Unit 3: Aerobic Gram-Positive Cocci Assignments

Case Study 1

A 22 year-old woman visits her doctor with complaints of fever, dysuria, urgency to urinate, and blood-tinged urine. A microscopic urinalysis revealed many WBC and moderate bacteria. The leukocyte esterase on the dipstick is positive, but the nitrate is negative. A urine culture grew 45,000 CFU/ml of white, nonhemolytic colonies on blood agar. There was no growth on the MacConkey agar. The organism is catalase positive and coagulase negative, but exhibited a 21-mm zoned of sensitivity to a novobiocin disk.

a. What is the identity of the isolate?

b. In what patient population does this organism normally cause infection?

c. In what way does this organism differ from other staphylococci?

Case Study 2

A five-year old boy was taken to the doctor by his mother for complaints of fever and sore throat over a three day period. The doctor determined that his tonsils are swollen and have pus pockets. A throat culture was taken and plated to a blood agar plate. After 24 hours incubation, small, shiny, translucent colonies showing beta hemolysis were seen growing in all sections of the plate, along with small, alpha-hemolytic organisms.

a. What is the most likely pathogenic organism?

b. Name two differential tests that can be performed to identify this organism.

c. Explain the principle of a rapid antigenic test that can be performed to presumptively identify the pathogenic organism from a direct patient specimen.

d. What other types of infection can this organism cause?

e. What serious sequelae (complications) may develop if this infection is under-treated or not treated?