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Case Reports

Oral Vancomycin Induced and Maintained Clinical and Endoscopic Remission in Ulcerative Colitis and Primary Sclerosing Cholangitis Post-liver Transplantation

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Lay Summary

We present a case of a 34-year-old man with primary sclerosing cholangitis and associated ulcerative colitis refractory to multiple advanced therapies who achieved clinical and endoscopic remission with oral vancomycin therapy.

Keywords: ulcerative colitis, vancomycin, primary sclerosing cholangitis, liver transplant

Case

Inflammatory bowel disease (IBD) occurs in up to 70% to 80% of patients with primary sclerosing cholangitis (PSC) and is considered a distinct phenotype characterized by pancolitis, rectal sparing, and backwash ileitis.[1,2] Up to one-third of patients with PSC will experience an IBD flare after liver transplantation despite immunosuppression.[3] Here, we present a case of a 34-year-old man with a 15-year history of ulcerative colitis (UC) and associated PSC post-liver transplantation refractory to advanced therapies but responsive to oral vancomycin.

The patient was diagnosed with PSC 1 year after his UC diagnosis. Before liver transplantation, our patient was treated with mesalamine and infliximab without achieving remission at the time of his liver transplant. His post-transplant immunosuppression regimen included 5 mg of prednisolone daily and 1 mg of tacrolimus twice daily, which he remains on at the time of this publication. After liver transplantation, his UC was refractory to reintroduction of 10 mg/kg of infliximab every 4 weeks, vedolizumab, adalimumab, and tofacitinib. Subsequently, he was started on ustekinumab, and dose was escalated to 90 mg subcutaneously every 4 weeks. After 10 months on ustekinumab, laboratory work-up revealed a fecal calprotectin of 1600 mcg/g, C-reactive protein (CRP) of 7.2 mg/L, and a hemoglobin that ranged between 7.7 and 10.1 g/dL requiring iron infusions and periodic packed red blood cell transfusions. A colonoscopy showed continuous inflammation from the rectum to the last 5 to 8 cm of the terminal ileum, characterized by erosions and ulcerations graded as Mayo UC endoscopic subscore of 3 (Figure 1A). Immunostaining for cytomegalovirus and stool *Clostridioides difficile* testing were negative.

The patient was started on 500 mg of oral vancomycin twice daily since we could not achieve remission of his UC on advanced therapies. We could not switch his post-liver transplant immunosuppression regimen to azathioprine (azathioprine based immunosuppression has been associated with a lower risk of active IBD post liver transplant in PSC compared to tacrolimus) due to history of intolerance, and the patient was not considering proctocolectomy at the time.[3] Three months after starting oral vancomycin, the patient achieved clinical remission while remaining on the same dose of ustekinumab. Six months post-vancomycin, the fecal calprotectin improved to 277 mcg/g, CRP to 0.6 mg/L, and hemoglobin to 13.4 g/dL without needing further packed red blood cell transfusions or iron infusions. A repeat colonoscopy showed complete endoscopic healing with a Mayo UC endoscopic subscore of 0 (Figure 1B). Colonic biopsies revealed quiescent colitis without activity. His oral vancomycin dose was reduced to 250 mg twice daily. His liver tests remained normal throughout vancomycin treatment.

Oral vancomycin is a poorly absorbed antibiotic that has immunomodulating properties and results in distinct microbiome changes in PSC-UC.[4–6] The data regarding the use of oral vancomycin in to treat IBD in the setting of PSC are sparse, but few case reports have shown similar encouraging results to our case.[7–9] Rahman et al described a case of a 51-year-old man with UC and PSC post-liver transplantation who achieved steroid-free clinical and endoscopic remission on oral 125 mg of vancomycin twice daily.[7] de Chambrun et al reported on 3 patients with UC and PSC who achieved clinical and endoscopic remission on 500 mg of oral vancomycin twice daily.[8] Induction and maintenance of clinical and endoscopic remission was also reported in a case series of 8

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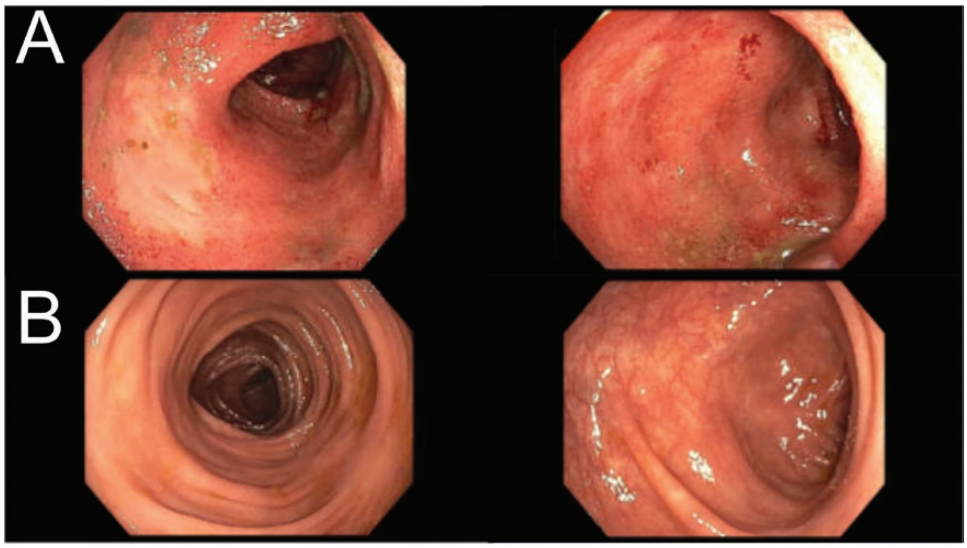

Figure 1. A, Top panel: representative endoscopic images of actively inflamed segments of the transverse and sigmoid colon pre-initiation of oral vancomycin. B, Bottom panel: representative endoscopic images of the transverse and sigmoid colon demonstrating complete endosocpic healing after oral vancomycin therapy.

patients with UC and PSC (6 were post-liver transplantation) who received 125 mg of oral vancomycin 4 times a day.[9] In these case reports/series, no adverse events such as worsening liver tests or progression of PSC was reported. The ideal vancomycin dose, safety monitoring parameters, and duration of treatment have not been determined. Further study is needed to evaluate the safety and efficacy of long-term use of oral vancomycin in PSC-IBD, but it remains a viable treatment option to consider.

Author Contributions

B.A-B.: Direct patient care, literature review, case report revisions and final approval.

H.A.: Direct patient care, literature review, case report draft and final approval.

Conflicts of Interest

B.A-B.: Speaker honoraria: AbbVie, Takeda. Advisory board: Bristol Myers Squibb.

H.A.: None

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