



Necrotizing Ulcerative Periodontitis in a HIV Seronegative Patient– A Case Report

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ABSTRACT

Necrotizing ulcerative periodontitis (NUP) is characterized by soft tissue necrosis, rapid periodontal destruction, and interproximal bone loss. Unlike other periodontal diseases, it presents with substantial necrosis of gingival tissues, and loss of periodontal ligament and alveolar bone. Herewith, we present a case report of NUP in a patient of Libyan origin. To the best of our knowledge, it is the first case report from Libya in English literature.

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Introduction

Necrotizing ulcerative periodontitis (NUP) is the most severe inflammatory periodontal disorder caused by plaque bacteria. Unlike conventional periodontitis, NUP is characterized by clinical features such as soft tissue ulceration and necrosis usually arising from the interdental papillae, profuse bleeding on provocation, and pain.¹ Compared to chronic or aggressive periodontitis, one of the most important features of NUP is the rapid and severe loss of clinical attachment and alveolar bone within a few days or weeks². The prevalence for NUP is about 0.5% and decreases with age.^{3,4}

In addition to the presence of human immunodeficiency virus (HIV), other predisposing factors for NUP are history of NUP, poor oral hygiene, inadequate sleep, unusual psychologic stress, poor diet, recent illness, alcohol abuse, and smoking. Usually, one of these factors alone is not sufficient to establish disease, except for HIV⁴. Although a characteristic bacterial flora of spirochetes and fusobacteria can be isolated from these lesions, it still remains unclear whether these bacteria are primarily involved in causing the disease.⁵

Herewith, we report the first case report of NUP from Libya in English literature.

Case Report

A 32-year-old male patient of Libyan origin, reported to the outpatient department of Faculty of Dentistry, Sebha University, Sebha, Libya. He complained of severe oral pain, intermittent swelling of the cervical lymph nodes and fever. He also complained of severe mobility of his teeth and difficulty in mastication. Personal history revealed that

he was a heavy smoker, smoking 50 cigarettes per day and had been smoking for 15 years. Past medical history revealed episodes of heavy stress. Past dental history revealed that he had experienced mobility of multiple teeth with spontaneous exfoliation and extraction of affected teeth. HIV serostatus was negative.

The intraoral examination revealed severe ulcerations and necrosis of the marginal gingiva and the interdental papillae of the mandibular central incisors, where the alveolar bone was exposed (Figure 1). There was severe necrosis involving the gingiva of right maxillary molars (Figure 2), left maxillary premolars and molars (Figure 3) along with left mandibular third molar regions. The affected teeth exhibited severe mobility. He was also partially edentulous with multiple missing posterior teeth and had extensive alveolar bone loss as shown in OPG (Figure 4).

The patient was advised acute phase management with removal of soft & mineralized deposits through complete oral prophylaxis. He was also advised oral rinse with 0.12% chlorhexidine. The patient has not yet returned for initiating the treatment regimen.

Discussion

Bacterial plaque is the main etiological factor of periodontal disease⁶. The characteristics of NUP include acute and intense pain, abundant gingival hemorrhage, halitosis, loss of periodontal insertion, and occasional bone exposure. Crater-like lesions are formed in the gingival tissue, while necrosis and ulcerations are seen in interproximal papillas, which are directly associated with the regions of bone loss.^{7,8} NUP is more frequently seen as a localized lesion, with areas of gingival tissue necrosis,



surrounded by areas of unaffected tissue. The formation of periodontal pockets is rare, and the crestal bone loss coincides with gingival necrosis, leading to the exposure of alveolar bone and areas of intra-septal bone sequestration. Pain is often described as a “profound tooth ache” or as “pain in the bones of the mouth” that does not yield to analgesics.^{9, 10} Spontaneous nocturnal hemorrhage may also be seen⁶. The pathogenesis of the NUP appears to involve diverse etiologic factors like malnutrition, tobacco smoking, intravenous drug use, psychological stress, and immunosuppression, the latter two being interrelated through the hypothalamic–pituitary–adrenal axis¹¹. Our patient presented with history of excessive smoking along with stress episodes.

The clinical appearance of NUP can be very variable. Initial lesions may not show radiographic evidence of bone loss and tooth mobility. Moderate NUP generally involves the entire attached gingiva with partial bone exposure and sequestration to the mucogingival junction. Severe NUP manifests as extensive necrosis of gingival tissue and alveolar bone that extends beyond the mucogingival junction. Widespread bone loss and significant tooth mobility leads to loss of the involved teeth¹⁰. Our patient had a history of teeth mobility and exfoliation of those mobile teeth. He also presented with extensive necrosis of multiple quadrants with bone destruction and mobility of teeth.

Differential diagnosis of NUP could include Acute herpetic gingivostomatitis, Desquamative gingivitis, Agranulocytosis, Leukemia, Noma & Necrotizing stomatitis. NUP does not respond to conventional treatment⁶. The treatment of NUP is performed in stages. In the first session, symptomatic pain relief is achieved with

irrigation with 10% povidone-iodine, or 2% sodium iodide mixed in equal proportions with 10 volumes of oxygenated water. These substances have antimicrobial activity and immediately reduce discomfort. Oral hygiene instructions along with analgesics like paracetamol 500mg every 4 hours and anti-inflammatory drugs like ibuprofen 400-600mg every 8 hours, can be given for relief of fever, necrosis, bone exposure, or severe pain¹⁰.

The antibiotic of choice is metronidazole 500 mg every 12 hours or 250 mg every 6 hours, for 7 days¹¹. Mouth washes with 0.12% chlorhexidine gluconate every 8 h must also be recommended to prevent and control plaque formation¹⁰.

The second stage includes mechanical debridement to remove calculus and necrotic tissues⁶. The third stage consists of maintenance and follow-up. The follow-up is performed initially every month, which can be postponed to every three months after the stabilization of the periodontal condition¹⁰.

Microscopic studies and cultivation of the predominant microbes associated with NUG have consistently found significant levels of *Prevotella intermedia*, *Fusobacterium* sp., and *Treponema* sp. Several investigators have also reported high recovery rates of microbes not generally associated with the indigenous oral microbial flora, e.g. *Enterococcus* sp., *Clostridium* sp., *Klebsiella* sp., *Pseudomonas* sp., *Enterobacter* sp and *Candida* sp¹².

Nowadays, lasers are used in dentistry as an adjunct to new therapies in order to obtain better results, improved treatments and consequently faster healing of injured tissues.¹¹ Low level laser therapy has been shown to be efficient in cicatrization, reducing inflammatory conditions and accelerating tissue repair. Lasers can benefit



in alleviation of severe, uncontrollable pain with its analgesic and anti-inflammatory effects.¹⁰ Healing effects of laser may be based on the improvement of local microcirculation and stimulation of fibroblast proliferation, yielding a more organized production of collagen fibers, increasing granulation tissue, and promoting a concomitant and rapid epithelial healing¹².

Conclusion

We have reported a rare presentation of NUP in a HIV seronegative patient. The etiology of our patient could be attributed to smoking and episodes of stress accompanied with poor oral hygiene. The true cause of such diseases could be elucidated only with further microbiological and immunological evaluation.

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Legends:



Figure:1 Clinical picture showing extensive gingival necrosis in mandibular incisor region. Pseudomembrane is absent due to recent usage of oxygenating mouthrinse.



Figure:2 Clinical picture showing severe bone loss with gingival necrosis in right maxillary molar region. Pseudomembrane is absent due to recent usage of oxygenating mouthrinse.



Figure: 3 Clinical picture showing gingival necrosis and bone loss in left maxillary posterior region. Pseudomembrane is absent due to recent usage of oxygenating mouthrinse.



Figure: 4 Orthopantomograph showing wide-spread bone loss in mandibular anterior region, maxillary and mandibular posterior region.