**Science**

This story follows Pav the pyogenes, who is representing Streptococcus pyogenes. Streptococcus pyogenes (also called group A streptococcus), is most commonly found in the pharynx. It has the ability invade tissue and cause cell damage. But it is often asymptomatically colonising , meaning it is not causing any symptoms. It is likely it is being controlled effectively by the immune system preventing it from causing symptomatic infection.

Streptococcus pyogenes is able to transfer from person to person by water droplet spread, as well as indirectly via fomites. When it colonises a new host, where there is no immune recognition due to the many antigenic types of Streptococcus pyogenes, it is more like a symptomatic infection will follow. Streptococcus pyogenes tissue invasion contribute to the symptoms of sore throat in patients with Streptococcal pharyngitis. S. pyogenes is the most common bacterial cause of pharyngitis. Immunological complications associated with Streptococcal pharyngitis include glomerulonephritis and rheumatic fever.

Bacterial pharyngitis is treated with penicillin normally, and S. pyogenes are very susceptible to penicillin. Streptococcus pyogenes can cause skin and soft tissue infections, and with Staphylococcus aureus is the main cause of cellulitis.

It can also cause infections in hospitalised patients. Particularly in patients who have had operations. It can also cause puerperal sepsis, one of the leading causes of maternal death globally. Health care staff with Streptococcal pharyngitis can infect patients. An uncommon but serious complication of Streptococcal infections is necrotising fasciitis. This is a bacterial skin and soft tissue infection which extends along fascial planes and causes lots of necrosis. Antibiotics only work if they get to the bacteria. Where vascular access is destroyed antibiotic efficacy is reduced.

Treating necrotising fasciitis, which is a life threatening condition, requires antibiotics and surgical debridement of the necrosed tissue and may include amputations.