QUESTION 49

A 72-year-old woman presents with severe diarrhoea. She commenced amoxycillin for an upper respiratory tract infection five days ago.

Which one of the following tests would best confirm a diagnosis of Clostridium difficile-induced pseudomembranous colitis?

A. C. difficile culture.
B. C. difficile cytotoxin assay.
C. C. difficile polymerase chain reaction (PCR).
D. C. difficile immunoglobulin A (IgA).
E. Faecal microscopy.

Reference: Infectious Diseases A clinical Approach Yung, McDonald, Spelman, Street and Johnson 2001

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Investigations – diarrhoea

Faecal microscopy is particularly useful in the initial assessment of acute diarrhoea. The presence or absence of faecal leucocytes (pus cells), red blood cells and parasites can be ascertained by direct microscopy of a fresh specimen.

Enterocolitis (usually bacterial) is indicated by the presence of leucocytes ± red cells. Microscopic examination of fresh stool specimens may reveal the cysts or trophozoites of Giardia lamblia in only about 50% of cases with this small bowel pathogen. Repeated microscopic examination of stools and examination of duodenal aspirate will increase the yields.

Positive identification of the cysts of Entamoeba histolytica requires considerable laboratory expertise that is not generally available. Detection of parasites is enhanced by faecal concentration. Where there is a high index of suspicion (eg returned travellers), this should be requested.

Viral pathogens can be detected by electron microscopy and rotavirus, adenovirus, Norwalk calicivirus and astrovirus by immunoassay also. Viral cultures not used as a diagnostic procedure for gastrointestinal viruses.

Faecal culture is useful despite the inherent delay because the finding of Salmonella spp., Campylobacter jejuni, Shigella or Clostridium difficile in a patient who has continuing diarrhoea may be an indication for specific treatment and aid public health investigations. Toxin assay is now the preferred method for the diagnosis of Clostridium difficile infection. Although culture for most pathogenic bacteria is routine, selective media are required and close communication with the microbiology laboratory is good practice. Special techniques are necessary to detect vibrios, pathogenic E.coli, Aeromaonas, Listeria and Yersinia.

A negative faecal culture does not exclude bacterial diarrhoea. Occasionally, pathogens may be cultured in one specimen but not in another from the same patient on the same day, and not all patients in a common-source outbreak with typical symptoms will yield the causative pathogen.

Investigations are selected on the basis of the patient’s illness and epidemiological setting. Even with extensive investigation 20-40% of all diarrhoeal illness remain undiagnosed.

Blood tests are indicated in more severe cases and help in the assessment of complications such as fluid, electrolyte and blood loss. Febrile patients with enterocolitis should have blood cultures taken as the finding of bacteraemia is an indication for antibiotic therapy. Diagnostic serology is not usually performed but an detect Campylobacter, Yersinia and amoebic infections.

Sigmoidoscopy and colonoscopy are only necessary when there is persistent bleeding or protracted diarrhoea. Normal sigmoidoscopic appearances generally exclude ulcerative colitis, antibiotic-induced colitis, shigellosis, and severe amoebic dysentery. Sigmoidoscopic and rectal biopsy appearances in ulcerative colitis may be similar to those seen in infective colitis. The presence of a pseudomembrane, however, is diagnostic of pseudomembranous colitis due to Clostridium difficile.

Answer: B. C. difficile cytotoxin assay.