

Clinical features of *Staphylococcus aureus*

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Staphylococcus aureus, a bacterium belongs to Staphylococcaceae family. These are Gram positive cocci arranged in grape like clusters. *S. aureus* are most clinically relevant organisms producing catalase and bound coagulase which enhances the breakdown of the beta-lactam rings of penicillin group of antibiotics and develops antibiotic resistance. *S. aureus* can cause suppurative wound infections with the disruption of the mucosal barrier of the cutaneous layer of the skin and get access to the underlying tissues or to the blood stream and cause infection. However, *S. aureus* is the most prevalent organism in the hospital and community settings. Individuals indwelling intravenous catheters and immunocompromised persons are at increased risk to get the staphylococcal infections.

In 1880, Louis Pasteur cultured *S. aureus* in liquid medium for the first time and Sir Alexander Ogston coined the term 'Staphylococcus' due to the appearance of the microorganism similar to a bunch of grapes under microscope.

Methicillin resistant *Staphylococcus aureus* (MRSA) is a considerable universal healthcare issue showing significant mortality and morbidity and increasing hospital stay costs. It has been reported that the prevalence of MRSA in a hospital setting has increased worldwide. The MRSA are two types, the strains associated with hospitals are known as Hospital Acquired MRSA (HA-MRSA) and strains associated with the community are called as Community Acquired MRSA (CA-MRSA). Septic shock, pneumonia, endocarditis, bacteremia, cellulitis are caused due to the invasive MRSA infection.

Development of MRSA

S. aureus became resistant to penicillin within a year from the introduction of the antibiotic. Then after, Methicillin was introduced as an antibiotic and the bacteria became resistant over the antibiotic in the year 1960. The strains which had developed resistance to common antibiotics like penicillin and cephalosporin groups are also collectively considered to be MRSA. However, these MRSA strains have some unique characteristic that, they can viable for 2-3 months in the surface or the environment and infects individual from the month of its initial deposition. Thus, it