Thinking Outside The Bowel: *Clostridium difficile* Bacteremia Case Series

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Background

- *Clostridium difficile* gastrointestinal infection (CDI) is the most common hospital-acquired infectious disease, yet *Clostridium difficile* bacteremia (CDB) is exceedingly rare
- CDB risk factors, mortality rate, and modalities of treatment are not well defined
- CDB may occur in individuals with significant co-morbidities, including gastrointestinal pathologic conditions[1,2]
- Antimicrobial therapy can be variable and adapted for polymicrobial bacteremia[2]
- Outcomes may be impacted by early diagnosis as well as severity of underlying conditions[1,2]

Methods

- Retrospective, IRB-approved, chart review
- Adult patients with diagnosis of CDB admitted to Tampa General Hospital or James A. Haley VA Hospital from 2011 through 2017
- Catalogued variables:
  - Patient age & co-morbid conditions
  - Gastrointestinal (GI) disruption (perforated viscous, GI bleeding, abdominal malignancy)
  - Diarrhea at time of CDB
  - Proton Pump Inhibitor (PPI) use
  - Previous antibiotics
  - Prior history of CDI
  - Treatment courses & outcomes

Conclusions

- CDI is the most common cause of hospital acquired infection, though rarely causes bacteremia
- Notable findings in our population included older age, concomitant malignancy, evidence of GI disruption, and prior exposure to PPIs and antibiotics
- Antibiotics chosen to treat CDB were IV metronidazole and/or IV vancomycin, with other broad spectrum antibiotics utilized due to polymicrobial bacteremia
- CDB is associated with a high mortality rate and is commonly manifested as a polymicrobial bloodstream infection
- This is one of the larger case series that adds to the scant literature characterizing patients diagnosed with CDB

References

1. Matilla E, Arkkila P, Mattila PS, et al. Extra-intestinal *Clostridium difficile* Infections. *Clin Infect Dis* 2013; 57 (6): e148-53.
2. Doufair M, Eckert C, Drieux L, et al. *Clostridium difficile* bacteremia: Report of two cases in French hospitals and comprehensive review of the literature. *ID Cases* 2017; 8: 54-62.

Results

Patient Age	Pertinent Co-Morbid Conditions	GI Disruption	Diarrhea at time of CDB	Prior PPI	Abx Exposure in Previous 30 Days	Prior Positive CDI by Testing	Current CDI Testing During Episode	Other Microbes in Bloodstream	Management of Bacteremia	Outcome
70	• Diabetes mellitus (DM) with foot infection • Peripheral vascular disease (PVD)	No	No	Yes	No	Yes	No	• *Clostridium tertium* • Diphtheroids	Prior broad antibiotics de-escalated to metronidazole x 2 weeks BKA performed	Survived
81	• DM with chronic kidney disease • PVD • Coronary artery disease (CAD)	• Pneumoperitoneum • Necrotic ileum on ex-lap	No	Yes	No	No	Yes (+ PCR)	• *Enterococcus faecalis* • *Klebsiella pneumoniae* • Coagulase negative staphylococcus	Doripenem x 7 days, Metronidazole x 28 days, PO vancomycin x 14 days	Survived
35	• Testicular cancer 2 years prior • CAD • PTSD (foreign body ingestions)	• Abdominal pain with recent GI bleed • Esophagitis, gastritis, and duodenitis by EGD	Yes	Yes	Yes	No	No	*Candida dublinensis*	Metronidazole x 2 weeks, Fluconazole x 2 weeks	Survived
63	• Endometrial cancer • Bilateral hydroureteronephrosis • Pulmonary embolism	• TAH/BSO with colo-rectal anastomosis • Takeback for appendectomy, L colectomy with colostomy	No	Yes	Yes	No	Yes (- PCR)	• *Enterococcus faecalis* • *Eubacterium lentum*	IV Vancomycin, Ciprofloxacin + Metronidazole x 10 days	Survived
58	• Uterine cancer s/p TAH/BSO • Receipt of chemotherapy & radiation with progression of disease	Metastasis to peritoneum and mesentery	Yes	No	No	Yes	Yes (+ PCR)	• *Clostridium cadavaris* • *Clostridium septicum* x2 • *Clostridium butyricum* • *Clostridium innocuum* • *Clostridium perfringes* • *Bacteroides vulgatus*	Doripenem + IV Vancomycin, then switched to IV Metronidazole until CMO	Died
65	• Metastatic colon cancer with hepatic wedge resection • DM • CAD	• Colon cancer • Surgery (hepatic wedge resection)	No	Yes	Yes	Yes	Yes (+ PCR; - toxin)	None	IV Vancomycin + Piperacillin / tazobactam, then Tigecycline until CMO	Died
74	• Cervical cancer s/p hysterectomy and pelvic radiation • CAD • Deep vein thrombosis	Colo-vesicular fistula	Yes	Yes	Yes	No	No	None	Linezolid switched to IV Metronidazole + Fluconazole until CMO	Died

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