

Vancomycin enema? A treatment option for Clostridium difficile localised in a rectal stump

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Objective

To report a case where vancomycin enemas were successfully used to treat a Clostridium difficile infection in a patient who had undergone a subtotal colectomy, with formation of end ileostomy, closed distal mucous fistula and rectal stump.

Background

Clostridium difficile infection is a disease of the large intestine caused by toxins produced by the spore-forming bacterium Clostridium difficile (*C.difficile*)¹. Around 5-10% of healthy adults have this bacteria in their bowels without causing any symptoms².

The main source of transmission of *C.difficile* is via faeces of patients with symptomatic infection^{1,2}.

Signs and symptoms include;

- Diarrhoea (watery/ bloody)
- Fever
- Loss of appetite
- Nausea
- Abdominal pain

The incubation period is around 2 to 3 days and a person with diarrhoea from *C.difficile* is infectious while symptoms persist. Treatment can be difficult due to high relapse rate and antibiotic treatment is usually required with metronidazole or oral vancomycin, in more severe disease^{1,2}.

Clinical Features

A 45-year-old female presented with severe abdominal pain and diarrhoea. She was admitted for an exacerbation of her Ulcerative Colitis with concurrent *C.difficile* infection.

Her medical conditions included:

- Ulcerative Colitis
- Atrial fibrillation
- Hypertension
- Hypercholesterolaemia
- Type 2 diabetes mellitus (T2DM)
- Depression
- Congenital heart defect (repaired in infancy)

Refer to table 1 for a complete medication history.

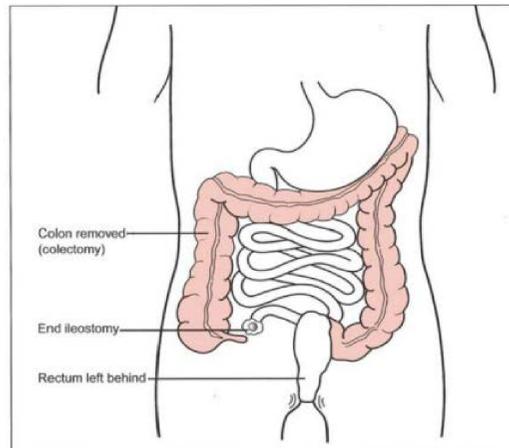
Table 1: Medication History

Medication Name and Strength	Dose and Frequency	Indication
Allopurinol 100mg	One tablet orally in the morning	Prevention of gout
Apidra Solostar injection 100units/mL	40 units subcutaneously three times a day	T2DM
Atorvastatin 40mg	One tablet orally at night	Hypercholesterolaemia
Azathioprine 75mg	One tablet orally in the morning	Ulcerative Colitis
Desvenlafaxine XR 100mg	Two tablets orally in the morning	Depression
Lantus solostar injection 100units/mL	40 units subcutaneously in the morning	T2DM
Mesalazine 3gram granules	3 grams orally at night	Ulcerative Colitis
Metoprolol 50mg	Half a tablet orally twice a day	Atrial fibrillation
Olmesartan 20mg	One tablet orally in the morning	Hypertension
Prednisolone 5mg	One tablet orally in the morning	Ulcerative Colitis
Quetiapine 200mg	One tablet orally at night	Anti-psychotic
Quetiapine XR 200mg	One tablet orally once daily (18:00)	Anti-psychotic
Rivaroxaban 20mg	One tablet orally in the morning	Atrial fibrillation
Metformin 500mg + Sitagliptin 50mg (Janumet)	One tablet orally twice a day	T2DM

Ulcerative colitis treatment with hydrocortisone, azathioprine and mesalazine was trialled, however her medical condition continued to worsen and she was planned surgery for a subtotal colectomy and end ileostomy formation for her fulminant colitis (figure 1).

Clinical Considerations

Figure 1: Colectomy and end ileostomy



As *C.difficile* infection was confirmed with a stool culture on admission, she was suspected to have *C.difficile* in her rectal stump. Subsequent to the end ileostomy, oral absorption of vancomycin was questionable thus to target the area of *C.difficile* colonisation, vancomycin enemas were recommended.

Interventions, Case Progress and Outcomes

Issue 1: Antidepressant absorption

The patient had a marked decline in her mood which was increasingly worsened by the suggestion of enema administration. At the time of pharmacist review four whole tablets were observed in the patient's stoma bag, which the pharmacist identified as 4 x 50mg desvenlafaxine tablets.

Psychiatry liaison was consulted with the recommendation to change to escitalopram 20mg daily, which improved the patient's mood significantly.

Issue 2: How to administer Vancomycin as an enema?

Evidence indicated that in severe *C.difficile* infection associated with ileus, vancomycin could be administered as a retention enema (500mg in 100mL sodium chloride 0.9%, rectally, 6-hourly) in addition to oral or nasogastric vancomycin and intravenous metronidazole¹.

In collaboration with the infectious diseases team, it was decided to commence vancomycin enemas at a dose of 500mg every six hours. Importantly, the possibility of perforation secondary to vancomycin administration was raised as a concern by nursing staff.

A literature review was carried out and limited advice regarding rectal vancomycin administration was obtained. One study recommended rectal vancomycin solution in 250mL of normal saline 4 times daily as a retention enema, clamping rectal tube for 1 hour with each dose and avoiding vigorous or forceful administration to avoid perforation³. One guideline recommended using an 18 F red rubber catheter inserted up to 4 inches and administering 100mL at a time⁴. Notably although the therapeutic guidelines and Australasian Society for Infectious Diseases Guidelines discussed use of rectal vancomycin no instructions for rectal administration were provided^{1,5}.

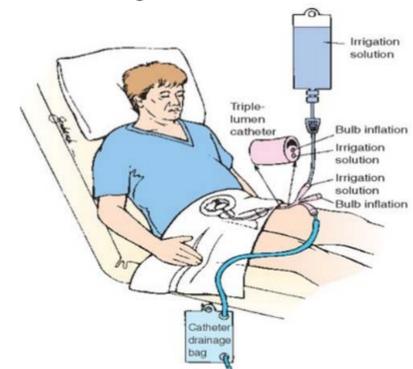
Considerations arising from the literature review

Issues identified from the literature review included;

1. Unknown how much of the rectum was remaining
2. How quickly should the vancomycin be administered?
3. Length of time enema should be retained

To address these issues the pharmacist liaised with the stoma therapy nurse and it was determined that the best approach for administration would be to use a pre-inserted foley catheter & irrigation set (figure 2), diluting 500mg of vancomycin solution with 100mL of normal saline and administering via gravity per rectum, retaining for approximately 30 minutes.

Figure 2: The basis for use of the foley catheter & irrigation set



After four days of vancomycin enemas there was improvement in the patient's condition and the enemas were continued for a further week, after which the patient was discharged without any further intervention.

Conclusion

This case demonstrates that despite this patient's complicated anatomy, vancomycin enemas were an effective method for treating a localised *C.difficile* infection

References

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Acknowledgements

Case presented with permission of:

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