

Appendiceal Colic Caused by *Enterobius vermicularis*

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Appendicitis is the most common acute surgical condition of the abdomen. It occurs at all ages but is rare in the very young.¹ In contrast, appendiceal colic was first reported in 1980.² It is characterized by recurrent episodes of crampy abdominal pain referred either to the right lower quadrant or to the periumbilical area. There is tenderness to deep palpation over the appendix.³

It is theorized that appendiceal colic is due to an incomplete luminal obstruction of the appendix most often caused by inspissated fecal material.³ Other pathologic findings, however, include torsion of the appendix and narrowed appendiceal lumen.⁴

I report a 13-year-old patient with appendiceal colic whose recurrent right lower quadrant abdominal pain was due to *Enterobius vermicularis* infestation of the appendix.

Case Report

A 13-year-old girl came to the office with an 8-week history of right lower quadrant abdominal pain that was described as intermittent and colicky. The pain did not radiate to the perineum or the right lower extremity. It would recur at any time during the day or night and on occasion would wake the patient up from a sound sleep. Each attack lasted from 3 minutes up to 1 hour each day for 1 to 3 days, followed with a pain-free period lasting up to 1 week.

She reported no history of urinary tract symptoms, fever, chills, nausea, vomiting, anorexia, change in bowel habits, or weight loss. The patient was not sexually active and had not reached menarche.

The patient was seen in the emergency department with a similar episode 1 week before she came to the office. The findings from her physical examination at that time were within normal limits. She had a normal white cell count and normal findings on urinalysis. Her pain resolved in

the emergency department before her discharge on symptomatic treatment, and she was advised to follow up with her family physician.

Physical examination in the office showed an adolescent patient with no acute distress. She was afebrile, had a heart rate of 84 beats per minute, a blood pressure of 110/70 mmHg, and respiratory rate of 16/min. Her lungs were clear. Her abdomen was soft with good bowel sounds. There was minimum right lower quadrant tenderness at McBurney's point with no rebound. There was no costovertebral angle tenderness. The external genitalia examination showed an intact hymenal ring, and the findings on rectal examination were normal.

A complete cell count done in the office showed a white cell count of 8800/ μ L with a differential of 72 percent neutrophils, 2 percent monocytes, and 26 percent lymphocytes, and normal platelets (253,000/ μ L). Urinalysis was normal; urine Gram stain did not show any bacteria or white cells; and a pregnancy test was negative. Flat and supine films of the abdomen were nonspecific.

Because the patient was afebrile and mostly had recurrent intermittent pain, and because the laboratory evaluation was nonrevealing, the differential diagnosis included ovarian cyst, renal colic, and irritable bowel syndrome, as well as functional and psychosocial abdominal pain. She was treated symptomatically with dicyclomine hydrochloride (Bentyl). An intravenous pyelogram, a barium enema, and a sonogram of the pelvis were ordered, and the urine was cultured. Stools for ova and parasites were collected. A follow-up visit was scheduled in 48 hours. The patient and her mother were instructed to come back earlier if the pain recurred, fever developed, or the patient vomited.

The patient returned as scheduled. During the 48-hour interval the pain recurred two to three times each day with complete resolution of the symptoms in between. She had no fever, nausea, or vomiting. The pain, however, was always located in the right lower quadrant. Findings on the pelvic sonogram, barium enema, and the intravenous pyelogram were all normal. Stool samples were

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negative for ova and parasites. Dicyclomine hydrochloride gave minimal relief of the symptoms.

Because of the location of the pain, recurrences, and normal findings on examination, the diagnosis of appendiceal colic was entertained, and a pediatric surgeon was consulted. The patient underwent an exploratory laparoscopy and consequently a laparoscopic appendectomy. The pathology report described an appendix 6 cm in length with pinworms in the lumen. There was no evidence, however, of any inflammation.

The patient made an excellent recovery after her surgery. She was prescribed pyrantel pamoate, and she was seen for follow-up care for 1 year in the office without any recurrences of her pain.

Discussion

Abdominal pain in children is a diagnostic challenge.⁵ Thirty-six percent of children younger than 16 years of age who come to the emergency department complaining of abdominal pain have abdominal pain as a final diagnosis on discharge.⁵

Recurrent abdominal pain in children is defined as at least three episodes of abdominal pain during a 3-month period. Prevalence of recurrent abdominal pain among school-aged children is 11 percent.⁶ Although a survey of pediatricians' practices showed that pediatricians were guided by signs and symptoms in determining the need for additional testing in recurrent abdominal pain,⁷ some authors reported that organic causes were detected in only 7 percent of the cases.⁸ This fact might bias physicians toward making nonorganic diagnoses and missing the unusual causes of abdominal pain.

Enterobius vermicularis is one of the most common intestinal nematodes.⁹ It is manifested by perianal itching, mostly nocturnal, when the female worm exits through the anus to lay its ova.¹⁰ Recently pinworms have been reported in pathologic specimens of acute appendicitis outside the United States.^{11,12} All the reported specimens showed acute inflammation, and the patients' clinical presentations have been consistent with acute appendicitis.

Acute appendicitis is a well-accepted entity. Many clinicians, however, are unwilling to accept recurrent abdominal pain as a symptom of appendiceal disease.¹³ There are sporadic published reports of patients who have had appendicitis with chronic or recurrent symptoms.¹⁴

The patient I describe here had no evidence of inflammation on pathologic examination of the appendix by the pathology laboratory, and her condition fit more with the diagnosis of appendiceal colic. The cause of the symptoms was not inspissated fecal material; the symptoms might have resulted from intermittent obstruction of the appendiceal lumen by the *Enterobius* worm.¹⁵

On a review of the medical literature, I found a 1939 report of patients who had recurrent right lower quadrant abdominal pain relieved with appendectomy. Pinworms were recovered on examination, and in some of the cases no inflammatory changes in the appendix were found.¹⁶

Although pinworm infestation is still common, its incidence is reported to be decreasing in some communities.¹⁷ One wonders whether *Enterobius* causing appendiceal colic is less common because physicians are not looking for it or because the incidence of pinworm infestation is decreasing, thus resulting in lower occurrence of the disease.

Another question is whether a perianal tape test should be recommended to patients with recurrent right lower quadrant abdominal pain in the absence of typical symptoms of pinworm infestation. Because the test is relatively easy and inexpensive, it is worth doing, especially if the preliminary workup of right lower quadrant pain is nondiagnostic. It will be interesting to see whether medical treatment of patients with recurrent appendiceal colic and evidence of pinworm infestation will obviate the need for surgery.

Finally, recurrent abdominal pain in children is very common. If the initial workup is negative, it could be helpful to examine the patient for pinworm infestation, especially if the child presents with symptoms mimicking appendiceal colic.

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