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UNUSUAL CAUSE OF PALATAL ULCER IN A PARTIAL DENTURE WEARER: ALCALIGENES SPECIES

[1] OSAWE FELIX. OMOREGIE and [2] OSAGIE AKPATA O.

ABSTRACT

Palatal dentures are known to predispose wearers' to developing opportunistic bacterial and fungi infections. This study reports a rare case of palatal ulceration associated with Alcaligenes species infection in a patient using an upper single tooth partial denture, to emphasize the need for proper care of dentures to prevent opportunistic infection.

A 30 years old civil servant presented with a 6-day history of sore in the roof of the mouth associated with pain, difficulty with mouth opening, chewing and swallowing. The patient had tooth extraction followed by an upper single tooth partial denture inserted about 2 years before he presented with the complaint of palatal sore. Oral examination revealed a solitary, oval shaped, tender, palatal ulcer, with erythematous floor and some yellowish areas of necrotic sloughs, and located distal to the upper single tooth partial denture. There was no submandibular lymph node enlargement. HIV screening (ELISA) showed that the patient was HIV negative and VDRL screening for syphilis was also negative. Microscopy culture and sensitivity (MCS) of the palatal ulcer yielded growth of Alcaligenes species that was sensitive to erythromycin. A diagnosis of palatal ulcer associated with Alcaligenes species was made and the patient was placed on Tabs Erythromycin 500mg 8 hourly and Flagyl 400mg 8 hourly for a week, and warm saline mouth rinse 6 times daily for 2 weeks. The palatal ulcer was completely healed in less than 3 weeks after presentation.

This study supports proper education of denture wearers on how to care for their dentures. Six monthly visits to dental clinic is recommended for review of the status of denture and the underlying oral mucosal, to prevent opportunistic infection and ensure better quality of life for denture wearers.

INTRODUCTION

Several infective causes of oral ulceration have been reported. They include herpetic stomatitis, chickenpox, herpes zoster, hand-foot and mouth disease, herpangina, infectious mononucleosis, human immunodeficiency virus (HIV) infection, acute necrotizing ulcerative gingivitis (ANUG), tuberculosis, syphilis, fungal infections.[1] However, Alcaligenes faecalis has not been previously reported as a normal oral flora or a cause of oral ulcer in humans; although, Alcaligenes species has been reported among the oral microbes in subgingival plaque in squirrel monkeys. [2]

Alcaligene faecalis occur in water, soil and the alimentary canal in humans. The microbe has peritrichous flagellar arrangement which allows for motility. [3,4] It is a rod-shaped gram-negative, aerobe and the microbe is optimal at temperatures

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[1]*Osawe Felix. Omoregie*
Department of Oral Pathology and Medicine, University of Benin Teaching Hospital, ***Benin City, Nigeria***

[2]*Osagie Akpata O.*
Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital, ***Benin City, Nigeria***

Corresponding Author:
Osawe Felix. Omoregie
omoregiefo@yahoo.com
08056014081

between 20-37 °C. Most infections caused by A. faecalis are opportunistic and acquired from moist items such as nebulizers, respirators, and lavage fluids. A. faecalis infections occur usually in the form of urinary tract infection. [3] This organism is also known to be the pathogen that causes bacterial keratitis and postoperative endophthalmitis. [5,6] There are also reports of A. faecalis infection causing cornea ulcer [7] and peritonitis. [4]

Palatal dentures are known to predispose wearers' to developing opportunistic bacterial and fungi infections. Candida albican infection is often associated with denture stomatitis, especially in elderly patients. The possible aetiological factors for denture stomatitis include poor denture hygiene, continual and nighttime wearing of removable dentures; accumulation of denture plaque and poor-fitting dentures that can traumatize the oral mucosal. These factors appear to increase the ability of Candida albicans to colonize both the denture and oral mucosal surfaces, where it acts as an opportunistic pathogen. [8] This study reports a rare case of palatal ulceration associated with Alcaligenes species infection in a patient using an upper partial denture, to emphasize the need for proper care of dentures to prevent opportunistic infection.

CASE REPORT

A 30 years old civil servant presented with a 6-day history of sore in the roof of the mouth. The sore began as a blister which ruptured about 2 hours after he first noticed the lesion. There was associated severe and sharp pain, causing difficulty with mouth opening, chewing and swallowing. There was also a history of intermittent urethral discharge, but no history of preceding fever or trauma. The patient was placed on ampiclox, chymoral and lincomycin by a general physician. The patient had tooth extraction followed by an upper single tooth partial denture inserted about 2 years before the patient presented with the complaint of palatal sore.

Oral examination revealed a fair oral hygiene status and a solitary, oval shaped palatal ulcer, with erythematous floor and some yellowish areas of necrotic sloughs, measuring about 4 cm by 3 cm and located distal to an upper single tooth partial denture (Figure 1). The margins of the palatal ulcer were irregular and tender, with no associated submandibular lymph node enlargement on palpation. The differential diagnoses for the lesion were syphilitic ulcer and major aphthous ulcer. Laboratory investigations requested for were: swab of the ulcer for microscopy, culture and sensitivity (MCS), urine MCS, Retroviral screening (using ELISA), and screening for syphilis (using VDRL). The patient was placed on soft diet, warm saline mouth rinse 6 times daily and medication for 5 days (Cap. Amoxicillin 1g start then 500mg 8 hourly, Tabs. Flagyl 400mg 8 hourly and Tabs. Cataflam 50mg 12 hourly).

Clinical review of the case after 5 days showed that the patient's complaint of pain had reduced significantly and the ulcer was healing leaving 2 smaller ulcers measuring about 2cm by 2cm. The floor of the ulcers was clean and granulating, with diffuse areas of dark pigmentation surrounding the margins of ulcers (Figure 2). Urine MCS yielded no growth, while MCS of the palatal ulcer showed gram negative bacilli and pus cells; the culture yielded growth of Alcaligenes species after 48 hours incubation and the microbe was sensitive to erythromycin, Gentamycin and Imipenem. The patient was HIV

negative and VDRL was also negative. A diagnosis of palatal ulcer associated with Alcaligenes species was made and the patient was placed on Tab. Erythromycin 500mg 8 hourly, Tab. Flagyl 400mg 8 hourly and Tabs Paracetamol 1g 8 hourly together with soft diet and warm saline mouth rinse 6 times daily for a week.

On review a week later, there was no fresh complaint about the oral ulcer and oral examination revealed healing of a small solitary palatal ulcer with areas of dark pigmentation around the margins. However, the patient complained of occasional urethral pus discharge and request for MCS of the urethral discharge was made. The palatal ulcer was completely healed on review of the patient a week later (less than 3 weeks after presentation) [Figure 3]. However, urethral discharge MCS revealed mixed growth of staphylococcus aureus and enterobacter species; both microbes were sensitive to Augmentin and levofloxacin. The patient was placed on Tab. Augmentin 1 g 12 hourly for a week. The patient presented a week later with complaint of persistent but scanty urethral discharge. A repeat urethral discharge MCS was requested for and the patient was referred to the Medical Microbiology Clinic of the Hospital for expert management of the UTI.

DISCUSSION

The oral mucosal lesions commonly associated with denture wearers are traumatic ulcer, denture-induced stomatitis and oral candidiasis; although denture-induced stomatitis is reported to be more common in partial denture wearers. [9] The prevalence of oral mucosal ulcers associated with denture wearers has been related to gender, age, the length of time of denture usage, education level and economic status of the patients. The study showed significant association of denture stomatitis and traumatic ulcers with older age and the length of denture usage. [10]

This present study reports a rare opportunistic infection by Alcaligenes species resulting in a palatal ulcer related to an upper single tooth partial denture. It appears that local trauma from the posterior border of the denture and or the length of denture usage without regular review to ensure proper care of the denture may have predisposed the patient to developing the palatal ulcer. The mode of transmission of the Alcaligenes species infection may have been through drinking water. Six monthly visits to dental clinic is therefore recommended for prophylactic dental cleaning and review of the status of the denture and the underlying oral mucosa, to prevent opportunistic infection and ensure better quality of life for denture wearers.

The palatal ulcer reported in this study was not associated with fever or vomiting that is known to occur commonly in A. faecalis infection. However, there was urinary tract infection (UTI) together with the palatal ulcer in this patient, which was initially assumed to be caused by the A. faecalis infection. [3] Other clinical differential diagnoses of the lesion that was excluded by further investigation were HIV associated major aphthous ulcer and syphilitic ulcer. Surprisingly, the urethral discharge MCS showed that the UTI was due to a mixed infection by Staphyloccocus aureus and Enterobacter Species, which were sensitive to Augmentin and Levofloxacin. This may explain why there was complete healing of the palatal ulcer, while the UTI was persistent following erythromycin therapy. In addition, a dark pigmentation was observed at the margin of the palatal ulcer,

which was consistent with the features of A faecalis, a known pigment producing microbe. However, the patient was referred to a Medical Microbiologist in the Hospital, to assist in the review and treatment of the UTI.

In conclusion, this study supports proper education of denture wearers on how to care for their dentures. Six monthly visits to dental clinic is recommended for review of the status of denture and the underlying oral mucosa, to prevent opportunistic infection and ensure better quality of life for denture wearers.

REFERENCES

1. Scully C. Shotts R. ABC of oral health: Mouth ulcers and other causes of orofacial soreness and pain. BMJ 2000; 321:162-165.

2. Beem, J E, Hurley C G, Magnusson I, McArthur W P, et al . Subgingival microbiota in squirrel monkeys with naturally occurring periodontal diseases. Infect. Immun. 1991; 59:4034–4041.

3. Winn W, Sommers H, Koneman E, Janda W, et al. "Color Atlas and Textbook of Diagnostic Microbiology". 'J.B. Lippincott Company'. Edition 3: 1988;184: 200-201

4. Kahveci, A., Asicioglu, E., Tigen, E., Ari, E., Arikan, H., Odabasi, Z., and Ozener, C. unusual causes of peritonitis in a peritoneal dialysis patient: Alcaligenes faecalis and Pantoea agglomerans. Annals of Clinical Microbiology and Antimicrobials. 2011; 10: 12

5. Austin, B., Colwell, R.R., Forns, J.M., and Rodgers, C.J. Alcaligenes faecalis subsp. homari subsp. nov., a new group of bacteria isolated from moribund lobsters. International Journal of Systematic Bacteriology. 1981; 31(1): 72-76.

6. Khokhar DS, Sethi HS, Kumar H, Sudan R, et al.Postkeratoplasty endophthalmitis by Alcaligenes faecalis: a case report. Cornea. 2002;21(2):232-233

7. Kaliaperumal, S, Srinivasan, R, Gupta, A, Parija, SC. Postoperative endophthalmitis due to an unusual pathogen: Alcaligenes faecalis. Eye. 2006; 20: 968–969.

8. Gendreau L, Loewy ZG. Epidemiology and aetiology of denture stomatitis. J Prosthodont. 2011; 20(4):251-60.

9. Jainkittivong A, Aneksuk V, Langlais RP. Oral mucosal lesions in denture wearers. Gerodontology. 2010; 27(1):26-32.

10. Mandali G, Sener ID, Turker SB, Ulgen H. Factors affecting the distribution and prevalence of oral mucosal lesions in complete denture wearers. Gerodontology. 2011; 28(2):97-103.