Streptococcus Bovis

The Streptococcus bovis complex is a species of bacteria that are classified under Lancefield Group D Streptococcus (GDS), which is a group of catalase-negative, gram-positive cocci that share common bacterial antigens. Unique characteristics of Streptococcus bovis include an ability to grow in bile but not in 6.5% NaCl. These characteristics are important in differentiating S. bovis from other gram-positive species. S. bovis is an important cause of bacteremia and infective endocarditis in adults, and is also a less common cause of spontaneous bacterial peritonitis and urinary tract infections. Importantly, there is a strong association between GDS/S. Bovis infection and colonic neoplasm as well as liver disease, though it is important to note that the presence of GDS is only associated with and not a cause of these conditions.



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Characteristics

Group D Streptococci
D-Daisy Stripper-bacteria
Streptococcus bovis is classified as Group D Streptococcus, as it expresses the Lancefield D antigen. Lancefield Grouping is a classification system applied specifically to coagulase negative, catalase negative bacteria based on the composition of the carbohydrate antigens on their cell wall.

Catalase-Negative
Negative-Cat
S. bovis is catalase-negative.

Gram Positive Cocci
Cockeyed Graham-Cracker Positive-angel
S. bovis is a gram positive coccus that grows in pairs or chains.

Does Not Grow in 6.5% NaCl
Salt Poured on Dead Plant
S. bovis characteristically will not grow on 6.5% salt, which differentiates it from Enterococcus.

Grows in Bile
Bile-Nile
However, S. bovis is able to grow in bile, similar to Enterococcus.

Clinical Features

Endocarditis
Donut-Heart-Card
S. bovis is one of the bacteria commonly isolated in blood stream infections of patients with endocarditis. In the case of endocarditis, this bacteria seeds the heart valves and creates vegetations. The exact organism is S. gallolyticus, but is part of the S. bovis complex.

Bacteremia Associated with Liver Disease
Bacteria In Blood Culture and Diseased Liver
GDS bacteremia is known to be associated with various liver conditions such as cirrhosis and chronic hepatitis. It is thought that this is a result of dysfunction of the reticuloendothelial system which leads to poor bacterial clearance, thereby permitting entry of bacterial species into the circulation. For this reason, patients found to have GDS bacteremia should have a liver workup performed, including liver function tests and a hepatitis panel.

Bacteremia Associated with Colon Cancer
Cancerous Colon
The association between GDS bacteremia, infectious endocarditis, and colonic neoplasia is well described. In the case of colonic neoplasm, the association is not fully understood. However, it has been suggested that it may be related to S. bovis (S. gallolyticus) binding to surface ligands

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that are over-expressed in colonic neoplasms.

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