Lactobacillus sepsis, Endocarditis, and Septic Emboli in a patient with Ulcerative Colitis taking Probiotics

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INTRODUCTION

Probiotics are the 3rd most used dietary supplement in the United States, with most containing a mix of *Lactobacillus* and *Bifidobacterium* genus. Probiotics have been shown to promote a balanced intestinal microbiome, inhibit pathogenic microorganisms, and enhance intestinal barrier function.

Due to significant alterations in the gut microbiota function and biodiversity (dysbiosis) in patients with Inflammatory bowel disease (IBD), there has been a growing interest in the prophylactic and therapeutic potential of probiotics.

CASE DESCRIPTION

A 69-year-old male presented to the emergency room with a 1-week history of fever, fatigue, generalized arthralgias, and productive cough. Symptoms started shortly after completion of a 2.5-month course of oral prednisone (20-40 mg) and intermittent courses levofloxacin 500 mg for chronic unresolving cough.

Medical history: bioprosthetic aortic valve replacement, moderately-severe ulcerative colitis (daily balsalazide and lactobacillus-containing probiotics).

On presentation;

Vital signs: HR 102, RR 30, 80/48mmHg, 39.4 ℃.

Physical exam: scattered end-expiratory rales (bilateral lower lung fields), systolic murmur (bilateral 2nd intercostal space), soft and non-tender abdomen.

Laboratory tests: neutrophilic leukocytosis (11.4 x10^9 cells/L), lactate 2.3 mmol/l, procalcitonin 6.4 ng/ml. Blood cultures *Lactobacillus rhamnosus (31 & 44 hours).*

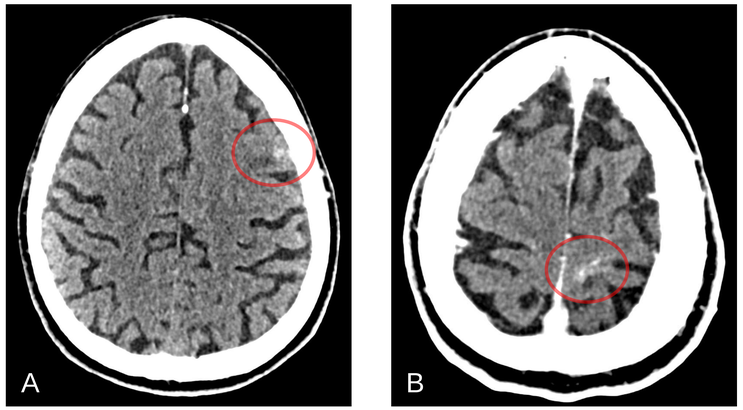
Imaging: CT chest – unremarkable. CT abdomen/pelvis - small fluid collection proximal to sigmoid colon. TTE - no valvular abnormality or vegetation.

Treatment: 14 days IV ampicillin 2g every 6 hours

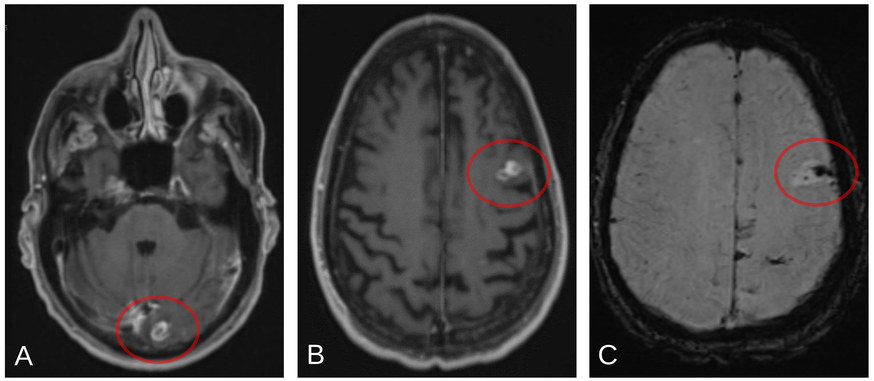
DISEASE COURSE

Post-hospitalization day 4: acute-onset transient right-sided paresthesia (right arm, lateral trunk, anterior thigh).

Post-hospitalization day 5: new onset right leg paresis and inability to ambulate. Presented to emergency room.



Contrast enhanced CT head/neck - (A) foci of hemorrhage and edema involving the left middle frontal gyrus and (B) subcortical edema within the left paracentral lobule with subarachnoid hemorrhage along the left central sulcus.



Contrast enhanced MRI - (A-B) numerous ring-enhancing lesions within the subcortical white matter. (C) Evidence of hemorrhage within lesions with minimal vasogenic edema on susceptibility weighted imaging)

OUTCOME & TREATMENT

Empiric treatment with IV gentamycin and ampicillin for suspected subacute bioprosthetic aortic valve endocarditis and secondary septic emboli to the brain.

Repeat TEE – new mobile density on the posterior cusp of the bioprosthetic aortic valve, consistent with bacterial vegetation.

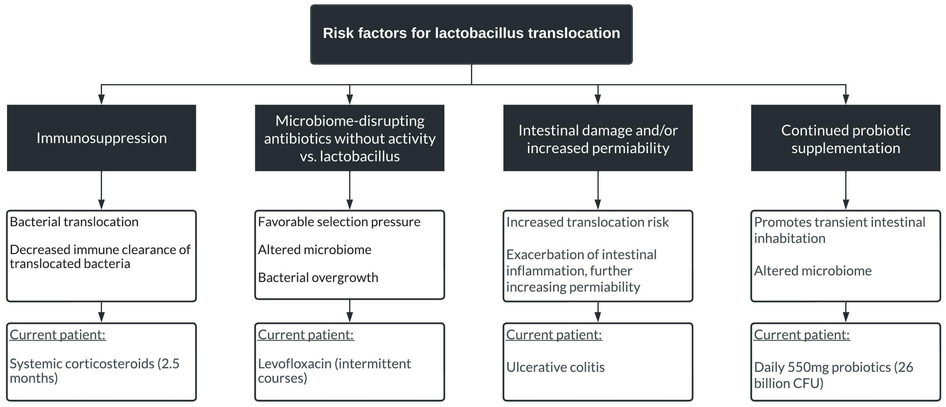
Following clinical stabilization, the patient was discharge and antibiotic therapy was transitioned to 6 weeks of IV ampicillin 2g every 6 hours with indefinite oral suppressive therapy (amoxicillin 500mg every 12 hours)

DISCUSSION

There is a growing interest in the potential use of probiotic supplementation in patines with IBD. Although research supports the physiologic and immunological function of the microbiome, a 2020 comprehensive review of available human randomized-control trials (RCTs) by the American Gastroenterological Association concluded that there was insufficient evidence to recommend probiotics in patients with IBD due to significant knowledge gaps and lack of adverse-event reporting.

Considered non-pathogenic gastrointestinal flora, Lactobacilli are one of the most common bacteria to translocate the intestinal epithelium. Although lactobacillus sepsis is rare, evidence of elevated serum bacterial lipopolysaccharide (LPS), bacterial DNA, LPS-binding protein, and LPS-directed antibodies in IBD patients suggests translocation is a common occurrence.

Evidence suggests that (a) immunosuppression, (b) use of microbiome-disrupting antibiotics, and (c) disruption/enhanced permeability of the intestinal epithelial barrier increase risk of bacterial translocation. In our current case, all 3 factors occurred. Given the inconclusive benefit of probiotic use, the case serves to raise awareness and urges caution when probiotics are used in patients with immunosuppression and IBD.



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