

Case report | Prikaz bolesnika

## ***Bacteroides fragilis* Bacteremia in an Atypical Presentation of Acute Appendicitis**

### ***Bacteroides fragilis* bakterijemija u atipičnoj prezentaciji akutnog apendicitisa**

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#### Abstract

Acute appendicitis is one of the most common surgical emergencies and atypical presentation can delay its diagnosis. We report a case of a patient with *Bacteroides fragilis* bacteremia with a 5-day fever, vomiting and diarrhea. Blood cultures warned physicians to extend the diagnostics with computed tomography that revealed acute appendicitis.

#### Sažetak

Akutni apendicitis jedno je od najčešćih hitnih kirurških stanja, a atipična prezentacija može odgoditi dijagnozu. Prikazujemo slučaj bolesnika s *Bacteroides fragilis* bakterijemijom te petodnevnom temperaturom, povraćanjem i proljevom. Hemokulture su upozorile liječnike da prošire dijagnostiku kompjutoriziranom tomografijom koja je pokazala da se radi o akutnom apendicitisu.

### Introduction

Acute appendicitis occurs at a rate of about 90–100 patients per 100 000 inhabitants per year in developed countries<sup>[1]</sup>. Classic symptoms of appendicitis include vague periumbilical pain, anorexia, nausea, intermittent vomiting, migration of pain to the right lower abdominal quadrant and low-grade fever<sup>[2]</sup>. Diarrhea is infrequent as a presenting symptom of acute appendicitis<sup>[3]</sup>. Here we present a 42-year-old male who came to the Emergency Department of the University Hospital for Infectious Diseases (UHID) in Zagreb with major complaints of a 5-day fever, vomiting and diarrhea.

### Case report

A previously healthy 42-year-old male presented to the UHID Emergency Department with symptoms lasting for 5 days that included fever, vomiting, my-

algia and diarrhea. The illness started with high fever (38.5 °C), myalgia, chills and shivering. Later the same day, he felt nauseous and vomited several times. Eventually, he had watery diarrhea. On the second day his symptoms were less intense and on the third day diarrhea and vomiting stopped, but fever and nausea were persistent. He also reported mild, intermittent discomfort in his abdomen, which he localized in epigastrium and in the right upper quadrant. He also complained of headaches for the first two days and a runny nose. He denied urinary problems. On physical examination his blood pressure was 140/85 mmHg, pulse rate 127 bpm, respiratory rate 20 times per minute, and the body temperature was 37.4 °C. His abdomen was flat, painful on deep palpation in the upper and lower right quadrant, without rebound tenderness and involuntary guarding. Bowel sounds were normal. Laboratory results at admission were as follows: leukocytes  $7.8 \times 10^9$  /L with neutrophils 90.3%; platelet count  $103 \times 10^9$

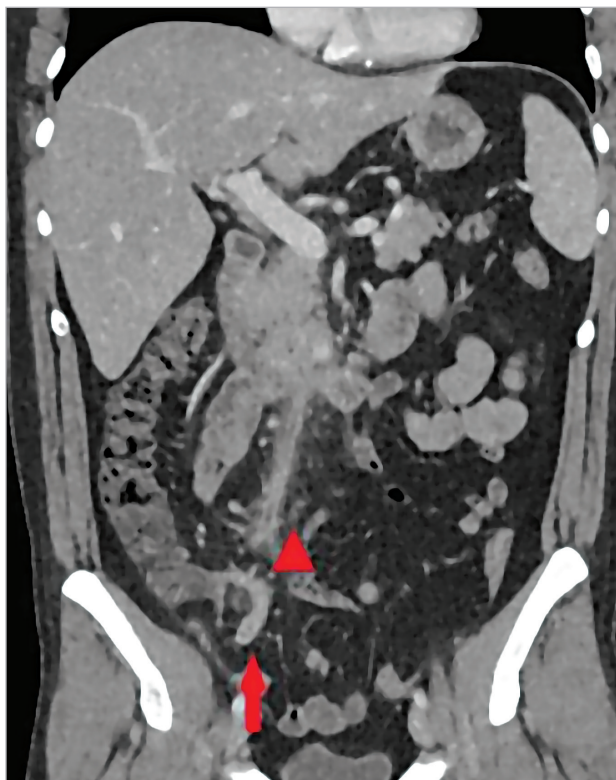
/L, urea 13.3 mmol/L, creatinine 160  $\mu$ mol/L, potassium 3.4 mmol/L, bilirubin 22  $\mu$ mol/L, gamma-glutamyl transferase 77 U/L, C-reactive protein 259 mg/L, procalcitonin 74.65  $\mu$ g/L, and fibrinogen 8.4 g/L. Urinalysis showed no signs of infection. The patient was admitted to the observation room where intravenous ceftriaxone was started with fluid replacement and potassium chloride administration. The next day (the fourth day of illness) the patient was feeling better, abdominal pain had disappeared and he had a normally formed stool. He was discharged with oral ciprofloxacin. Later the same day blood cultures became positive with gram negative rods and the patient was contacted to come back to the hospital for further diagnostics and a change in intravenous therapy to amoxicillin/clavulanic acid. Follow-up abdominal ultrasound, except for enlarged spleen (15 cm in diameter) and hyperechogenic liver, was normal. *Bacteroides fragilis* susceptible to piperacillin/tazobactam, meropenem, clindamycin, metronidazole and amoxicillin/clavulanic acid (minimal inhibitory concentration 0.032 mg/L) was isolated from blood culture. Stool culture was negative for *Salmonella* spp., *Shigella* spp., *Campylobacter* spp. and *Yersinia* spp. Repeated laboratory analysis the next day showed a drop in inflammatory markers (CRP 131 mg/L, procalcitonin 9  $\mu$ g/L). The patient was afebrile and the pain in abdomen had not increased. Although the patient's condition was improving, as well as his laboratory results, due to positive blood cultures with *Bacteroides fragilis*, the medical team ordered a contrast-enhanced CT scan of abdomen and pelvis. CT scan showed appendiceal wall thickening with distention (outer diameter was 11 mm), stranding fat tissue, and partially occluded ileocolic mesenteric and superior mesenteric vein (Fig 1.). All findings suggested acute appendicitis. The patient was referred to another hospital where laparoscopic appendectomy was performed on the 8<sup>th</sup> day of illness. The patient was discharged the third postoperative day without any complications. PHD revealed acute suppurative phlegmonous appendicitis. On the seventh postoperative day, the patient came for a follow-up examination and was doing well without any symptoms.

### Discussion

While appendicitis is the most common abdominal disease requiring surgical intervention seen in the emergency room setting, diarrhea is not a typical symptom. The typical history of appendicitis includes pain starting as periumbilical before localizing to the right iliac fossa<sup>[4]</sup>. The pain is usually associated with loss of appetite and fever. Nausea and vomiting, if they occur, usually follow the onset of pain<sup>[5]</sup>. However, our

FIGURE 1. POSTCONTRAST ABDOMINAL COMPUTER TOMOGRAPHY (CT) SCAN SHOWED APPENDICEAL WALL THICKENING WITH DISTENTION (RED ARROW) AND PARTIALLY OCCLUDED ILEOCOLIC MESENTERIC VEIN (RED ARROWHEAD).

SLIKA 1. POSTKONTRASTNA KOMPJUTORSKA TOMOGRAFIJA ABDOMENA (CT) POKAZUJE ZADEBLJANJE STIJENKE SLIJEPOG CRIJEVA S DISTENZIJOM (CRVENA STRELICA) TE DJELOMIČNO OKLUDIRANU ILEOKOLIČNU MEZENTERIČNU VENU (VRH CRVENE STRELICE).



patient presented with nausea and vomiting first and without abdominal pain in the beginning. Diarrhea is infrequent as a presenting symptom of acute appendicitis and, if present, usually consists of small-volume, mucus stools caused by irritation of the sigmoid colon<sup>[6]</sup>. Several findings on physical examination have been described to facilitate diagnosis, but the wide variation in their sensitivity and specificity suggests that they be used with caution to broaden, or narrow, a differential diagnosis. Leukocytosis, elevated C-reactive protein and procalcitonin can be seen in acute appendicitis but can't identify it with high sensitivity and specificity<sup>[7]</sup>. Thrombocytopenia, as seen in our patient, has not been described yet in the literature. Low platelets count and atypical presentation with diarrhea and myalgia could, in our patient, perhaps be attributed to another disease, possibly viral, preceding the appendicitis. *Bacteroides* species and *Escherichia coli* are the most frequently detected species in ascites in perforated and non-perforated appendicitis<sup>[8]</sup>. Blood cultures taken in the emergency setting can be a useful

tool in patients with febrile diarrhea and some isolates such as *Bacteroides spp.* could be indicative of the diagnosis. Ultrasound is the first-line imaging method with moderate sensitivity (86%, 95% CI 83–88) and specificity (81%, 78–84)<sup>[9]</sup>. In our case, abdominal ultrasonography made the diagnosis of acute appendicitis less likely. However, due to positive blood cultures with *Bacteroides fragilis*, our medical team ordered a second-line imaging, a CT scan with a superior sensitivity of 0.94 (95% CI, 0.91 to 0.95) and specificity of 0.95 (CI, 0.93 to 0.96)<sup>[9]</sup>. CT scan revealed acute appendicitis with a rare complication, an ileocolic mesenteric and superior vein partial thrombosis.

**Conclusion:** Atypical presentation of acute appendicitis may lead to misdiagnosis if not recognized. Blood cultures taken in the emergency room have a great potential to elucidate diagnosis in a febrile patient with atypical presentation of appendicitis.

**Conflict of Interest:** The authors have no conflict of interest to declare.

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