

Bacteriology Of Orofacial Infections In Gombe, Nigeria

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ABSTRACT: This study was aimed at determining the pattern of microorganisms seen in Orofacial infections as well as investigating the antibiotic sensitivity pattern of the isolates. Specimens were obtained aseptically from 36 patients presenting with Orofacial infections at the dental Clinic, federal Medical centre, Gombe, Nigeria. The specimen was transported in an aerobically pre-reduced transport medium for processing in the laboratory. Isolation and identification were done employing standard bacteriological techniques. Antibiotic susceptibility testing was performed by the disk diffusion method. All the 36 clinical samples obtained yielded growth of bacteria. Anaerobes were cultured from 34 (94.4%) specimens while 2 specimens yielded only *Streptococcus* spp. Majority of the anaerobes were susceptible to commonly available antibiotics. Ciprofloxacin and cloxacillin demonstrated strongest invitro activity against all isolates. The study revealed again the polymicrobial nature of Orofacial infections as well as the predominance of anaerobes in the aetiology of these infections.

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INTRODUCTION

Bacterial infections are among the most commonly encountered problems in the oral and maxillofacial surgical practice and previous reports from Nigeria showed that orofacial infection remain a major problem. This problem persists in spite of the availability of broad spectrum of potentially useful antibiotics (Obiechina *et al* 2001; Ndukwe *et al.*, 2002).

The bacteriology of orofacial infection has been studied widely and various forms of aerobic and anaerobic micro-organisms reflective of normal oral flora have been isolated. The Gram negative anaerobic bacilli namely, *prevotella*, *porphyromonas*, *fusobacteria*, and *streptococcus*, *staphylococcus*, Antinomycetes, species, as well as anaerobic, cocci are among the prevalent organisms isolated in most studies (Ahaji *et al.*, 1996; Simao *et al.*, 1998).

The present study examined the bacteriology of different types of orofacial infections with the aim of

providing information on the prevalent bacterial, and also the antibiotic sensitivity patterns of the organisms in order to provide a guide to clinicians for making rational decisions over the choice of antibiotics in the management of these infections.

MATERIALS AND METHODS

A prospective study of 36 patients aged 16-65 years (20 males and 16 females) with various forms of Orofacial infections was carried out. The orofacial infection was 34 odontogenic and 2 non – Odontogenic.

The entire patients were seen at the Dental clinic of the Federal Medical Centre, Gombe, Nigeria between January 2009 to April 2010 Specimen for bacteriological investigation were obtained aseptically through intact mucosa or skin. Abscesses were either aspirated with sterile syringes or swabbed during incision and drainage while bone or granulation tissues were surgically obtained through an intra oral incision in patients with chronic osteomyelitis

Bacteria isolation

Specimens were cultured on blood agar incubated aerobically at 37°C, cooked meat broth (Oxoid, England) and fastidious anaerobe agar (Techlab USA) and incubated at 37°C in anaerobic jars in an atmosphere of 1% O₂/8% CO₂ generated using commercial gas-generating kits (Oxoid, England) in accordance with manufacturer's instructions.

Isolates were identified by conventional biochemical tests (Murray *et al.*, 1995). Negative bacteria were identified using the API 20E system (Biomérieux, France).

Antibiotic sensitivity testing

This was done by the disk diffusion method (NCCLS, 1990). Commercially available antibiotic disks were used and interpretation of inhibition zone was in accordance with manufacturer's instructions (AB Biodisk, Sweden)

RESULT

The entire 36 sample obtained yielded growth of bacteria. Sixty-four bacterial isolates were obtained. Anaerobes were cultured from 34 (94.4%) specimens and this accounted for 62 (96.9%) of the number of organisms isolated (table 1).

Prevotella a Gram negative anaerobic cocci were the commonest bacteria isolated while *streptococcus* spp was the only aerobic species isolated.

Table 2: shows the antibiotic sensitivity pattern of the anaerobic and aerobic (streptococcal) isolates. Majority of these organisms were susceptible to the commonly used antibiotic. Ciprofloxacin and cloxacillin also displayed excellent in vitro activity against the anaerobic isolated.

DISCUSSION

The result of the study demonstrates again the polymicrobial nature of orofacial infections as well as the predominance of anaerobic bacteria in the pathogenesis of these infections. In this study, the Gram negative rods and the anaerobic cocci were the commonest anaerobic bacteria isolated. This result concurs with result from past studies on Orofacial infections (Ndukwe *et al.*, 2004)

Antibiotic resistance is becoming increasingly common to cheaper drugs in Nigeria. However, most of the commonly used antibiotics demonstrated very good invitro activities against most of the organisms isolated. Erythromycin and chloramphenicol displayed poor activities against the streptococcal isolates.

It is important to realize that the successful management of orofacial infection depends on the removal of sources of infection, establishment of prompt and adequate surgical drainage and the institution of appropriate antibiotic therapy. Antibiotic therapy alone is not a substitute for surgery.

Table 1: Bacterial isolate of Orofacial infection

	Sub-mandibles space abscess	Chronic suppurative Osteomyelitis	Buccal space abscess	Acute dento-alveolar abscess	Canine fossa abscess
<i>Prevotella</i> Spp	-	10	6	10	8
<i>Peptostreptococcus</i>	-	4	2	2	2
<i>Fusobacteria</i>	-	-	4	-	-
<i>Porphyromonas</i>	-	2	4	6	2

