Endoscopic Imaging of *Clostridium difficile* Colitis

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Abstract

Clostridium difficile infection (CDI) is one of the most dreaded causes of hospital-acquired diarrhea with an increasing incidence. Frequently, CDI affects older and immunocompromised patients, but recent data suggests that even young and healthy persons who had previously not been exposed to an antimicrobial therapy are at risk. Although differential diagnosis of hospital-acquired diarrhea is broad, these patients are regularly committed to the endoscopy department. The video of this article focuses on typical endoscopic aspects of *C. difficile* colitis. This article is part of an expert video encyclopedia.

Keywords

Antimicrobial therapy; *Clostridium difficile* colitis; Endoscopy; Hospital-acquired diarrhea; Standard endoscopy; Video.

Video Related to this Article

Video available to view or download at doi:10.1016/S2212-0971(13)70147-X

Technique

White-light endoscopy.

Endoscope

EC 530 LP; Fujifilm, Tokyo, Japan.

Background and Endoscopic Procedure

Clostridium difficile infection (CDI) is one of the most dreaded causes of hospital-acquired diarrhea, with an increasing incidence.[1] It has been estimated that *C. difficile* causes approximately 25% of antibiotic-associated diarrhea and most cases of pseudomembranous colitis. Frequently, CDI affects older and immunocompromised patients, but recent data suggests that even young and healthy persons who had previously not been exposed to an antimicrobial therapy are at risk.[2] Although differential diagnosis of hospital-acquired diarrhea is broad, these patients are regularly committed to the endoscopy department.

Besides nonbloody diarrhea, CDI is often accompanied by leukocytosis, fever, and abdominal pain.

Clostridium difficile can colonize the large bowel and, in the presence of antibiotic therapy that limits the growth of naturally residing microorganisms, produce endotoxins and cytotoxins. These toxins may cause severe mucosal inflammation, resulting in colitis that may have a pseudomembranous appearance at endoscopy.[1,2] Pseudomembranes are composed of an excaudate of fibrin and inflammatory debris, including white blood cells. Importantly, pseudomembranes can also be caused by other pathogens (e.g., *Salmonella enterica* serotype infantis).[3]

Diagnosis of CDI is based on typical symptoms (i.e., diarrhea), medical history, and stool testing for the presence of *C. difficile* toxins.[4] Remarkably, stool testing has a considerable false negative rate. Therefore, even endoscopy with biopsies is a suitable approach for diagnosis of CDI. Endoscopically, CDI may typically present with multiple, cream to yellowish appearing pseudomembranes which are only loosely attached to the colon mucosa. The underlying mucosa is often edematous and hyperemic. Ulcers, which are mostly superficial and linear, may also occur. As the endoscopic appearance of *C. difficile* colitis is broad and often unspecific, biopsy acquisition is strictly necessary and should be performed adequately.[5]

Clostridium difficile colitis is treated either with oral vancomycin or intravenous metronidazole.

The video of this article focuses on typical endoscopic aspects of *C. difficile* colitis.

Key Learning Points/Tips and Tricks

- Endoscopic appearance of CDI is broad and often unspecific. Diagnosis is based on stool testing for the presence of *C. difficile* toxins and histopathological examination of biopsy specimen.
- Pseudomembranes are not specific for *C. difficile* colitis and can also be caused by other pathogens.

Scripted Voiceover

00:04 This patient underwent chemotherapy for a larynx tumor. Two weeks after initial chemotherapy the patient suffered from a fever and was put on oral antibiotic therapy. Now, the patient has been submitted to our department because of diarrhea and unspecific abdominal pain.

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White-light endoscopy reveals multiple cream to yellowish appearing pseudomembranes which are only loosely attached to the colon mucosa. The underlying mucosa is hyperemic and edematous.

Biopsies are taken and revealed colitis according to a cytotoxin building pathogen. Stool tests confirmed diagnosis of *C. difficile* colitis.

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