

Learning Points

1. To present a case of *Lactobacillus* endocarditis suspected to be secondary to probiotic use.
2. To discuss the risk factors predisposing patients to *Lactobacillus* endocarditis.
3. To address the need for further research on the pathogenesis of *Lactobacillus* endocarditis, and the role that probiotics play in the disease process.

Admission

A 66-year-old female with no structural heart disease and a past medical history of Bladder Cancer status post cystectomy and ileal conduit with recent resection (due to complication of enterocutaneous fistula) who presents due to 3 days of subjective fevers/chills and foul discharge from a midline abdominal wound.

Past Medical History:

Bladder cancer s/p
Cystectomy and ileal conduit
Bipolar Depression

Medications:

Topical Nystatin
Olanzapine 10 mg daily
Ascorbic acid 250 mg daily
Buspirone 15 mg daily
Fluoxetine 40 mg BID

Allergies:

NKDA

Social History:

Tobacco: Former
EtOH: No
IVDU: No

Family History:

No known family history of heart disease

Physical Exam:

V/S: T=99 F, BP=132/49, HR=90,
SpO2=97% on RA

General: A&O x 3, NAD
HEENT: Normocephalic, moist oral mucosa

Neck: Supple, nontender, no JVD
Lungs: CTAB, no respiratory distress noted

Chest: Port present

Cardiac: Normal rate, regular rhythm, no m/g/r

Abdomen: lower-midline abdominal wound with purulent and necrotic issue and feculent drainage

GU: Right urostomy draining yellow urine

Skin: No Janeway lesions or Osler nodes present.

Extremities: Warm, no edema

Hospital Course

The patient was afebrile and hemodynamically stable for the first few days of the hospital admission. Urology and Trauma surgery were involved in the management of the enterocutaneous fistula (which was causing persistent feculent drainage from the patient's midline abdominal wound after the ileal conduit resection). Patient was kept NPO, and she was started on total parenteral nutrition. Broad spectrum antibiotics including Vancomycin, Zosyn, and Levofloxacin were initiated. On Day 10 of her hospital stay, the patient began spiking fevers up to 102.8 F, and exhibited brief hypotension with systolic BP in the 70s. She was responsive to fluids. Labs were significant for anemia with a Hgb of 7.6, mild hyponatremia (Na 133), and hypokalemia (K 2.8). Sepsis workup was initiated. CT Abdomen/Pelvis demonstrated an intra-abdominal abscess, which was drained with IR guidance. However, the patient continued to be febrile. Peritoneal fluid culture revealed *Streptococcus anginosus* growth. 3/3 Blood cultures were, interestingly, positive for *Lactobacillus plantarum*. The bacteremia prompted a TEE, which showed a 0.56 x 0.2 cm mobile echodensity on the aortic valve, consistent with aortic valve endocarditis. The patient's antibiotic regimen was transitioned to IV Ampicillin and Daptomycin. Further investigation led to the discovery that patient was regularly taking a probiotic supplement that consisted of 33% *Lactobacillus plantarum*. The patient was discharged with a PICC line to complete a full course of antibiotic treatment for *Lactobacillus* aortic valve endocarditis.



Figure 1. CT Abdomen/pelvis showing abdominal abscess in the left paracolic gutter

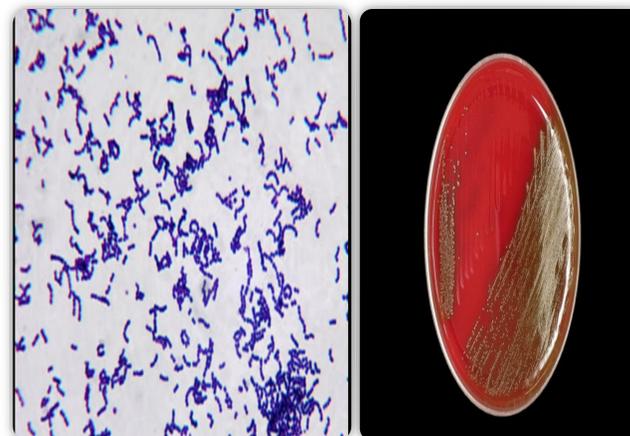


Figure 2a (left). Gram stain of peritoneal abscess showing gram positive cocci in chains

Figure 2b (right). Abscess culture growing *Streptococcus anginosus*



Figure 3. Blood cultures growing gram positive rods, identified as *Lactobacillus plantarum*

Discussion

Lactobacillus species are common flora of the gastrointestinal and genitourinary systems, and rarely cause infection in humans. Unlike gram positive cocci like *Staphylococcus* and *Streptococcus* species, *Lactobacillus* is a rare cause of infective endocarditis, occurring in less than 0.5% of cases. [1,4]. Due to its low virulence and uncommon association with endocarditis, *Lactobacillus* growth in blood cultures is often ignored [2]; it is critical to be aware that *Lactobacillus* can cause endocarditis, as proper identification of the etiology of endocardial vegetations determines antibiotic therapy and in turn, the patient's clinical outcome. Our patient, interestingly, had none of the usual risk factors for endocarditis including intravenous drug abuse, prosthetic valve, valvular defects, and prior history of endocarditis [3]. She was, however, regularly taking probiotic supplements which included the culprit microorganism – *Lactobacillus plantarum*. Rare cases of probiotic-induced *Lactobacillus* endocarditis have been reported in literature [4]. Our patient, too, is suspected to have developed aortic valve endocarditis due to the probiotics she was taking.

In addition to *Lactobacillus* species causing bacteremia leading to the development of endocarditis, what was perplexing about our case was that the patient had native valve endocarditis without having any of the commonly associated risk factors. Though *Lactobacillus* is frequently assumed to be a contaminant, a few reports, including ours, have demonstrated that *Lactobacillus* species can adhere to the endocardium and lead to infection. An interesting revelation in our case was our patient's consistent intake of probiotics. As in our case, probiotics have been identified in literature as a cause for *Lactobacillus* endocarditis [4]. This highlights the importance of recognizing that *Lactobacillus* species can cause severe infection resulting in endocarditis. It also shows that regular probiotic and dairy product use could potentially increase the risk of *Lactobacillus* endocarditis in susceptible patients.

References

1. Stroupe, C, Pendley, J, Isang, E, and Helms, B. Persistent bacteremia secondary to delayed identification of *Lactobacillus* in the setting of mitral valve endocarditis. *IDCases*. 2017; 10: 132-234. doi: 10.1016/j.idcr.2017.10.002.
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3. Grogga-Bada, P, Mueller, II, Foschi, F, Gawaz, M, and Eick, C. Mitral Valve Endocarditis due to *Lactobacillus*. *Case Reports in Medicine*. 2018; 1-3. <https://doi.org/10.1155/2018/8613948>
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