www.ajbrui.org

Afr. J. Biomed. Res. Vol. 25 (September, 2022); 441 - 444

Case Report

Prosthetic Management of Palatal Perforation Secondary to Chronic Rhinosinusitis in an HIV Individual: A Case Report

Dosumu O.O.[1], Adeosun A.A.[2], Ogunrinde T.J.[1] and *Olawale O.F.[3]

[1]*Department of Restorative Dentistry, Faculty of Dentistry University of Ibadan, Ibadan, Oyo state, Nigeria*
[2]*Department of Ear Nose and Throat, University College Hospital, Ibadan, Oyo state, Nigeria*
[3]*Department of Restorative Dentistry, University College Hospital, Ibadan, Oyo state, Nigeria*

ABSTRACT

Palatal perforation can be due to congenital or acquired causes. Aetiologies of palatal perforations include developmental disorders, infections, immune suppressed state, malignancy, and drugs abuse among others. Patients with palatal perforation experience various problems among which are phonation, feeding difficulties and psychological trauma. In this article, we discussed a rare case of palatal perforation due to chronic sinisitis in a 42-year-old HIV positive patient. The perforation was managed with a close hollow bulb palatal obturator, following which there was an improvement in patient's phonation, feeding and psychological wellbeing. Palatal perforation should be seen as one of the possible complications in an HIV patient with low CD4 count and the defect can be managed by the use of prosthesis.

Keywords: *HIV, Chronic rhinosinusitis, Palatal obturator, Palatal defect.*

*Author for correspondence: Email: *olawalefo@yahoo.com; Tel: + 234 8068546001*

Received: March 2022; Accepted: June 2022

DOI: 10.4314/ajbr.v25i3.22

INTRODUCTION

The palate is the roof of the mouth separating the oral cavity from the nasal cavity and can be perforated (Santosh, 2016). Perforation of the palate is a pathologic entity that presents as a communication between the nasal cavities and the oral cavity. It is a rare condition with characteristics which may be indistinguishable from other causes of palatal perforation and this poses diagnostic dilemma for the clinician(Serrano *et al*.,2010; Sowmya*et al*., 2013). The management of palatal perforation is directedat identifying and eliminating the cause to prevent further propagation of the defect while the established defect can be managed by surgical repair or prosthetic obturation.

Sujutha *et al*., (2011) reported cases of palatal perforation among individual with human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS). HIV and AIDS continue to create major changes in dental practice (Werner, 2012).Africa has the highest incidence of HIV- and AIDS-infected individuals in the world (Department of Health, 2009; Abdolkarim *et al*., 2009). with Nigeria ranking as the second largest epidemics of HIV in the world and has one of the highest new infection rate in sub- Sahara Africa. The number of individuals on antiretroviral treatment (ART) is on the increase, leading to improved survival rates (Rehle, 2002).as a result, this has influenced the way HIV-associated manifestations present, including the manifestations in the head and neck region.

There are myriads of oral manifestations of HIV among which are periodontal and gingival diseases; although the advent of ART has significantly reduced their incidence (Rehle, 2002). Multiple oral lesions in a patient on ART might indicate treatment failure. As the CD4 count decreases, the risk of rapidly progressive necrotising ulcerative gingivitis (NUG) and stomatitis increases (Pletcher *et al*., 2005). Owing to the necrotising nature of NUG, there is extensive soft tissue loss that leads to bone destruction and sequestration, which will need debridement and parenteral antibiotics (Werner, 2012). More so, the literature showed that the most common symptom among HIV-infected patients is of sinonasal origin (Werner,2012).

The prevalence of palatal defect depends on the following parameters: race, ethnic group, geographical location, socio economic status, habits and medical condition but it is usually common among drug abusers (Serrano *et al*.,2010; Sowmya*et al*., 2013). However, the prevalence is generally low due to the facts that the condition is poorly reported (Trimachi *et al*., 2017).Problems associated with palatal defect include: recurrent middle ear infection, abnormal positioning of the tongue, protruded pre-maxilla, feeding difficulties, impaired speech, socio-psychological, and dental problems (Serrano *et al*., 2010).These problems can be solved by identifying and

eliminating the cause(s) so as to prevent progression of the defect. In drug addict patients, rehabilitation and breaking of the habits is very important (Serrano *et al*., 2010). In cases of defect resulting from infection, debridement and appropriate medication would be required, while the defect may be closed surgically or with a prosthesis depending on the size and site.

Obturator can be used in the management of palatal defects in a dentate or an edentulous mouth (Serrano *et al*., 2010; Sowmya *et al*., 2013) It consists of 2 parts, the bulb and the denture.Retention of obturator is usually achieved by engaging soft and hard tissue undercut. Other aids for retentions include clasp on teeth, pins and screws, adhesives and magnets (Aramany 1971; Sowmya *et al*., 2013).The role of implants in the recent times cannot be over emphasize in the retention of obturator prosthesis (Landees *et al*.,2012).

Case report: A 42-year-old female patient referred from ENT clinic presented in the prosthetic clinic, UCH with a history of palatal defect of one-year duration. Patient had presented earlier at the ENT clinic 5 years ago on account of gradual hearing loss, purulent and bloody discharge from the nose. The patient also complained of painful sensation from the palate when she ate spicy food, presence of a pea size defect of the palate and associated weight lost. Investigations revealed that she is retroviral positive with CD4 count of 27cells/mm^{3}and the mantoux test was negative. The histology result of tissue biopsy showed presence of chronic inflammatory cells. A working diagnosis of chronic rhino-sinusitis and florid oro-pharyngeal thrush in a HIV positive patient was made. She had oro-nasal toileting (debridement), placed on antibiotics, antifungal and referred to the retroviral clinic where she was placed on anti-retroviral therapy (ART). She represented at the ENT clinic due to the change in her phonation, inability to puff her cheek and food regurgitation through the nose when she eats. On intraoral examination a palatal defect was noticed, and she was referred to prosthetic clinic, UCH Ibadan.

At the prosthetic clinic, examination reveals incoherent nasal speech, an oval shaped mid palatal perforation measuring about 8 x 5cm in the longest diameter (Plate 1), the margins are smooth, revealing the nasal turbinate's, no nasal discharge, no area of erythema and no area of tenderness. A repeat CD 4 count which showed 257 cells/mm^3 and viral load of 58 was done and a diagnosis of palatal perforation secondary to chronic sinusitis in a HIV positive patient was made.

Treatment options: The options of surgery to close the defect or use of palatal obturator (full palatal coverage with hollowed close bulb) were given to the patient and she opted for dental prosthesis. The step-by-step rehabilitation with prosthetic obturator involves sluice way preparation on teeth 13, 16, 23 and 26 without local anaesthesia and the procedure was well tolerated by the patient. The palatal defect was packed with a continuous gauze strip, coated with petroleum jelly to prevent entry of impression material into the nasal cavity. Impression of the oral cavity made with Alginate (AsmyAshade Nigeria) impression material following the standard procedure and disinfected with 1:5-part sodium hypo-chloride for 5 minutes (Plate 2).

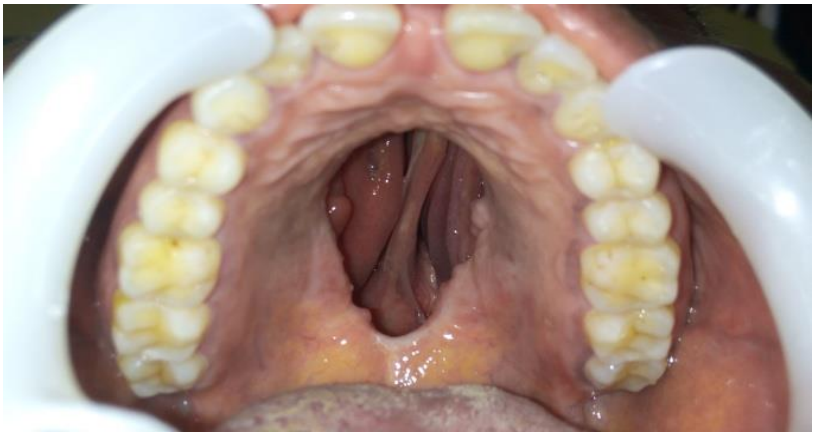

Plate 1:
Defect involving the hard palate

Plate 2 (a and b):
Alginate impression of the maxillary arch showing extension into the defect

Plate 3:
Working cast showing the defect on the maxilla

Plate 4:
Close hollow bulb obturator with stainless steel wire clasps

Figure 5:
Obturator fitted with good

A type 3 dental stone (Quayle Dental England) was poured to make a cast from the impression (Plate 3). Unwanted undercuts around the defect were blocked with plaster of Paris and separating medium generously applied to the cast and allowed to dry. A close bulb obturator was then fabricated following the standard procedure (Shambharkar *et al*., 2011; Patiletal., 2012).

DISCUSSION

Chronic sinusitis is defined as 12 weeks of consecutive symptoms in addition to physical signs of mucosal inflammation or infection (Kathleem *et al*., 2013). HIV was once considered as an acute illness with progressive immune system deterioration, with the advent of highly active antiretroviral therapy, it is now considered as chronic treatable condition so HIV-infected persons have been able to lead more productive lives. Current HIV disease management relies heavily on CD4+ T-lymphocyte (CD4) counts to monitor disease progression, with a CD 4 count less than 200 cells/mm3 or less than 14% of the total lymphocyte shows an immune depressed state (Centre for disease control and prevention. 2010).

The use of prosthetic obturators in the management of palatal defect is indicated in cases oflarger defect, since more risks are involved for survival of the graft (Serrano *et al*., 2010; Mukeshsoni 2015; Nazia *et al*., 2017). These prostheses may also be used in palatal perforations caused by infectious diseases when the patient do not wish to undergo surgery, in situations where the cost to benefit ratio is not favourable, in cases when the cause has not been eradicated like drug abuser that do not wish to quit, or as a temporary measure before surgical treatment (Genden *et al*., 2004; Goodger *et al*., 2005). The ability of the patient to tolerate the device in individuals with high gag reflex is a limiting factor in the use of prosthesis (Serrano *et al*., 2010).

The treatment option for the present case was an acrylic close bulb obturator (Plate 4) to aid normal oral functions of the patient. The choice ofa closedbulb obturator was based on the fact that it is light weight and does not encourage tissue fluid collection, so it is more comfortable for the patient (Varsha *et al*., 2014).

In the present case the height of the obturator was adjusted to just engage the walls of the defect to provide retention and stability. The lateral band of palatal perforation and tissue undercuts provide retention in the fitting side of the prosthesis. After insertion of the prosthesis, she was satisfied

because the palatal defect has been concealed (Plate 5), the speech has improved, feeding was now comfortable and no post-operative morbidity since there is no surgical session and need to harvest any graft from other site.

In conclusion, compromised immunity should be considered in persistent chronic sinusitis with palatal perforation. Palatal perforation is a possible complication in an HIV patient with low CD4 count and Dentists should be aware of the possibility of prosthetic method of managing palatal perforation in HIV patients to improve their quality of life.

Acknowledgment.
The authors thank UCH for providing the materials, late Dr Raji Funsho for her tremendous support and the laboratory team. The author wish to declare that there is no conflict of interest and no financial support for this study.

REFERENCES

Abdolkarim SS, Churchyard G.S.(2009). HIV infection and Tuberculosis in SA: an urgent need to escalate public health response.Lancet; 374: 921-933.

Aramany MA(1971). A history of prosthetic management of cleft palate: Pare to Suersen. Cleft Palate J. 8: 415-430.

Centre for disease control and prevention. (2010). Reported CD+ T lymphocyte and viral load result for adults and adolescent with HIV infection – 37 states 2005-2007. HIV surveillance supplemental report, 16: 18-45.

Department of Health(2009). 2008 National Antenatal Sentinel HIV and syphilis prevalence survey, in South Africa. National department of health report. Pp 1-3

Genden EM, Walace DI, Okay D. (2004). Reconstruction of the hard palate using the radial forearm free flap- indications and outcome. J Head Neck Ca. 26: 808-814.

Goodger NM, Wang J, Pogrel MA. (2005). Palatal and nasal necrosis resulting from cocaine misuse. Br Dent J. 198: 333-334.

Kathleem MS, Gregory RD, Erik KW, Kevin CM. (2013). Approaching chronic sinusitis. Southern Med J. 106: 642-648.

Landees CA, Bundgen L, Laudemann k, Ghanaati S. (2012). Patient satisfaction after rehabilitation of bone grafted alveolar cleft with non-submerged ITI strauman dental implants loaded at 3 months. Cleft Palate Craniofacial J. 49: 601-608.

Mukeshsoni DJ.(2015). Interim obturator rehabilitation of a maxillary defect- case report. J Dent Med Sci. 14: 1-3.

Nazia MZ, Falak N, Jawahir AG. (2017). Rehabilitation of patient with squamous cell carcinoma. Int J Adv Res. 5: 1873-1877.

Patil PG, Patil SP. (2012). A hollow definitive obturator fabrication technique for management of partial maxillectomy. J AdvProsthodont. 4: 248-253.

Pletcher SD Goldbeg AN. (2005). Head and neck manifestation of HIV. 4th ed. Cummings: otolaryngology head and neck surg, Pp. 316-350.

Rehle TM. (2002). A decline in new HIV infection in SA. National HIV survey. Plos J. 5: 1094-1105.

Santosh P. (2016). Proposed classification for the palatal perforation, J Intdiscippl Med Dent Sc. 4: 192-198

Serrano SP, Began JV, Jimenez-Soriano Y, Sarrion G. (2010). Palatal perforation secondary to inhaled cocaine abuse: presentation of five cases. J ClinExp Dent. 2: 105-109

Shambharkar VI, Puri SB, Patil PG. (2011). A simple technique to fabricate a surgical obturator restoring the defect in original anatomical form. J AdvProsthodont. 3: 106-109.

Sowmya S, Shadakshari S, Ravi MB, Ganesh S(2013). Prosthodontic care for patients with cleft palate. J Oro Fac Res. 3: 22-27.

Sujutha RS, Rakesh N, Deep J, Ashish L. (2011). Rhinocerebralmucomycosis: A report of two cases and review of literature. J ClinExp Dent. 3: 250-260.

Trimachi M, Bondi S, Della E. (2017). Palatal perforation differentiate cocaine induced midline destructive lesion from granulomatosis with polyangitis. J Otolaryngology ital. 37: 281-285.

Varsha M, Yuvraj V, David L, Ajay P. (2014). Prosthetic rehabilitation of palatal perforation in a patient with syphilis- the great imitator. Basic Med J Pub Med online: DOI 10.1136/bcr : -204259.

Werner H. (2012). HIV manifestation in head and neck, health Med Pub Grp. 30: 212-219.