

Sepsis associated with *Lactobacillus* bacteremia in a patient with ischemic colitis

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Abstract

Lactobacillus species is a known commensal of the mouth, gastrointestinal, and genitourinary tract. However, its isolation on blood cultures is often overlooked and attributed to bench contamination. We present a case of a 58-year-old immunocompetent male who initially presented with altered mental status, but developed sepsis from *Lactobacillus* bacteremia during his hospital course, while on mechanical ventilation. He was found to have ischemic colitis on colonoscopy. His condition improved with antibiotics and supportive management. Using this example of ischemic colitis, we stress that in the right clinical setting, *Lactobacillus* bacteremia is a harbinger for a serious underlying pathology and should not be ignored.

Keywords: Bacteremia, colitis, ischemia, *Lactobacillus*, sepsis

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Introduction

Lactobacillus species is a known commensal colonizer of the mouth, gastrointestinal and occasionally, the female genitourinary tract.^[1] However, its significance as a pathogen is overlooked frequently. Moreover, most patients who have *Lactobacillus* bacteremia are immunosuppressed.^[2,3]

Patients with *Lactobacillus* bacteremia typically present with fever and clinical features localized to the affected tissues, and rarely with sepsis. The diagnosis becomes especially challenging in critically ill patients, who are at an increased risk in the setting of mucosal hypoperfusion and bacterial translocation, but are often diagnosed only after clinically significant hypotension and organ dysfunction occur. We present a case of an immunocompetent patient who was initially hemodynamically stable, while on mechanical ventilation for altered mental status. Subsequently, he was found to have abdominal distension and was in shock. His blood culture yielded *Lactobacillus* species in multiple bottles.

Further evaluation including a colonoscopy identified ischemic colitis as the source of sepsis. To our knowledge, this is the first case of ischemic colitis presenting with confirmed *Lactobacillus* bacteremia and sepsis.

Case Report

A 58-year-old man with schizophrenia, substance abuse, diabetes mellitus and a history of hypertension presented with headache and chest pain. He was afebrile, hypertensive and tachycardic. The rest of his physical exam was unremarkable. At the emergency department, he became confused and was intubated. Laboratories were unremarkable except for hyperglycemia and acute kidney injury (creatinine 1.6, baseline 1.1). Workup for altered mental status (magnetic resonance imaging of the head with contrast and lumbar puncture) and chest pain (electrocardiogram and computed tomography (CT) chest with contrast) was negative. Blood cultures done on admission showed no growth. The patient was extubated within 24 h of Intensive Care Unit admission. The altered mental status was attributed to synthetic cannabinoid intoxication.

On day 4 of hospital admission, the patient became increasingly agitated, tachycardic and hypertensive. Subsequently, his abdominal distension increased. On day 6, he became progressively hypotensive requiring intravenous fluid resuscitation. On day 8, he became

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febrile and was re-intubated for respiratory distress. Arterial lactate peaked at 2.1 mmol/L (upper limit of normal: 1.6). He was empirically treated with piperacillin-tazobactam. Blood cultures from both the central line and the periphery grew *Lactobacillus* species from both aerobic and anaerobic bottles. The rest of his infectious workup was unremarkable. Subsequent blood cultures were negative. However, the patient remained febrile and had persistent bacteremia. Because he had progressively worsening diarrhea, metronidazole was added empirically for possible *Clostridium difficile*-associated diarrhea. A noncontrast CT of his chest, abdomen and pelvis showed wall thickening of the ascending colon with surrounding inflammatory changes, and ileus. Eventually, the *C. difficile* toxin in his stool was found to be negative. However, a colonoscopy showed diffuse edema from the hepatic flexure to cecum with intermittent areas of sparing. The involved areas had severe ulceration and a necrotic mucosa that did not bleed on biopsy, indicating severe ischemic colitis [Figure 1]. A transesophageal echocardiogram showed no vegetation. He improved clinically during a 14-day course of piperacillin-tazobactam and metronidazole, was extubated and discharged.

Discussion

True *Lactobacillus* bacteremia accounts for only 0.1% of all positive blood cultures.^[4] Hence, it is not surprising that its presence in blood cultures is often ascribed to bench contamination. However, the attributable mortality rate in its presence can approach 30%.^[5] To differentiate true *Lactobacillus* bacteremia from contamination, the bacteria need to be isolated either in two sets of blood cultures, or in blood and another sterile site of clinical infection.^[1] Patients recently treated with immunosuppressive therapy or broad-spectrum antibiotics and those with diabetes, malignancy, organ transplants, or indwelling venous catheters are at increased risk for symptomatic bacteremia.^[1,4,5]

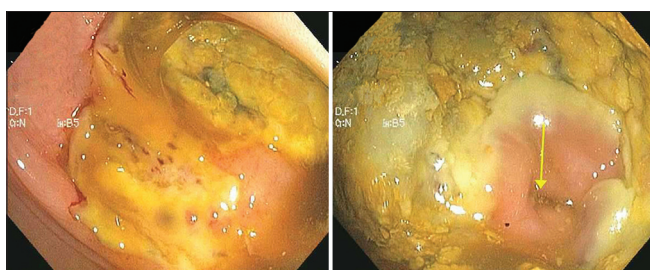


Figure 1: Colonoscopy images showing diffuse edema, severe ulceration and mucosal necrosis in the large intestine consistent with ischemic colitis. The region of the ileocecal valve is spared (arrow)

Lactobacillus bacteremia in the setting of colitis has been well-described in immunocompromised patients, but this association is extremely rare in immunocompetent patients.^[4,5] In addition, *Lactobacillus* sepsis has been described with probiotic use, especially in the setting of inflammatory bowel disease and critical illness.^[4,6,7] Our patient did not receive probiotics either prior to or during his admission. To the best of our knowledge, this is the first case of ischemic colitis associated with *Lactobacillus* bacteremia. However, more important than the association itself is the recognition that *Lactobacillus* enters the bloodstream through the mucosal translocation. Thus, our case emphasizes that the presence of true *Lactobacillus* bacteremia in a clinically deteriorating patient should prompt urgent evaluation of a pathology that facilitates this translocation such as colitis, pyelonephritis, endometritis, and their underlying etiologies.^[4,5,8] Such patients should be treated empirically with broad-spectrum antibiotics, which can be subsequently narrowed down based on susceptibility testing. Patients should receive antibiotics for at least 7-10 days from the date the first negative blood culture was drawn.^[8,9] Most isolates are susceptible to ampicillin, piperacillin-tazobactam, carbapenems, and clindamycin.^[9] However, vancomycin, cephalosporins and metronidazole should not be the first choice without susceptibility results.^[9] Hospital laboratories often do not routinely check drug susceptibility for anaerobes. This was one of the limitations in our diagnostic workup. Sensitivities should be specifically requested, especially if the patient's condition is not improving. Moreover, endocarditis must be ruled out because it is the most common clinically reported infection in these patients.^[4] These conditions are potentially treatable and if detected early; the underlying organ can be salvaged.

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