P.O. Box 131375, Bryanston, 2074
Ground Floor, Block 5
Bryanston Gate, Main Road
Bryanston, Johannesburg, South Africa
www.thistle.co.za
Tel: +27 (011) 463 3260
Fax: +27 (011) 463 3036
e-mail : mail@thistle.co.za

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 9:

Clostridium perfringens

Clostridium species are Gram-positive, rod-shaped, spore-formers. These generally obligate anaerobes are ubiquitous saprophytes or part of our normal flora. Clostridia employ butyric fermentation pathways to generate energy and, as a result, often produce a foul odor. C. perfringens produces large rectangular spores and is non-motile. This species is most often associated with wound infections but these are generally polymicrobic.

C. perfringens is the species most commonly isolated from human clinical specimens, excluding faeces. Tissue infections are encountered in a wide variety of clinical settings ranging from simple contamination of wound to traumatic or non-traumatic myonecrosis, clostridial cellulitis, intra-abdominal sepsis, gangrenous cholecystitis, post-abortion infection, and bacteraemias to mention a few.

Clostridial myonecrosis (gas gangrene) involves a breakdown of muscle tissue related to the action of potent extracellular protein toxins, particularly the alpha-toxin and theta toxin. It is a rapidly progressive, life-threatening condition with liquefactive necrosis of muscle, gas formation, and associated systemic manifestations.

Clostridium species are commonly encountered in a variety of polymicrobial infections involving the abdomen, including peritonitis, intra-abdominal abscesses, and septicemia in patients with obstructive or perforating lesions of the terminal ileum or large bowel.

C. perfringens has been one of the most common bacterial causes of food-borne illness in the USA. Almost all outbreaks and cases of C. perfringens food-borne gastroenteritis appear to be due to type A strains. In C. perfringens type A food-borne disease, the food vehicle is almost always an improperly cooked meat or meat product, such as gravy, that has been cooled slowly after cooking or may have been inadequately reheated.

Surgical measures are especially important in the treatment of gas gangrene and a number of other Clostridium-mediated diseases Penicillin G (10x 10^6 to 24 x 10^6 units per day) is still considered the drug of choice for gas gangrene. Beta-lactamase has not been demonstrated in C. perfringens. A combination of penicillin plus clindamycin may also be used.

Questions:

1. What techniques and media would you use to isolate a Clostridium species?
2. What types of infections are caused by C .perfringens?
3. What is the drugs of choice when treating gas gangrene caused by C .perfringens?