Utility of Current C.difficile Testing

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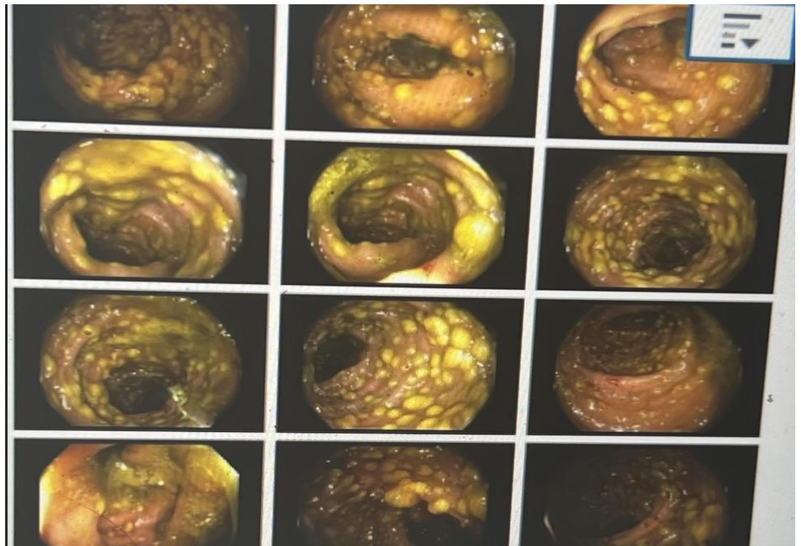
Introduction

Clostridioidies difficile (*C.difficile*) is a gram positive, obligate anaerobic bacillus, and spore forming bacteria. It causes a severe and contagious form of diarrhea world-wide. It is diagnosed with greater than 3 loose stools in 24 hours, without any other cause found being the source. Humans are colonized with this bacteria, though it is kept in check with our gastrointestinal tract's microbiome. PPI, immunosuppression, and anti-biotic use disrupt this microbiome. A variety of tests exist, though they may not be available at all hospitals, including toxins A and B enzyme immunoassays (EIA) and ELISA. Oral Vancomycin or Fidaxomicin are available treatments for *C.difficile*.

Imaging

Image 1: Pseudomembrane Colitis throughout entire colon.



Clinical Case

40 year old male with a past medical history of AAA, H.Pylori, laparoscopic bilateral inguinal hernia repair who presented to the hospital due to abdominal pain, vomiting, poor oral intake, and diarrhea. Symptoms began 2 weeks after completion of H. Pylori treatment. During the initial visit to the ED, CT abdomen/pelvis with contrast showed bowel wall edema especially involving the right and transverse portions of the colon. Symptoms persisted and he soon traveled to Boston and England. He did not go on any cruises, try new foods, or expose himself to animals. He returned to the USA a week prior to the current admission as he developed foul smelling diarrhea, with about 7 to 8 loose bowel movements per day for 7 days. Pertinent vitals and labs on admission showed 100.5 F, tachycardia, and a leukocytosis of 26.2. He was started on Flagyl and Aztreonam. *C.difficile* testing (EIA Toxin Antigen Testing) results were negative twice. Stool Cultures were negative. ID was consulted due to the high clinical suspicion for *C.difficile*, despite negative testing. Patient was started on oral vancomycin. Due to the prolonged persistence of his symptoms, he had a colonoscopy by GI which showed diffuse pseudomembranes. Pathology showed acute inflammatory exudates with linear configuration of karyorrhectic debris and neutrophils. Biopsy results confirmed *C.difficile*. The patient's symptoms slowly improved over the next few days.

Discussion

Utility of testing for *C.difficile* relies on rapid testing of toxins through rapid EIAs, which is available in most hospitals. Sensitivities of this test are very variable and range from 44% to 99% when compared to ELISA testing which can have a 95% specificity and sensitivity. As a standalone test, the rapid EIAs are inadequate for *C.difficile* testing. There is also a poor correlation between stool toxin levels and disease severity. ELISA testing has excellent specificity of during the study, but needs a yield of 100 to 1000 pg of both toxin A and B to be present for a test to be positive. The patient's presentation, history, and physical exam should all be part of the clinical decision making process when treating for *C.difficile*.

Conclusion

The importance of this case shows how rapid EIA testing did not correlate with the patient's symptoms. If not quickly clinically correlated, this may have led to increased severity of the patient's symptoms. Other testing, should be used in correlation with EIA testing such as ELISA testing to help confirm *C.difficile*. If there is high clinical suspicion of *C.difficile*, treatment should not be delayed.

References

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