RESEARCH SUMMARY

Staphylococcal infection in the mouth

Staphylococcal aureus infection in the oral cavity: a 3-year retrospective analysis of clinical laboratory data

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Objective
A retrospective analysis of laboratory data to investigate the isolation of *Staphylococcus aureus* from the oral cavity and facial area in specimens submitted to a regional diagnostic oral microbiology laboratory.

Methods
A hand search of laboratory records for a three-year period (1998-2000) was performed for specimens submitted to the regional diagnostic oral microbiology laboratory based at Glasgow Dental Hospital and School. Data were collected from forms where *S. aureus* was isolated. These data included demographics, referral source, specimen type, methicillin susceptibility and clinical details.

Results
For the period 1998-2000, there were 5,005 specimens submitted to the laboratory. *S. aureus* was isolated from 1,017 specimens, of which 967 (95%) were sensitive to methicillin (MSSA) and 50 (5%) were resistant to methicillin (MRSA). The 1,017 specimens were provided from 615 patients. MRSA was isolated from 37 (6%) of patients. There was an increasing incidence of *S. aureus* with age, particularly in the >70 years age group. The most common specimen from which MSSA was isolated was an oral rinse (38%) whilst for MRSA isolates this was a tongue swab (28%). The clinical condition most commonly reported for MSSA isolates was angular cheilitis (22%). Erythema, swelling, pain or burning of the oral mucosa was the clinical condition most commonly reported for MRSA isolates (16%). Patients from whom the MSSA isolates were recovered were most commonly (55%) seen in the oral medicine clinic at the dental hospital, whilst patients with MRSA were more commonly seen in primary care settings such as nursing homes, hospices and general dental practice (51%).

Conclusion
In line with more recent surveys, this retrospective study suggests that *S. aureus* may be a more frequent isolate from the oral cavity than hitherto suspected. A small proportion of the *S. aureus* isolates were MRSA. There were insufficient data available to determine whether the *S. aureus* isolates were colonising or infecting the oral cavity. However, the role of *S. aureus* in several diseases of the oral mucosa merits further investigation.

IN BRIEF

- A large retrospective analysis of the isolation of *S. aureus* in oral specimens submitted to a regional diagnostic oral microbiology laboratory.
- The role of *S. aureus* in some types of oral disease may be more important than previously recognised.
- Methicillin resistant *S. aureus* was isolated in a small number of specimens from the oral cavity.

COMMENT

Staphylococcus aureus **is a well recognised pathogen associated with a variety of clinical syndromes. With the exception of angular cheilitis and parotitis, its role as a pathogen in the orofacial region is surprisingly poorly understood. The bacterium is commonly regarded as a transient coloniser of the oral cavity and often disregarded when isolated from clinical specimens.**

This interesting, three-year, retrospective study reports the isolation of *S. aureus* from the orofacial region at a regional diagnostic oral microbiology laboratory in Scotland. Demographic and clinical data were collated and the sensitivity of isolates to methicillin determined. *S. aureus* was isolated from just over 20% of the 5,005 specimens studied. Five per cent of the isolates were shown to be methicillin resistant *S. aureus* (MRSA). The single clinical condition most commonly reported for methicillin sensitive *S. aureus* (MSSA) isolates was angular cheilitis (22%). The symptoms most frequently associated with either MSSA or MRSA were erythema, swelling, pain, or burning of the mucosa. The authors highlight the difficulties in interpreting these data and in relating them to symptoms in view of the wide (10–50%) prevalence of *S. aureus* in different populations. However, these data indicate the need for further research, particularly in view of the high rate of recovery from patients with mucosal symptoms and the high percentage of oral isolates from previous studies that have been shown to possess virulence factors.

Oral carriage of MRSA (and also MSSA) serve as a reservoir for the recolonisation of other body sites and cross infection between patient and healthcare workers. The implications for cross infection are discussed, particularly in view of the apparent higher rate of isolation from elderly individuals and the known high prevalence of methicillin resistant *S. aureus* in primary care settings such as nursing homes. In this context it is interesting to note the findings of a previous study in which 10% of denture wearers were shown to carry MRSA on their dentures. Furthermore, a number of studies have reported considerable difficulty in the removal of MRSA from colonised dentures. The roles and responsibilities of the dental practitioner are highlighted with the documentation of at least two cases of cross infection of MRSA from a dentist to patients.

In summary, the authors conclude that the oral carriage of *S. aureus*, including resistant strains, may be more common than previously thought and that this should prompt a re-appraisal of the role of *S. aureus* in health and disease. The paper provides a very readable account of the problems associated with the study of this important pathogen and its significance in the oral cavity.

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