

Yersiniosis or Leśniowski-Crohn's disease

Authors' Contribution:

A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
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ABSTRACT:

Yersiniosis is zoonotic disease caused by infection with *Yersinia enterocolitica*. The variety of clinical signs and the similarity to other diseases causes major diagnostics and therapeutics difficulties. The authors present a case of *Yersinia enterocolitica* infection in a 38-year-old patient, mimicking Leśniowski-Crohn's disease.

KEYWORDS:

yersiniosis, Leśniowski-Crohn's disease, *Yersinia enterocolitica*

Yersiniosis is an acute or chronic zoonotic infectious disease caused by *Yersinia enterocolitica* (Y. E.) (1).

Yersiniosis is mainly transmitted through the oral route after consumption of contaminated food or water (3). The clinical picture of Y.E. infections varies greatly depending on patient age, pathogen properties, host immune status, and even geographical area (5). A wide variety of symptoms and a similarity to other diseases cause major diagnostic and therapeutic problems. We present a case of Y.E. infection mimicking Leśniowski-Crohn's disease (L-C).

CASE REPORT

A 38-year-old patient was admitted due to an episode of abdominal pain and fever (up to 39 degrees Celsius).

A similar pain attack occurred 10 days earlier during a visit in the UK (the Isle of Wight), where the patient was qualified for surgery due to suspected appendicitis; however, during laparoscopy, appendicitis was not confirmed and appendectomy was not performed. However, during laparoscopy, the terminal ileum and caecum appeared inflamed, which was thought to cause the symptoms and suggested Leśniowski-Crohn's disease (L-C). The patient was discharged with a recommendation to see a gastrologist on an outpatient basis. After returning to Poland, the patient reported to a gastroenterology clinic, where further treatment with mesalazine was recommended, and yersiniosis workup was ordered, including stool culture and serology.

After the visit, the patient experienced another attack of abdominal pain and was later admitted to a surgery ward. On admission, the patient had right abdominal tenderness with positive Blumberg sign.

Inflammation markers were elevated (CRP 164 mg / l, WBC 22,000). The patient was a heavy tobacco smoker.

Imaging studies, ultrasound and CT, showed numerous enlarged mesenteric lymph nodes and thickened wall of the terminal ileum that was in contact with a hypoechogenic fluid (60mm x 41mm x 47mm). These findings suggest L-C complicated by perforation of the ileum. Thus, the patient was qualified for a surgery, which revealed enlarged mesenteric lymph nodes and thickened wall of the terminal ileum and the cecum. About 70cm proximal to the Bauhin's valve, there was another affected intestine section. However, there

was no abscess, intestinal perforation, or appendicitis. Because the clinical course and ancillary tests were unclear, we took samples of lymph nodes, the affected intestinal tissue, and mesentery for histopathological examination. We also performed appendectomy. Based on the histopathological examination of the appendix and lymph nodes, yersiniosis could not be diagnosed, which suggested. Consequently, we administered steroids and antibiotics, and maintained mesalazine treatment. To diagnosed L-C, we performed colonoscopy. However, the histopathological examination of samples taken during colonoscopy did not confirm the diagnosis of the L-C.

The patient's general condition worsened after initial improvement for several days. Inflammatory markers increased, and signs of gastrointestinal obstruction appeared. An interdisciplinary team, comprised of a surgeon, gastroenterologist, and internist, decided that repeat surgery was needed due to the worsening clinical condition after non-invasive treatment. During surgery, we found severe inflammatory lesions. The bowel wall and the mesentery were thickened, inflamed, and covered with fibropurulent exudate. In addition, the intestinal lumen was significantly narrowed. We performed right-sided hemicolectomy and resection of 80cm of the distal ileum. This led to a significant improvement in the patient's condition.

On the tenth day after surgery, the patient was discharged home in good general condition.

On patient discharge, we received results of the histopathological examination of the material collected during the last surgery. Microscopically, inflammatory changes were found with epithelioid cell granulomas of lymphocytic infiltration at the periphery. In many granulomas, there was necrosis and microabscesses. Many granulomas were interconnected. The microscopic image was characteristic for yersiniosis.

Almost at the same time, we received serology results that were positive for yersiniosis. When the ELISA test was repeated, and increase in the titer of antibodies confirmed the diagnosis of yersiniosis.

Stool culture was negative for Y.E. and *Clostridium difficile*.

DISCUSSION

Yersiniosis is caused by gram-negative bacteria from the Enterobacteriaceae family (7).

Its predominant symptoms are recurrent abdominal pain, diarrhea, and fever (9).

The most common clinical forms of yersiniosis are the intestinal and pseudoappendicitis forms.

In rare cases, the wall of the cecum and terminal ileum is swollen, thickened, inflamed, and covered with ulcers mimicking the L-C disease like in the case presented by us (10).

Because of various symptoms of *E. Y.* infections that can resemble other diseases, diagnosis is difficult and often delayed. Serological and microbiological tests play the most important role in the diagnosis of yersiniosis (1).

Stool culture has sensitivity of about 56%, whereas the sensitivity of serological tests is up to 84% (11).

The enzyme-linked immunosorbent assay (ELISA) is typically performed; it should be carried out twice, at an interval of 14 days, to evaluate the dynamics of antibody titers (1). The combination of these two methods increases the sensitivity of detecting yersiniosis to 90% (12).

Treatment of yersiniosis is varied and depends on the clinical form. In the vast majority of cases, it is symptomatic. Use of antibiotics in yersiniosis is controversial. Many authors believe that it is unnecessary because the infection is self-limited, and antibiotics do not shorten its duration (13).

Some cases of yersiniosis require surgery because of obstruction or perforation of the gastrointestinal tract, severe gastrointestinal bleeding, or intestinal intussusception (13).

During hospitalization, L-C seemed to be the most likely diagnosis in our patient. However, the correct diagnosis of yersiniosis was made based on a histopathological examination of samples obtained during the second surgery and delayed ELISA test results.

In conclusion, it should be noted that due to long waiting times for serodiagnosis and symptoms mimicking other gastrointestinal diseases, the diagnosis of yersiniosis can be delayed. Often, symptoms of the acute abdomen necessitate surgery.

In our opinion, more research is needed to determine if *Y.E.* infections predispose to L-C or if L-C is only exacerbated by yersiniosis (12).

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