

The Discovery and Naming of *Staphylococcus aureus*

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Alexander Ogston (1844-1929) was a Scottish surgeon who in 1880 discovered the major cause of pus. Distressed with the high rate of post-operative mortality and unwilling to accept death as a likely outcome of surgery, Ogston was an early convert to the value of antisepsis advocated by Joseph Lister (1827-1912). Given the absence of inflammation in the wounds of Lister's post-operative patients, Ogston abandoned the contemporary teaching that suppuration was a necessary stage in wound healing, and adopted the antiseptic techniques of Lister. Ogston lauded Lister for transforming the future of surgery from a "hazardous lottery into a safe and soundly based science.

However, it was Ogston who provided the explanation. Lister believed that air was the source of putrefaction. By applying carbolic acid (phenol) dressings to surgical wounds air was excluded, thereby preventing suppuration, a form of putrefaction. For Ogston, however, this explanation was insufficient. Often "meditating on the subject [he] became more and more convinced that there was a single cause, and that the cause was some special germ." He opened the abscess of one of his patients, made a stained smear of the pus and examined it under a microscope.

"My delight may be conceived when there were revealed to me beautiful tangles, tufts and chains of round organisms in great numbers, which stood out clear and distinct among the pus cells and debris..."(1)

Ogston hypothesized that acute abscesses were caused by micrococci. After injecting pus from acute abscesses into guinea pigs and mice, he demonstrated that new abscesses formed, followed by signs of septicemia. Examining the blood of the septic animals he found micrococci. If, however, he pretreated the pus with heat or carbolic acid before injecting it, abscess formation was avoided. Ogston also designed a method for culturing micrococci by inoculating hens' eggs with pus and incubating them. The contents of the infected eggs were found to have similar pyogenic activity to that of the original pus (2,3).

Although Ogston was not the first to examine pus microscopically and describe micrococci (from the Greek **kokkos**, meaning berry), those in chains had already been designated Streptococci by Billroth (1874). In 1882 Ogston named the clustered micrococci "staphylococci," from the Greek staphyle, meaning bunch of grapes.

In 1884 Anton J. Rosenbach (1842-1923), a German surgeon, isolated two strains of staphylococci, which he named for the pigmented appearance of their colonies: *Staphylococcus aureus*, from the Latin aurum for gold, and *Staphylococcus albus* (now called *epidermidis*), from the Latin albus for white (5).

REFERENCES

1. Elek SD. *Staphylococcus pyogenes* and its relation to disease. Edinburgh: E. & S. Livingstone, 1959. p. 3.
2. Ogston, A. Ueber Abscesse. Arch Klin Chir 1880; 25:588-600.
3. Ogston A. Report upon micro-organisms in surgical diseases. Brit Med J 1881; 1:369-375.
4. Ogston A. Micrococcus poisoning. J Anat Physiol, 1882; 16:526-- 6; 1883; 17:24-58.
5. Rosenbach, AJ. Mikro-Organismen bei den Wund-Infektions-Krankheiten des Menschen. Wiesbaden, J.F. Bergmann, 1884. p. 18