Severe Presentation of Necrotizing Ulcerative Periodontitis in a Nigerian HIV-Positive Patient: A Case Report

Kehinde Adesola Umeizudike a Kofoworola Olaide Savage b Patricia Omowunmi Ayanbadejo b Sulaimon Akanni Akanmu c

a Department of Preventive Dentistry, Lagos University Teaching Hospital, b Faculty of Dental Sciences and c Department of Hematology and Blood Transfusion, College of Medicine, University of Lagos, Lagos, Nigeria

Introduction

Necrotizing ulcerative periodontitis (NUP) is among the earliest oral lesions described in HIV infection and was classified as such among the necrotizing periodontal diseases at the International Workshop organized by the American Academy of Periodontology held in 1999 [1]. Although NUP is the most serious form of periodontal disease associated with HIV, it is still relatively rare with a generally low prevalence of less than 5% [2]. According to the presumptive criteria of the European Community Clearing House, NUP is defined as periodontitis characterized by soft tissue loss as a result of ulceration or necrosis; severe NUP shows extensive bone loss.

Severe pain is a distinguishing feature and the main reason why patients seek dental treatment. This painful lesion may affect the quality of life and mastication resulting in significant and rapid weight loss. The lesions may occur anywhere in the dental arches but are usually localized. The number of sites affected by papillary destruction has been shown to be significantly determined by tobacco usage [3].

NUP is a marker of severe immunosuppression; however, not all patients who are severely immunosuppressed will present with NUP. Glick et al. [4] reported a strong correlation between NUP and CD4 cell counts of <200 cells/mm³. Equally, patients with higher CD4 counts of...
>200 cells/mm$^3$ may present with NUP, thereby implying that a combination of other factors may play a role in its pathogenesis. Smoking, subgingival Candida species, poor oral hygiene and high viral loads have been identified as important risk factors in the development of NUP lesions [3, 5]. The prevalence of NUP has been reported in some studies [6] on HIV-positive patients in Nigeria, but very few have reported its relationship to the CD4 cell count, the association with a sequestrum, or the treatment response of the lesion. We report a rare case from Nigeria, in Sub-Saharan Africa.

**Case Report**

A 47-year-old HIV-positive male patient seen at the HIV outpatient clinic presented with a severe toothache in his lower jaw of 4 weeks’ duration. The patient described the pain as deep-seated within his jaw which disturbed his mastication. He also complained of occasional spontaneous bleeding from the gingiva of his lower jaw. The patient had been diagnosed with HIV infection a year previously, but was yet to commence antiretroviral therapy until recently when he re-presented with anorexia, progressive weight loss and cough. He also had a healed scar on the left side of his face from a previous herpes zoster infection. He had smoked heavily for about 4 years and claimed to have stopped the habit few months prior to the time of presentation.

Clinical examination revealed a left facial scar from a herpes zoster infection, marked halitosis and a necrotic lesion on the gingiva involving the marginal and interdental papillae of teeth 31, 32 and 33. There was gingival recession on the labial surfaces of the affected teeth, being most marked on tooth 33, and a periodontal pocket depth of 5 mm. In addition, there was a sequestrum associated with teeth 31, 32 and 33 measuring 20 mm in width mesiodistally and the affected teeth were mobile (fig. 1).

The oral hygiene was fair (index score of 1.5) with moderate plaque and calculus deposits around the affected teeth.

A periapical radiograph showed marked alveolar bone loss around teeth 32 and 33, which extended to the apical region of tooth 33 (fig. 2). Based on the clinical and radiographic findings, a diagnosis of NUP complicated by sequestrum formation was made. The patient had a CD4 cell count of 226 cells/mm$^3$ and a viral load of 360,082 copies/ml and CDC clinical stage B2/WHO stage 3. He was commenced on highly active antiretroviral therapy.

The NUP lesion was thoroughly debrided under local anesthesia and irrigated using 0.2% chlorhexidine gluconate mouth rinse. Sequestrectomy was performed and a therapeutic regimen was commenced, consisting of systemic metronidazole 400 mg every 8 h, erythromycin 500 mg every 6 h for 7 days, and local rinses with 0.2% chlorhexidine. Follow-up of the patient after 1 week of treatment revealed alleviation of the severe pain and initial resolution of the lesion, evidenced by reduced gingival inflammation (fig. 3). However, this patient did not return for his 1-month recall visit and was subsequently lost to follow-up.

**Discussion**

This case report demonstrates the characteristic features of NUP that have been reported previously in Nigeria [6] without documentation except treatment outcome.

However, another important finding was the sequestrum formation, which is a rare presentation in NUP lesions reported in Nigeria. Equally important, Riley et al. [7] identified only 2 cases of NUP among 200 HIV-positive patients, and none was found to have sequestra. Generally, there is a rapid progression of soft tissue necrosis.
into the underlying deeper tissues resulting in deep inter-
dental craters, as noted in this case as well as in the cases
reported by Riley et al. [7]. Frequently, such defects are
located in the molar or premolar region. In this case, the
anterior segment of the mandible was affected rather
than the posterior region.

Low CD4 cell counts (<200 cells/mm³) have been
linked to the occurrence of HIV/NUP [4, 8], but in our
case, the CD4 cell count was above 200 cells/mm³ (226
cells/mm³). However, Riley et al. [7] did not find a direct
relationship between the presentation of the periodontal
disease and the attendant HIV. The probable explanation
for the difference between these studies and ours is that
other associated risk factors were involved in the develop-
ment of the lesion. Firstly, our patient had a very high vi-
ral load of 360,082 copies/ml, which has been linked to
NUP [9]. However, other predisposing/contributing fac-
tors were associated with the NUP cases in the study of
Jiménez et al. [10] including malnutrition, acute herpetic
gingivostomatitis and poor oral hygiene. Secondly, it was
interesting to note that none of the NUP cases in that par-
ticular study had HIV or AIDS.

Our patient was also a heavy smoker, although he was
claimed to have stopped a few months prior to the clinical
examination. Cigarette smoking has been shown to be a
contributing factor in the progression of periodontitis [3].
Nicotine metabolites concentrate in the periodontium
causing impairment of the functional activity of the poly-
morphs and macrophages.

The management strategies for HIV-associated NUP
lesions [11] include debridement of the lesions to remove
slough, necrotic hard and soft tissues, as was done in
this case. Regular follow-up visits are recommended at
3-monthly intervals to monitor these lesions which are to
be treated promptly in case of any recurrence. The pa-
tient’s rapid and positive response to the intervention
within 1 week could be attributed to several factors: use
of systemic metronidazole, which has been reported to be
effective in reducing pain and promoting rapid healing of
NUP lesions [12], and highly active antiretroviral ther-
apy, which has been shown to reduce the prevalence of
NUP lesions in a group of Spanish patients [13].

The symptoms of pain were significantly reduced.
This is similar to the treatment response documented by
Glick et al. [4] in NUP patients in whom alleviation of
pain occurred within 36 h and initial resolution was not-
ed within 5 days of treatment. However, the patient could
not be reexamined beyond 1 week and the CD4 cell count
was not assessed further as he was lost to follow-up.

Conclusion

This case report showed that HIV-positive patients
with relatively high CD4 cell counts of >200 cells/mm³
may present with severe NUP lesions which may be asso-
ciated with sequestrum formation. A high viral load
and smoking may be associated risk factors which should
also be considered by the treating physician referring
such patients to the dentist for early intervention to re-
duce morbidity and improve the patient’s overall quality
of life. The lesion could respond positively to therapy
within a short interval of time.

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