

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 22 Organism 7:

Aeromonas hydrophila

Aeromonas species are ubiquitous inhabitants of fresh and brackish water. They have also been recovered from chlorinated tap water including hospital water supplies.

Aeromonas species and *Plesiomonas shigelloides* are included along with *Vibrio* species in the family *Vibrionaceae*. It has however, been proposed that based on molecular genetic evidence that *Aeromonas* be placed in a separate family, *Aeromonadaceae*. Likewise it has also been proposed that *Plesiomonas* be moved to the genus *Proteus*.

As the species name *hydrophila* “water loving” indicates the natural habitat of this genus is fresh or seawater where they commonly cause infections in cold-blooded aquatic animals. These organisms also reside in drainpipes, sinks and other sources of water, which are potential for causing nosocomial infections.

The genus *Aeromonas* consists of a large number of distinct taxa. The currently recognized species and various DNA hybridization groups consist of three phenotypic groups; *Aeromonas hydrophila*, *Aeromonas caviae*, and *Aeromonas sobria*. The *A. hydrophila* group has two named species, *A. hydrophila* and *Aeromonas salmonicida*. Phenotypic group *A. caviae* has 4 named species, and *A. sobria* has 7 named species. The genus *Aeromonas* is usually grouped into two subdivisions. The psychrophilic group: the only species in this group is *A. salmonicida*, which is a fish pathogen. This species is non-motile and does not grow at 37°C. The mesophilic group: members of this group grow at 37°C and are motile. Species in this group include *A. hydrophila*, *A. caviae* and *A. sobria*.

Aeromonas species are cytochrome oxidase positive and can easily be differentiated from the family *Enterobacteriaceae* by performing the oxidase test. *A. hydrophila* are beta-haemolytic on blood agar, motile by means of polar flagella, DNase positive, and indole positive. They utilize glucose fermentatively which will differentiate it from the oxidase positive *Pseudomonas* species. *Plesiomonas shigelloides* is also an oxidase positive which differentiates it from the family *Enterobacteriaceae*, and is not haemolytic on blood agar. *P. shigelloides* grows on MacConkey and XLD agars and may resemble a *Shigella* species. Indole is produced, and arginine, lysine, and ornithine are decarboxylated. The DNase and esculin tests are negative for *P. shigelloides*.

Infections caused by *Aeromonas*:

- Acute diarrhoeal disease that closely mimics cholera.
- Cellulitis and wound infections following exposure to contaminated water, soil, or food.
- Septicemia, especially patients with hepatobiliary disease.
- Miscellaneous infections include; endocarditis, urinary tract, wound, meningeal, and ear infections.

Questions

1. How would you differentiate *Aeromonas hydrophila* from:
 - a. The family *Enterobacteriaceae*
 - b. *Pseudomonas* species
 - c. *Plesiomonas shigelloides*
2. How would you isolate *Aeromonas hydrophila* from a stool/pus/fluid specimen?
3. What infections are caused by *Aeromonas hydrophila*?

S A N A S



PROFICIENCY
TESTING

SANAS Accredited to ISO Guide 43 / ILAC G13