

# Masticatory, temporal and buccal space infection in an immunocompromised patient: a case report

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## ABSTRACT

'AIDS' (Acquired Immunity Deficiency Syndrome) is a term used to describe the various clinical syndromes, specific opportunistic infections or malignancies that can occur with HIV infection. Oral manifestations of these diseases are common in people with Human Immunodeficiency Virus (HIV) infection and may be due to a decline in immune function. Hence patients with AIDS are subjected to recurrent, life threatening opportunistic infection. This is a case report of a 70yr old female who presented with infection of the right buccal, masticator and submandibular spaces. A routine blood report revealed seropositivity for HIV infection. She was treated with antibiotics and underwent an incision and drainage following hospitalization.

**Key words:** Masticatory, Submandibular space infection, Opportunistic infection

## INTRODUCTION

The AIDS epidemic officially began on the 5th of June 1981. On that day Gottlieb et al. published the first report, titled "Pneumocystis Pneumonia - Los Angeles". The AIDS pandemic began in India in the mid 1980s. In 1986, 12 commercial sex workers tested HIV positive in Chennai.<sup>1</sup> Drug users, male homosexuals/bisexual contacts, receipt of blood transmission or blood products, multiple sex partners, perinatal transmission, transmission in Health care settings are the common sources accountable for the spread of HIV infection. For the dental practitioner, the significance of intraoral manifestations associated with HIV disease cannot be overstated.<sup>2</sup>

AIDS is associated with several immunological diseases like T-lymphocyte deficiency, B-lymphocyte defects, and macrophage and neutrophil dysfunctions. Individuals with AIDS may have decreased salivary lactoferrin and IGA production, which may account for the high incidence of oral infection. With the decline in immune function, individuals with AIDS are subjected to recurrent, life threatening, opportunistic infection.<sup>3</sup>

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## Acronyms

AIDS :Acquired Immunity Deficiency Syndrome  
HIV : Human Immunodeficiency Virus

Pyogenic orofacial infections may originate in an odontogenic location.<sup>4</sup> The majority are confined to local lesions, while in some cases they spread from the affected tooth along the anatomic spaces and occasionally advance to a site far from the initial infection. Significant morbidity or even death may occur in the cases that advance into the retropharyngeal, mediastinal, intra-cranial or intra-orbital spaces.<sup>5</sup>

This paper highlights a case of a HIV infected female who presented with simultaneous infection of the right buccal, the masticator, and the submandibular spaces.

## CASE HISTORY

A 70-year old female patient visited the Department with the chief complaint of pain and swelling in the right side of the face, first observed about a month previously. Initially it had been a small swelling that started in the area of the right angle of the mandible, accompanied by mild pain and low grade fever. The swelling had increased in size over time and the patient had sought treatment from a district clinic where she had been prescribed a week's course of antibiotics. (Figure1 and Figure2).

**Figure1: Showing Right Buccal and Submandibular space infection.**



**Figure2: Showing Right Temporal space infection.**



On examination, a large, diffuse swelling was seen over the right side of the face, commencing at the midline of the scalp and extending inferiorly to 3cm to 4cm below the lower border of mandible. The skin over the swelling appeared stretched. On palpation the swelling was soft tender and fluctuant and a local rise of temperature could be discerned. The submandibular and cervical lymph nodes were enlarged bilaterally and were tender on palpation.

An intraoral examination was hampered by of the presence of trismus but it could be seen that the teeth revealed generalised stains and the presence of calculus, due to the twenty-year habit of chewing pan. The lower incisors showed attrition and the associated gingival tissue was inflamed, bleeding readily on probing.

Teeth 47 and 48 showed grade III mobility with periodontal pockets. Pus discharge was seen in the gingival sulci of teeth 47 and 48. (Figure 3)

**Figure 3 :Restricted mouth opening due to involvement of Masticatory space.**



The patient was advised to submit to a routine blood examination, which revealed that she was seropositive for HIV infection. The provisional diagnosis was an acute periodontal abscess affecting 47 and 48 with infection of the masticatory, temporal and buccal spaces.

The patient did not attend appointments for further and follow up management procedures.

**DISCUSSION**

Oral lesions are common in patients infected by the HIV virus and may indicate an impairment in the patient's general health status and consequently predicting a poor prognosis. In some cases, the oral lesions are the first signs of infection and many of these HIV-positive patients present manifestations involving the maxillofacial region in all stages of the disease.<sup>6</sup>

A strong correlation has been shown between HIV infection and various oral lesions including oral candidiasis, hairy leukoplakia, Kaposi's sarcoma, non Hodgkins lymphoma and specific forms of periodontal disease.<sup>7</sup>

Studies indicate that the majority of pyogenic oro-facial infections are due to odontogenic infections which are usually due to dental caries, pericoronitis, periodontitis, trauma to the dentition and the supporting structures, or complications from dental procedures. Second and third permanent molars are the teeth most commonly associated with pyogenic odontogenic infection.<sup>8</sup>

Periodontitis is a disease attributable to multiple infectious agents and interconnected cellular and humoral host immune responses. However, it has been difficult to unravel the precise role of various putative pathogens and host responses in the pathogenesis of periodontitis.

Periodontitis in HIV-infected patients may resemble that of periodontitis in non-HIV-infected individuals, or may more dramatically present with profuse gingival bleeding or necrotic gingival tissue.<sup>9</sup>

Periodontal diseases that are most strongly associated with HIV infection include linear gingival erythema, necrotizing ulcerative gingivitis and necrotizing ulcerative periodontitis <sup>7</sup>

Srivanitchapoom et al. revealed that the submandibular space was the most frequently involved in non-HIV infected patients, whereas the superficial masticator space was the most frequently affected in HIV infected counterparts. They further observed that immunocompromised patients tended to develop multiple space infections.<sup>10</sup>

The masticator space is a distinct deep facial space, bounded by the superficial layer of the deep cervical fascia. It contains the ramus and posterior body of the mandible, and the four muscles of mastication, including the medial and lateral pterygoid muscles, the temporal muscle and the masseter muscle. Contracture of medial and lateral pterygoid muscles in response to inflammation causes trismus and precipitates pain in the temporo-mandibular joint.<sup>11</sup>

The temporal space is posterior and superior to the masseteric and pterygomandibular spaces. Bounded laterally by the temporalis fascia and medially by the skull, it is divided into two portions by the temporalis muscle. The patient demonstrated swelling over the temporal area, posterior from the lateral aspect of the lateral orbital rim. Trismus is always a feature of this infection, resulting from infectious involvement of the temporalis muscle.<sup>3</sup>

The buccal space contains the buccal pad of fat, Stenson's duct and the facial artery. Infection results in a clinically marked cheek swelling. Submandibular space infections are commonly seen because odontogenic infections readily spread from the root apices of the second and third molar teeth which extend inferior to the mylohyoid line of muscle attachment.<sup>3</sup>

For dental practitioners, the medical evaluation of patients with HIV is three-tiered. They are,

- Complications that may arise during dental therapy secondary to a patient's immunologic, haemostasis and pharmacotherapeutic status.
- Medical conditions that may directly interfere with provision of dental procedures.
- Patient's prognosis for survival.

Dental providers need to continue to render dental care to all patients, regardless of their social or religious background or sexual orientation. The provision of dental care for HIV-infected individuals is similar to that of non-infectious patients, with attention being paid to appropriate infection control measures.<sup>2</sup>

#### CONCLUSION:

Patients with HIV infection are at an increased risk for rapidly progressive severe periodontal disease. Dental management requires early identification of lesions and prevention of further periodontal deterioration. The treatment of patients infected with HIV is a demanding discipline within both medicine and dentistry.

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**Readers will note that we have reduced the number of General Questions to twenty whilst retaining five Ethics based questions.** Our allocation of CPD points remains unchanged. There is optimism that this section will continue to provide members with a valuable source of CPD points whilst also achieving the objective of CPD, to assure Continuing Education.

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