

Neostigmine: A Potential Cause of Anastomotic Leak

Adalgisa Varuolo MD, Aaron Dank MD

INTRODUCTION

Anastomotic leaks are amongst the most dreaded complication in colorectal surgery with a prevalence of 3%-8%. Main risk factors include malnutrition, obesity, diabetes, and smoking. Little has been studied regarding the relationship between neostigmine and intestinal anastomoses. Case reports have shown that neostigmine has increased the rate of anastomotic breakdown as high as 36%. Rat models had hypothesized that neostigmine increases leak rates from it's potential to increase colorectal tone and increase tension on the anastomosis.

Presentation

The patient is a 77-year-old female with history of Myasthenia Gravis, diabetes, endometrial and colon cancer who presented in the outpatient setting with chronic diarrhea and malnutrition and was found to have a colojejunal fistula on pre-operative imaging. The patient underwent robotic sigmoid colon resection, takedown of colojejunal fistula, and small bowel resection. Surgery was uneventful and the patient was successfully extubated, however in the post-op recovery unit the patient had increased work of breathing with concern for myasthenic crisis. After multidisciplinary discussion, the patient was treated with pyridostigmine, neostigmine, and multiple sessions of IVIG. Post-op course was complicated by abdominal distension concerning for ileus. On post-op day 8, the patient developed abrupt abdominal pain warranting repeat imaging.

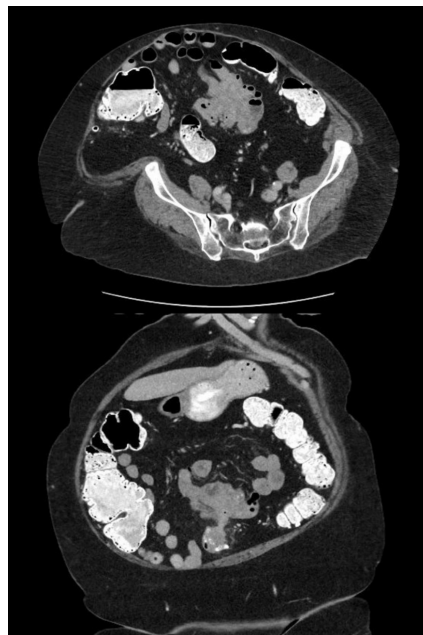


Figure 1: Pre-operative CT demonstrating colo-jejunal fistula



Figure 2: Post-operative CT demonstrating contrast extravasation and anastomotic leak

Imaging demonstrated contrast extravasation from the sigmoid anastomosis requiring urgent return to the operating room where the cecum was also found to be necrotic and a total abdominal colectomy with end ileostomy was performed. The surgery was uncomplicated; however, the patient's post-operative course was complicated by repeated myasthenic crises requiring further treatment with immunoglobulin and pyridostigmine. She was safely discharged on post-op day 30 from the index operation.

CONCLUSIONS

This case illustrates the use of neostigmine and pyridostigmine which could potentially increase the risk for anastomotic leaks. Given the concern that acetylcholinesterase inhibitors could increase tension on colonic anastomoses, it should be used with caution during intestinal surgery. Only several case reports have documented this relationship, and more research will help fill this gap in knowledge.

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