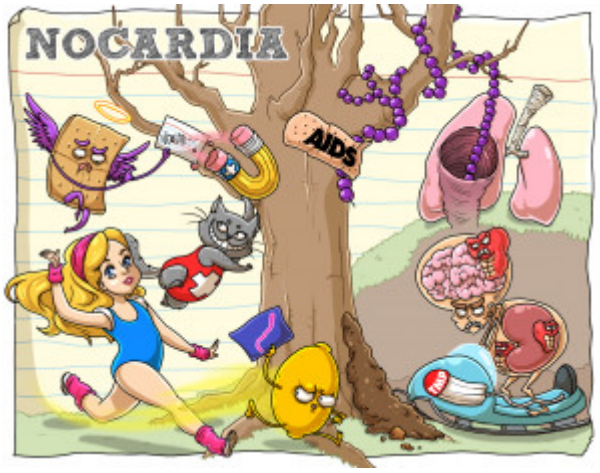
Nocardia

Nocardia is a gram positive rod which forms beaded branching filaments that resemble fungi. It is weakly acid fast and classically presents in immunocompromised patients as lung cavitations or brain and kidney infections. It is an aerobic bacteria that typically lives in the soil. The treatment for patients found to have the infection is TMP-SMX antibiotic.



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Characteristics

Aerobic
Aerobic-outfit
This bacteria requires oxygen to live and is incapable of living in environments with minimal oxygen content.

Gram-Positive
Graham-cracker Positive-angel
Norcardia stains positive under gram staining due to high peptidoglycan levels in the cell wall.

Catalase-Positive
Positive Cat
Nocardia is catalase positive, meaning it produces the enzyme catalase. This enzyme allows the bacteria to convert hydrogen peroxide, which is toxic, to oxygen and water.

Urease-Positive
Positive U-eraser
This bacterium has the ability to produce urease, which hydrolyzes urea in the body to ammonia. In a urinary tract infection, this means that the urine becomes more alkaline. In a lab setting, urease positive bacteria are characterized by their production of a distinct, fishy odor.

Acid Fast
Acidic-lemon Running Fast
An acid fast stain refers to the ability of acid to be washed off a bacterial prep often due to high mycolic acid content. Nocardia is weakly acid fast when stained. This property helps distinguish nocardia from actinomyces which has no acid fast properties.

Branching
Branches
Nocardia and actinomyces have long branching filaments, which help with their identification.

Beaded Filament
Beaded Rope
Nocardia is commonly described as a beaded filament, much like actinomyces.

AIDS/Immunocompromised
Band-AIDS
Nocardial infections are classically found as pulmonary infections in immunocompromised patients.

Soil
Soil
Norcardia often originates from the soil where it is abundant.

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Signs and Symptoms

Lung Cavitation
Lung cavity
Lung cavitation is a classic presentation of Nocardia infection in immunocompromised patients. This could present as chronic cough or hemoptysis.

Brain Abscess
Brain Abscess-guy
Nocardia is known to cause brain abscesses in immunocompromised patients.

Kidney Abscess
Kidney and Abscess-guy
Norcardia infections can also present as a kidney abscess.

Treatment

TMP-SMX
Tampon on SMX-snowmobile
The treatment for patients with nocardia infection is trimethoprim-sulfamethoxazole, an antibiotic that alters bacterial folate metabolism.

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