The Role of Beta Haemolytic Streptococci in Post Tonsillectomy Haemorrhage

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Citation

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Abstract

Infection with beta haemolytic streptococci is common, particularly in the pharynx. It is well known that the virulence factors of these organisms can produce a zone of haemolysis on a blood agar plate, but the ocurnace of frank haemorrhage has not been described in association with infections. Tonsillectomy is a commonly performed procedure, and can be complicated by post tonsillectomy haemorrhage.We describe significantly increased rates of post operative bleeding associated with beta haemolytic streptococcal colonisation of the tonsillar bed. This is a new and important finding, and should help to guide our choice of antibiotics in the management of post tonsillectomy haemorrhage.

The study was carried out in the department of ENT/Microbiology at West Middlesex Hospital, Middlesex

Dear Editor:

Infection with beta haemolytic streptococci is extremely common and can lead to a wide range of illnesses. There are 4 main classes of beta haemolytic streptococci, A B C and G, with Group A being the most well known and common. Streptococcus pyogenes is a Group A streptococcus, and is commonly seen, particularly in acute pharyngitis as reported by Brook [1] . Acute infection with this organism can lead to a variety of sequelae including tonsillitis, scarlet fever and acute post streptoccocal glomerulonephritis as stated by Higgins [2] , rheumatic fever as reported by Olivier [3] and severe bacterial infection and sepsis in neonates as both Ring et al and Liu et al described [4] . More severe invasive infections such as necrotising fasciitis have also been described. Although they are not considered normal flora, pharyngeal carriage of Group A streptococci can occur without clinical symptoms of disease, as observed by Cunningham [5] .

Much has been reported about the virulence factors which lead to the veracity of streptococcal infection, most importantly in this instance hyaluronidase, as discussed by Baker et al [6] . One of the characteristics of this group of bacteria is the zone of haemolysis surrounding colonies on blood agar plate, and this is a phenotypic feature of haemolytic streptococci. It seems likely that this lysis represents haemolytic activity but the mechanism of the exact factors involved has not been proven as Nizet [7] explains. Literature search reveals that the role of beta haemolytic streptococci in association with secondary post-tonsillectomy bleeding has not been directly assessed, and so we undertook a prospective non interventional study of 138 patients who underwent tonsillectomy at West Middlesex Hospital during a period of 7 months. The patients' underwent microbiological sampling of the tonsil and the tonsillar fossa pre, peri and post operatively and their outcomes in terms of secondary post-tonsillectomy haemorrhage recorded. Patients with bacterial colonisation of the tonsillar fossa pre-operatively had a higher rate of post tonsillectomy bleeding at 25% versus 9.8% with no bacterial colonisation. This finding was statistically significant using fishers exact test, p=0.05. The different bleeding rates varied depending on which bacteria had been cultured, for example Group G Streptococci was associated with a bleeding rate of 20% and Group A Streptococci a rate of 40%. Analysis of the intra-operative swabs revealed that those with normal flora had a bleeding rate of 11%, whereas those with positive microbiology had rates as high as 24%. Again, the variable rate was dependent on the bacteria involved, for example Staphylococcus Aureus was associated with bleeding rates of 14%, Group G Streptococci 25%, and Group A Streptococci 44%. In many cases the numbers were so small that it is difficult to reach conclusions or statistical significance, however overall comparison of all the patients with positive swab results versus those with no bacteria,

shows that there is a consistent pattern of increased bleeding associated with colonisation of the tonsillar fossae with pathogens.

The range of bacteria isolated from the oropharynx included Lancefield Groups A, B, C and G streptococci, S. Aureus, Candida Albicans and Haemophilus Influenzae and as stated above the bacteria associated with the highest risk of bleeding were haemolytic streptococci.

We conclude that antimicrobial therapy, with the appropriate choice of antibiotics for activity against beta haemolytic streptococci should be part of the management of a post tonsillectomy bleed. These were extremely interesting findings and show the need for further work and research in this area.

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