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

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Key Words

Necrotizing ulcerative periodontitis • HIV infection • CD4 count • Viral load • Sequestrum

Abstract

Objective: To report a case of severe necrotizing ulcerative periodontitis (NUP) with a rarely associated sequestrum formation in a Nigerian HIV-positive patient. **Clinical Presentation and Intervention:** A 47-year-old HIV-positive male patient with no history of previous dental visits presented with a severe toothache in his lower jaw of 4 weeks' duration, which had affected his ability to chew properly. Clinical examination revealed marked gingival inflammation, moderate gingival recession and mobility of some of his lower anterior teeth: 31, 32, and 33. There was also a sequestrum present associated with the affected teeth. His CD4 cell count was 226 cells/mm³. His viral load was very high (360,082 copies/ml). The intervention included thorough debridement of the necrotic lesion and sequestrectomy. The patient responded well to treatment after 1 week of follow-up. Unfortunately, the CD4 count was not assessed further because the patient was lost to follow-up. **Conclusion:** This case showed that a high CD4 cell count does not necessarily prevent the occurrence of NUP in HIV-positive patients. Intervention might have enhanced a rapid positive response to the treatment within a short time.

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

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Fig. 1. NUP lesion with associated sequestrum on the inflamed attached gingiva (teeth 31–33) in the lower jaw.

Fig. 2. Periapical radiograph showing marked bone loss extending to the apex of tooth 33.

Fig. 3. Postoperative view 1 week following debridement.

>200 cells/mm³ 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 out-patient 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/mm³ 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 interdental 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 development of the lesion. Firstly, our patient had a very high viral load of 360,082 copies/ml, which has been linked to NUP [9]. However, other predisposing/contributing factors 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 particular study had HIV or AIDS.

Our patient was also a heavy smoker, although he 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 polymorphs 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 patient'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 therapy, 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 noted 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 associated 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 reduce 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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