Small bowel necrosis and perforation due to sodium polystyrene sulfonate in the setting of graft versus host disease and fulminant Clostridium difficile infection

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INTRODUCTION

Sodium polystyrene sulfonate (SPS) is commonly used to manage hyperkalemia by increasing potassium excretion through the gastrointestinal (GI) tract. Although it has been used since the 1950s, there have been rising reports of SPS causing fatal GI injury. This includes intestinal ischemia, necrosis, ulceration and perforation [1]. In this report, we present an unusual case of small bowel necrosis associated with SPS in a patient with strictureing graft versus host disease (GvHD) and recurrent Clostridium difficile colitis.

CASE REPORT

A 60-year-old female presented with a 1 day history of sharp abdominal pain with vomiting. She has a previous history of acute myeloid leukemia (AML) complicated by biopsy-proven GvHD in the GI tract following a matched unrelated donor allogeneic hematopoietic stem cell transplant (HSCT) 3 years prior. On biopsy at that time, her stomach, cecum and colon all showed increased apoptotic activity with apoptotic crypt abscess, while her ileum showed complete mucosal denudation. Her home medications included amoxicillin, tacrolimus, budesonide and an alpha-1 proteinase inhibitor. She was most recently hospitalized 1 month prior for 4 days for small bowel obstruction (SBO) that was medically managed.

Upon presentation, she was afebrile and had a soft bowel movement hours prior to arriving in the emergency department. Her abdomen was soft with mild diffuse tenderness and distention. Significant laboratory values included a white count of 10.8 K/μl, hemoglobin 8.0 g/dl, potassium 3.3 mmol/l, blood urea nitrogen (BUN) 27 mg/dl, creatinine 0.77 mg/dl and lactic acid 2.0 mmol/l. An abdominal/pelvic computed tomography...
DISCUSSION

Although our patient has several reasons to have sustained intestinal injury, her tissue pathology is consistent with SPS-mediated necrosis. We find this case unusual given the extended intestinal injury, her tissue pathology is consistent with SPS-mediated colitis. Fifty centimeters of diseased ileum that consisted of multiple strictures and adhesions was resected and a double barrel ileostomy was formed for antegrade colonic vancomycin lavage. The patient had an uneventful recovery. Pathology of the specimen revealed necrosis in the small bowel segment along with a full thickness ulcer with granulation tissue, consistent with an ischemic type injury pattern. SPS crystals were identified within the granulation tissue despite no record of SPS administration more recently than 1 year prior for hyperkalemia (Fig. 1).

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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