

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 7:

Enterococcus faecium

Description of the genus

The members of the genus *Enterococcus* are catalase negative Gram-positive cocci that occur singly or arranged in pairs or short chains. The cells are sometimes coccobacillary when Gram stains are prepared from growth on solid media. Enterococci are facultative anaerobes and grow at temperatures ranging from 10 to 45°C. They grow in broth containing 6.5% NaCl, and hydrolyse esculin in the presence of 40% bile salts. Enterococci produce pyrrolidonyl arylamidase (PYR) as well as leucine aminopeptidase (LAP)¹.

Natural habitats

Enterococci are widespread in nature and can be found in soil, water, food, plants and in animals, including mammals, birds, and insects. In humans they are predominantly inhabitants of the gastrointestinal tract¹.

Clinical infections

Urinary tract infections

Urinary tract infections are the most common type of clinical disease produced by enterococci, and urine cultures are the most frequent sources of enterococci in the clinical microbiology laboratory. In addition to uncomplicated cystitis or pyelonephritis, enterococci have also been shown to cause prostatitis and perinephric abscesses. Most enterococcal urinary tract infections are nosocomial and are associated with urinary catheterisation or instrumentation².

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Other infection caused by enterococci

- Bacteraemia and endocarditis³
- Intra-abdominal and pelvic infections⁴
- Wound and tissue infections⁴
- Meningitis⁵

Treatment

Vancomycin resistant enterococci (VRE) have emerged as nosocomial pathogens over the last decade, but little is known about their epidemiology. A prevalence study of VRE from rectal swabs was conducted on hospitalised as well as non-hospitalised patients in France. A total of 37% of the hospitalised patients and 11.8% of subjects from the community were found to be VRE carriers. A total of 65 VRE strains were isolated: 12(18.5%) *E. faecium*, 46 (70.7%) *E. gallinarum*, and 7 (10.8%) *E. casseliflavus* strains. The patients and subjects were recruited from a predominantly agricultural area where vancomycin-related antibiotics had recently been used in animal husbandry and which could have contributed to the high levels of VRE patients and subjects alike^{6, 7, 8}.

Vancomycin resistant *Enterococcus faecalis*: penicillin G or ampicillin linezolid for systemic infections: Nitrofurantoin and fosfomycin for urinary tract infections. *E. faecalis* is resistant to synercid^{8, 9}.

References

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3. Gullberg, RM. *et al.* 1989. Enterococcal bacteraemia: analysis of 75 episodes. *Rev. Infect. Dis.* **11**:74-85.
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5. Kurup A, *et al.* Infection of central nervous system by motile *Enterococcus*: First case report. *J Clin Microbiol.* 2001;**39**:820-822.
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Questions

1. How would you differentiate between *E. faecalis* and *E. faecium*?
2. How would you isolate *E. faecalis*?
3. What characteristics are used to identify *E. faecalis*?

4. What infections are caused by the enterococci?