

Please read this bit first

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a "Journal Club" activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out "correct" answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025**.

Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

Cycle 20 Organism 10:

Yersinia enterocolitica

Description of the pathogen

Yersinia enterocolitica are pleomorphic Gram-negative bacilli in the family *Enterobacteriaceae*. They are non-lactose fermenters, urease positive organisms that grow at a wide range of temperature. They are motile at 25°C but not at 37°C. They grow on MacConkey and SS agars at room temperature and at 37°C. The organism can grow aerobically as well as anaerobically. Colonies may be difficult to detect after 24 hours incubation, as they are usually smaller than other members of the *Enterobacteriaceae*. More than 60 serotypes and six biotypes of *Y. enterocolitica* have been described. Most strains isolated from patients belong to serotypes O: 3, O: 5, 27, O:8 and O:9 and to biotypes 2, 3 and 4. *Y. enterocolitica* produce a lipopolysaccharide endotoxin that has biologic properties similar to other Gram-negative bacteria¹.

Epidemiology

Y. enterocolitica is distributed widely throughout the world, and can be isolated from multiple environmental sources, including fresh water, contaminated foods and various of animals².

Clinical manifestations

The alimentary tract is the portal of entry in most cases. An inoculum of 10⁹ organisms may be required to cause infection. After an incubation period of 5 to 7 days, infection may result in mucosal ulcerations. Septicaemia may lead to focal abscesses in various organs.



A reactive polyarthritis is not uncommon and has a predilection for patients with the histocompatibility antigen HLA-B27, possibly as a result of a molecular mimicry between HLA-B27 antigen and *Yersinia* antigens.

Enterocolitis accounts for two thirds of reported cases of symptomatic *Y. enterocolitica* infections and is characterized by fever, diarrhoeae, and abdominal pains lasting 1 to 3 weeks.

A reactive polyarthritis may occur in adults, which begins a few days to months after onset of acute diarrhoeae, and may involve knees ankles, toes, fingers and wrists.

Y. enterocolitica septicaemia is uncommon but severe and often fatal. It is mostly reported in patients with underlying immunocompromising conditions^{1,2}.

Diagnosis

Y. enterocolitica may be isolated from stool, mesenteric lymph nodes, peritoneal fluid, abscesses, or blood, depending on the clinical syndrome. Isolation from stool specimens is hampered by slow growth and by overgrowth of normal faecal flora.

Serological tests may also be useful¹.

Treatment

Antimicrobial agents of choice are trimethoprim-sulfamethoxazole, fluoroquinolones, 3rd generation cephalosporins and aminoglycosides¹.

References

1. Bockemuhl J and Wong J. *Yersinia*. In Murray PR, ed. Manual of Clinical Microbiology. Washington, DC: ASM Press; 2003: 672-683.
2. Bottone EJ. *Yersinia enterocolitica*: The charisma continues. Clin Microbiol Rev. 1997; **10**:257-276.

Questions

1. How would you differentiate between *Y. enterocolitica* and *Y. pestis*?
2. How would you isolate *Y. enterocolitica*?
3. What characteristics are used to identify *Y. enterocolitica*?
4. What infections are caused by *Y. enterocolitica*?