Figure 1:** Showing acute inflammatory infiltrate in the wall of appendix with *Enterobius vermicularis* inside the lumen.

valve on the ceacum in human beings. It is usually 6-9 cm long however may range in length from 1-30 cm. Its acute inflammation is the most common surgical emergency, thus emergency appendicectomy is the most commonly performed emergency surgery worldwide [1]. Having a tubular structure and a narrow lumen makes it more prone to closed loop obstruction. The common causes of acute appendicitis are fecal stasis, fecoliths and lymphoid hyperplasia. Rarely intestinal parasites can cause acute appendicitis [2]. In early twentieth century Aschoff said that parasites were responsible for about 1% cases of appendicitis. Most prominent of these parasites is *Enterobius vermicularis* [3]. *Enterobius*

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*vermicularis* is responsible for infestation of 200 million people across the globe. It is most commonly seen in children however it can infect all age groups. The infection is usually asymptomatic but the patient complains of pruritus ani, lethargy, generalized weakness or abdominal colics. It is the major parasite of appendix however it is mainly seen in terminal ileum and ascending colon. The appendix can be inflamed due to parasite inside the lumen or due to ova of the parasite inside the lumen of the appendix. The diagnosis is by examining the cellophane tape under the microscope which has been run across the perianal region of the patient for pinworms or eggs. The eggs are smooth, elongated, flat on one side and convex on other side and occasionally may contain a fully developed larva. They don't have particular staining characteristics. The female worms are almost completely full of eggs [4]. Still, first described the relationship between appendicitis and *Enterobius vermicularis* in late nineteenth century [2]. This infection can give rise to appendiceal colics or mimic them hence most of the times normal appendices are reported after appendectomy. *Enterobius vermicularis* is seen in 0.6% to 3.8% of the appendectomy specimens. Inflammation in appendices containing *Enterobius vermicularis* is seen in 13-37% cases [5]. Appendicitis usually presents with a history of abdominal pain migrating to right iliac fossa along with nausea, vomiting and fever. The patients complain of anorexia. The diagnosis is usually clinical but may be aided by ultrasound of the abdomen or CT-Scan of the abdomen. Alvarado score is an excellent tool for diagnosing acute appendicitis. It makes use of signs, symptoms and laboratory investigations in a patient of acute appendicitis. However the clinical features in children may be confusing. Omentum is known as 'Policeman of abdomen' which is not well developed in children. Normally the omentum migrates to right iliac fossa to contain the inflammation but not in children. Thus appendicitis may present with peritonitis in children and delay in diagnosis and treatment may be fatal. Here CT-Scan of the abdomen may be valuable in reaching the diagnosis [6]. Appendectomy is the treatment of choice for acute appendicitis however some patients may be managed conservatively with the help of injectable antibiotics and analgesics like, in a stable patient of appendicular lump but with a strict vigil for generalized peritonitis. The patients having *Enterobius vermicularis* infection should be given antihelminthics after appendectomy for taking care of rest of the parasites in the gut and preventing future complications [7]. Commonly used antihelminthics like albendazole, mebendazole and pyrantel pamoate are effective in treatment of pinworm infection. A single dose of any of these drugs repeated after two weeks is sufficient.

Family members and classmates who are infected should be treated simultaneously. Personal and group hygiene should be improved. Children should be advised to avoid licking fingers and to wash hands properly [4].

## Conclusion

Acute appendicitis is the most common surgical emergency worldwide making emergency appendectomy most common operation being performed worldwide. Although the abdominal parasites are rare cause of acute appendicitis but they must be considered as a possible suspect among children. Children may not present with typical features of acute appendicitis which further complicates the situation. The key to diagnosis is patient history, good clinical knowledge and repeated examinations. Treatment of choice is appendectomy but antihelminthic treatment should be given before the patient is discharged from the wards. At the same time family members should be treated too so as to prevent the further relapses and infection.

## Consent

Written informed consent was obtained from the patient for publication of this Case Report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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