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Lactobacillus Bacteremia: A Tell-tale Sign for Diabetes?

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Abstract

Background: Lactobacillus is a commensal that can be found as normal flora in the oropharynx, gastrointestinal and genitourinary tracts. Lactobacillus sepsis and bacteremia is usually found in immunocompromised individuals. In patients with no known underlying disease presenting with lactobacillus bacteremia, an extensive workup should be done before dismissing the organism as a contaminant.

Case: A 35-year-old man with no known past medical history presented with a perianal abscess associated with Lactobacillus bacteremia. There was no known history of human immunodeficiency virus, diabetes mellitus, carcinomas or chemotherapy, intravenous drug abuse, and/or commercial probiotic use. Laboratory testing revealed an HA1c of 15%, leading to a new diagnosis of diabetes mellitus and the initiation of insulin therapy.

Conclusion: Through this case report, we aim to raise awareness regarding underlying diseases that may be present when a patient presents with Lactobacillus bacteremia. The detection of Lactobacillus bacteremia should always prompt further investigation of its source and ensure clearance to prevent high mortality.

Keywords: Bacteremia, Lactobacillus, Diabetes mellitus

1. Background

Lactobacillus is a rod-shaped, gram-positive anaerobe which is naturally located as normal flora on the oropharynx, and in the gastrointestinal and genitourinary tracts. It is associated with bacteremia and endocarditis in immunocompromised individuals. We discuss the case of a 35-year-old man who presented with a perianal abscess associated with Lactobacillus bacteremia. There was no known history of human immunodeficiency virus, chemotherapy, intravenous drug abuse, or commercial probiotic use. Through this case report, we aim to raise awareness regarding underlying diseases that may be present when a patient presents with Lactobacillus bacteremia.

2. Case

A 35-year-old male with no known past medical history presented to the hospital for progressively

worsening rectal pain for the past three days. The patient stated that pain was worse with defecation and while sitting upright. He described the sensation of feeling an outgrowth or nodule present near his anus. He tried applying “lotion” at home without any relief of pain. He did endorse constipation for two to three weeks prior to presentation. He denied melena or hematochezia. The patient also complained of unintentional weight loss of 20 pounds over three months. He denied any constitutional symptoms.

The patient reported he was seen by his family doctor four months earlier and underwent an annual physical examination, which was normal. A complete metabolic panel and complete blood count was done at this visit with no abnormality. He denied any history of unsafe sexual practices, intravenous drug use and had never chronically used probiotics.

On admission, his vital signs showed a temperature of 36.2 °C, heart rate 111 beats/minute, blood pressure 138/42 mmHg, respiratory rate of 21 and

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saturation 100% on room air. On physical examination, tenderness was elicited to light touch and palpation at the perianal region. A hard, indurated region was palpated at the perianal region on the medial side, which was surrounded by erythema.

Laboratory examination was negative for leukocytosis. His basic metabolic panel showed sodium of 132 mEq/l, potassium of 3.2 mEq/l, bicarbonate of 6 mEq/l and an anion gap of 23. His blood glucose was 280 mg/dL. Lactate was within normal limits. Urinalysis was positive for ketones and negative for infection. A contrast enhanced CT scan of the abdomen and pelvis showed a perianal abscess.

Initial management included initiation of broad-spectrum intravenous antibiotics with vancomycin, cefepime, and metronidazole. General surgery was consulted, and the patient underwent incision and drainage of the perirectal abscess. Blood cultures came back positive for gram-positive rods and cocci, and later speciation showed *Lactobacillus* in both anaerobic bottles. Infectious disease was consulted, and oral amoxicillin and clavulanate potassium therapy was initiated at a dose of 500 mg-125 mg twice daily. Further laboratory testing revealed an HA1c of 15%, leading to an endocrinology consult, a new diagnosis of diabetes mellitus, and the initiation of insulin therapy. The patient continued to improve and repeat cultures were negative. There was low suspicion for endocarditis and echocardiogram was not pursued. He was discharged with a ten-day course of oral amoxicillin clavulanate 500 mg–125 mg and referred to endocrinology for outpatient follow up.

3. Discussion

Lactobacillus is a gram-positive bacterium that is naturally found in the oropharynx, and gastrointestinal and genitourinary tracts.¹ *Lactobacillus* bacteremia is usually seen in immunocompromised patients. Cases have been reported in transplant recipients and in patients with acute leukemia, uncontrolled diabetes mellitus, and chronic renal failure.^{2,3} Other predisposing events and behaviors linked with *Lactobacillus* bacteremia include prolonged use of broad-spectrum antibiotics, dental manipulations and poor dental hygiene, as well as intravenous drug abuse. Use of probiotics has been reported as a potential source of *Lactobacillus* bacteremia in immunocompromised patients.²

One of the risk factors commonly associated with *Lactobacillus* sepsis and bacteremia is diabetes mellitus.^{4–7} Multiple cases of *Lactobacillus*-associated endocarditis have been reported in patients with diabetes mellitus.⁵ In the literature, patients

who have been found to have *Lactobacillus* bacteremia have known diagnosis of diabetes mellitus. However, *Lactobacillus* bacteremia may itself be the first presentation of underlying diabetes mellitus and hence, patients should be evaluated for the same.

Management of *Lactobacillus* bacteremia may prove difficult as *Lactobacillus* is typically resistant to broad-spectrum cephalosporins and glycopeptides.³ Vancomycin resistance has also been reported in the literature.⁷ In our case, amoxicillin and clavulanate potassium therapy was successful, and the patient recovered completely. *Lactobacillus* bacteremia should be treated aggressively in all patients as a mortality rate as high as 30% has been reported.⁸ The average duration of treatment currently ranges from 10 to 14 days, but further research is needed to standardize management.

4. Conclusion

Our case reinforces the need to further evaluate patients who present with *Lactobacillus* bacteremia in order to find the underlying immunosuppressive state. *Lactobacillus* bacteremia is associated with high mortality and hence, dismissing the organism as contaminant in assumed immunocompetent individuals may lead to fatal outcomes.

Conflicts of interest

There is no conflict of interest for any authors.

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