Streptococcus Pyogenes Disease

Streptococcus pyogenes is a gram-positive cocci that causes group A streptococcal infections. Strep pyogenes typically produces large zones of beta hemolysis and can be distinguished from other Streptococcal organisms because it is catalase-negative and bacitracin-sensitive. Diseases caused by Streptococcus pyogenes include skin infections like impetigo, cellulitis, pharyngitis, scarlet fever and toxic shock-like syndrome. Streptococcus pyogenes infections can also precipitate episodes of rheumatic fever and acute glomerulonephritis.



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Pyogenic

Pyogenic
Pie-genie
Pyogenic is a term describing bacteria capable of causing local purulent inflammation or generalized infection, and Streptococcus pyogenes is aptly named after this characteristic.

Pyogenic Pharyngitis
Pus-pie Pharaoh
Streptococcus pyogenes (GAS) is known to cause pyogenic infections of the pharynx and skin. GAS can cause inflammation of the pharynx and is the cause of “strep throat." It is the most common bacterial cause of pharyngitis, and symptoms include fever, sore throat and large lymph nodes. Sore throat with lack of cough or runny nose further increases suspicion of GAS infection. Streptococcal pharngitis should be treated with antibiotics to prevent complications.

Impetigo
Emperor-tiger
Impetigo is an extremely contagious bacterial skin infection common in young children. Impetigo is primarily caused by Staphylococcus aureus, but is also commonly caused by Streptococcus pyogenes.

Cellulitis
Cell-phone-biting-skin
Cellulitis is localized or diffuse inflammation of skin and surrounding connective tissue. It is often caused by bacteria entering the skin through a cut or break in the skin. Strep pyogenes is one of the most common bacterial causes of cellulitis.

Toxigenic
Toxic-genie
Streptococcus pyogenes is described as a toxigenic bacterium because several strains are responsible for the release of bacterial toxins. These toxins are responsible for Scarlet Fever and Toxic Shock Syndrome.

Toxic Shock-Like Syndrome
Shocked Fever-beaver
Toxic shock syndrome caused by Streptococcus pyogenes is commonly called toxic shock-like syndrome, and it typically presents in people with prior skin infections with Strep pyogenes. Individuals commonly experience pain at the site of infection, followed by rapid onset of symptoms of high fever, low blood pressure and confusion.

Scarlet Fever
Scarlet-scarf of Fever-beaver
Scarlet fever is caused by a bacterial exotoxin called erythrogenic toxin, which is released by Streptococcus pyogenes. Symptoms include sore throat, bright red tongue with a strawberry appearance and a characteristic rash that is rough-textered with circumoral pallor. As the rash fades, desquamation and peeling of the skin can occur. This disease was extremely feared before widespread availability of antibiotics, due to associations with post infectious

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glomerulonephritis and endocarditis.

Sandpaper Rash
Sandpaper rash
A classic feature of Scarlet fever is a characteristic rash that feels rough, like sandpaper, when touched.

Strawberry Tongue
Strawberry tongue
The red and bumpy tongue texture that forms during Scarlet fever is described as a “strawberry tongue.”

Immunologic

Immunologic
Moon-with-antibodies
Two of the major complications of a group A Strep infection, including rheumatic fever and acute glomerulonephritis, are mediated by immunologic mechanisms.

Rheumatic Fever
Roman Fever-beaver
Acute rheumatic fever is a feared complication of respiratory infections caused by Streptococcus pyogenes. This disease develops when individuals develop antibodies to the M protein embedded in the bacterial cell wall, which facilitates attachment to host cells and inhibits opsonization by the alternative pathway. The antibodies to the M protein cross react with autoantigens in the body, including the endocardium and synovium. Symptoms include migratory polyarthritis, subcutaneous nodules, erythema marginatum and sydenham's chorea, along with endocarditis with vegetations along valve closure lines.

Antibodies to M Protein
Ant-tie-body to M Protein-jar
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Acute Glomerulonephritis (Post Streptococcal Glomerulonephritis)
Acute Glow-mare
Post Streptococcal glomerulonephritis is a rare complication of Streptococcal pharyngitis or Streptococcal skin infections. It is classified as a type III hypersensitivity reaction, with symptoms developing approximately ten days after a throat infection, or three weeks following a skin infection. Deposition of immune complexes in the kidneys can lead to dark colored urine, edema and high blood pressure.

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