

## Original Research

### Assessment of microbial flora in patients with oro facial infection

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#### ABSTRACT

**Background:** Odontogenic infections range from simple periapical abscesses to severe infections involving superficial and deep fascial spaces in the neck often leading to septicemia. The present study was conducted to assess of microbial flora in patients with oro facial infection. **Materials & Methods:** The present study was conducted on 45 patients of both genders. In all patients, the specimen was collected by aspiration with 18 gauge needle in a syringe with routine aseptic precautions before drainage. The samples were sent to laboratory for processing. **Results:** Out of 45 patients, males were 25 and females were 20. Type of microorganism was anaerobic streptococci seen in 14 patients, staphylococcus aureus in 10, E. coli in 8, non haemolytic streptococci in 7 and Klebsiella pneumoniae in 6. The difference was significant ( $P < 0.05$ ). Fascial spaces involved were canine in 10, buccal in 6, submental in 8, submandibular in 15 and infratemporal in 6. **Conclusion:** The type of microorganism was anaerobic streptococci, staphylococcus aureus, E. coli, non haemolytic streptococci and Klebsiella pneumoniae.

**Key words:** Flora, Klebsiella pneumoniae, Streptococci

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#### INTRODUCTION

Infections in the orofacial region are commonly known to be of dental origin. Odontogenic infections range from simple periapical abscesses to severe infections involving superficial and deep fascial spaces in the neck often leading to septicemia.<sup>1</sup>

Dental infection has plagued humankind for as long as our civilization is. Hardly any imagination is required to picture a primitive man suffering pain and swelling of the face due to an abscess tooth, the cause of which could be due to periodontal trauma or dental caries<sup>2</sup>. Facial space infection has been recognized and described since the time of Galen in the second century.

The microbiology of acute dental infections has been in the midst of many researches. Various bacteriological studies show variation in their conclusions.<sup>3</sup>

Cervico-facial cellulitis are known as primarily dental cause affections. These are complications of dental pathology including carious ones. These infections range from simple localized dental abscesses to infections in the deep lining of the face and neck, which can lead to the patient's prognosis or the functional prognosis of certain noble organs such as the eyes. They constitute medico-surgical emergencies, the management of which associates the suppression of the causal dental drainage of the purulent collection, and adapted antibiotherapy.<sup>4</sup>

The difference between reports undoubtedly reflects variations in the bacteriological techniques employed for their isolation and identification and may be due to gradual changes in flora due to injudicious use of antimicrobials.<sup>5</sup>

The present study was conducted to assess of microbial flora in patients with oro facial infection.

**MATERIALS & METHODS**

The present study was conducted in the department of Oral & Maxillofacial surgery. It comprised of 45 patients of both genders. The study protocol was approved from institutional ethical committee. All were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was recorded. In all patients, the specimen was collected by aspiration with 18 gauge needle in a syringe with routine aseptic precautions before drainage. The samples were sent to laboratory for processing. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

Total- 45		
Gender	Males	Females
Number	25	20

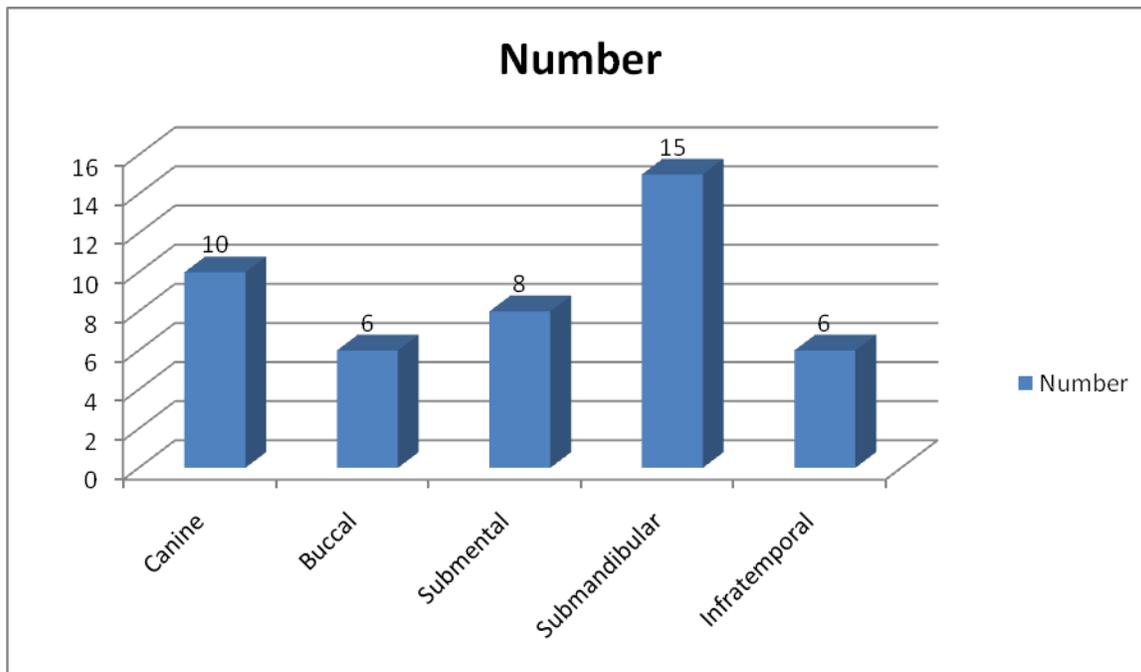
Table I shows that out of 45 patients, males were 25 and females were 20.

**Table II Type of microorganism**

Microorganism	Number	P value
Anaerobic streptococci	14	0.05
Staphylococcus aureus	10	
E. coli	8	
Non haemolytic streptococci	7	
Klebsiella pneumoniae	6	

Table II shows that type of microorganism was anaerobic streptococci seen in 14 patients, staphylococcus aureus in 10, E. coli in 8, non haemolytic streptococci in 7 and Klebsiella pneumoniae in 6. The difference was significant (P< 0.05).

**Graph I Fascial spaces involved**



Graph I shows that fascial spaces involved were canine in 10, buccal in 6, submental in 8, submandibular in 15 and infratemporal in 6. The difference was significant (P< 0.05).

## DISCUSSION

A fight against microorganism by man dates back to ancient civilization. Despite all these, even after centuries and endless research, mankind has not been successful in eradicating microbial infections in total. There is a commensal bacterial flora specific to the oro-facial region. This one evolves during the lifetime according to several factors.<sup>6</sup>

Much water has flown since the discovery of penicillin and the researchers talk in terms of conquering organisms that are penicillin resistant beta lactams and newer highly effective cephalosporins as well as quinolones. Although penicillin was considered the long awaiting panacea for dental infection the bacteriological spectrum of the oral flora and the understanding of its complexities have undergone rapid evolution since penicillin was introduced, microorganisms are still a step ahead.<sup>7</sup> The present study was conducted to assess of microbial flora in patients with oro facial infection.

In this study, out of 45 patients, males were 25 and females were 20. Type of microorganism was anaerobic streptococci seen in 14 patients, staphylococcus aureus in 10, E. coli in 8, non haemolytic streptococci in 7 and Klebsiella pneumoniae in 6. Regaet al<sup>8</sup> stated that the microbiology of acute dental infections has been in the midst of many researches. Various bacteriological studies show variations in their conclusion. This study was conducted to evaluate the microbial flora in orofacial space infections of odontogenic origin, which is essential for appropriate antibiotic selection. Thirty-five patients with odontogenic infection causing fascial space involvement were included. Aspirated specimen was transported in nutrient broth and thyoglycollate media within an hour for further culture and sensitivity testing. We found that fascial spaces involved were canine in 10, buccal in 6, submental in 8, submandibular in 15 and infratemporal in 6.

Aderholdet al<sup>9</sup> found that sensitivity of Streptococci to penicillin, erythromycin and gentamycin was found in 75%, while sensitivity was 100% with ciprofloxacin and cephotaxime. All aerobic germs were sensitive to gentamycin, vancomycin and imipenam, but also 80% were sensitive to penicillin G, amoxicillin, amoxicillin-clavulanic acid combination. In addition, the sensitivity of Enterobacteria is added. In our study, Gram-negative Escherichia Coli were resistant to cyclins in 100% of cases, whereas they were sensitive to aminoglycosides in 90% of cases, to cephalosporins in 98% of cases, and to quinolones in 100% of cases.

Patankar et al<sup>10</sup> found that most odontogenic infections arise as a sequel of pulp necrosis caused by caries, trauma, periodontitis, etc. They range from periapical abscesses to superficial and deep infections in neck. Some resolve with little consequence and some lead to severe infections of head and neck region. Twenty-six patients with space infection of odontogenic origin were selected irrespective of their age and gender. Pus samples were collected and

processed in the microbiology laboratory for the growth of anaerobic and aerobic bacteria and antibiotic sensitivity profile. Demographic profile of the patients showed that male patients were more commonly involved and most patients fell in to the third and fourth decade of age groups. Most common site of involvement was submandibular space. Alpha hemolytic streptococci were the frequent aerobic bacterial isolate and among anaerobes, anaerobic streptococci followed by bacteroids were the major pathogens. Clindamycin, Gentamycin, Linezolid, Imipenam were the most effective antibiotics. 20 % of the aerobes were resistant to penicillin.

## CONCLUSION

The type of microorganism was anaerobic streptococci, staphylococcus aureus, E. coli, non haemolytic streptococci and Klebsiella pneumoniae.

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