CASE REPORT

Post extraction lingual mucosal ulceration with bone necrosis

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Abstract This report describes a case of a 49 year old male patient presenting with lingual mucosa ulceration with cortical bone necrosis, above mylohyoid ridge in the right side of mandible. The patient had extraction a few days before development of the ulcer. The patient’s medical history was clear and not on any drugs. Clinically, he presented with moderate pain and discomfort. Intraoral examination revealed a discrete ulcer of about 1 cm in diameter and exposure of the underlying bone, which was necrotic. Extra-oral examination showed no abnormalities. Radiographs revealed no pathology, apart from extraction socket. The case was treated in two phases; initial control of acute signs and symptoms by antibiotic cover and analgesic for 5 days, and smoothening of the exposed bone. This was followed by surgical removal of the necrotic bone and dressing of the vital bone with iodoform gauze. The lesion healed completely in 3 weeks. Although the cause of this lesion is not clear, minor trauma from suture may be initiated the process. These ulcers are basically uncommon; however, general dental practitioners are invited to understand the potential systemic and local etiological factors and the management to avoid any unwanted complications.

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1. Introduction

Mucosa covering the lingual cortex of mandible is thin and vulnerable to trauma, particularly the posterior supra mylohyoid region. Injury to this region may lead to full thickness ulceration and subsequent exposure of the cortical bone. Furthermore, prominent mylohyoid ridge or mandibular tori place this area at a high risk of traumatic ulceration. The exposed lingual bone invariably endures ischemic necrosis and possibly sequestration. In addition, poor vascularization of this anatomical site prolongs the healing process from a week to several months.
Oral ulceration with potential osteitis or sequestration has been associated with numerous factors, such as aphthous stomatitis, systemic diseases, oral bisphosphonate, syphilis and radiotherapy. Onset of bone necrosis can be provoked by a number of conditions related to poor host immune response, including immunosuppression, diabetes mellitus, malnutrition and extreme age.

Although lingual mucosal ulceration (LMU) with osteonecrosis following extraction of lower molars is uncommon, it remains a known condition among oral and maxillofacial surgeons. Jackson and Malden reported three cases of LMU, two involving a history of recent extraction. In one of the cases, ulceration developed a week after extraction with no associated trauma. In the second case ulceration developed a month after extraction and the exposed necrotic bone further caused traumatic ulceration to the lateral surface of the tongue. Several cases of spontaneous LMU with osteonecrosis “Idiopathic benign sequestration of the mandible” have been reported in various forms and sizes and were neither associated with history of trauma nor extraction. Interestingly, one of the reported cases had simultaneous bilateral lingual ulceration with bone exposure.

Obviously, trauma is the most common cause of oral ulceration. There is an array of diverse etiological factors including iatrogenic damage during dental treatment that may clinically manifest as ulcers or bone necrosis with sequestration. Nevertheless, in the majority of these cases the cause is identifiable and a differential diagnosis can be made.

Oral and maxillofacial surgeons are aware of these conditions; nevertheless, general dental practitioners are less familiar with these lesions. The affected patients usually presented with mild to moderate pain and discomfort. The clinical presentation reveals an avascular yellowish necrotic bone at the base of the ulcer. There might be necrotic bone spicules projecting out, which may cause trauma to the adjacent soft tissues. The ulcer margins may show redness and irregularities. Usually, there are no or subtle bone changes, therefore radiographic examination has little or no value to add in the examination.

2. Case report

A 49-year-old male patient attended the oral diagnosis department, College of Dentistry, Medical and Health Sciences University, Ras Al-Khaimah, UAE complaining of moderate pain on the lower right lingual mucosa of 3 days duration. Pain developed a few days after the extraction of his lower right third molar. The extraction was performed by a senior dental surgeon in the college dental clinic. Review of the patient’s medical and dental history, revealed neither he was suffering from systemic illnesses nor taking any medicine. He reported pain in relation to a badly decayed 48 tooth, which was removed without any difficulty or complication. However, one interrupted suture was placed on the mesial aspect of the socket to approximate the soft tissues, which were elevated to take a deep grip of the broken crown.

Intraoral examination revealed a round ulcer with an erythematous halo of 1cm in diameter associated with exposure of the underlying bone. The ulcer was located on the right lingual aspect of the extraction socket, just above the mylohyoid ridge line (Fig. 1). The socket was filled with clot and appeared to be healing normally. Ulcer margins and tissues in the vicinity were edematous, sensitive and erythematous. The yellowish exposed bone (osteonecrotic bone) was insensitive with no sign of vascularity; however, not separated from the lingual plate (no sequestrum formation). Extra-oral examination revealed no swelling, tenderness or regional lymphadenopathy. A radiograph was taken but showed no evidence of any pathology (Fig. 2). No other findings of significance were noticed. A diagnosis of idiopathic lingual ulcer with ostietis was made.

The treatment was initiated by filing the exposed bone under inferior alveolar nerve block to avoid any injury to the tongue. Oral antibiotics in the form of Amoxicillin 500 mg three times daily for 5 days and Brufen 400 mg tablets twice daily were prescribed to control the acute phase of the condition. In the second visit (4 days later), clinically, most of the acute signs and symptoms had been resolved. Under mandibular nerve block anesthesia, the margins of the ulcer were slightly elevated by periosteal elevator and the lingual necrotic bone at the base of the ulcer was removed by surgical bur down to the vascularized bone layer (Fig. 3). The freshly exposed bone was covered by iodoform gauze and sutured in place to promote healing (Fig. 4). Post-surgical instructions...
including maintenance of good oral health with the aid of antiseptic mouth rinse were given to the patient. The patient was reviewed 48 h after surgery and good initial epithelialization of the ulcer was evident (Fig. 5). The condition was healed completely within 3 weeks (Fig. 6).

3. Discussion

LMU with osteonecrosis is not commonly seen in daily dental practices, thus understating of the potential causes, differential diagnosis and clinical presentation is paramount, particularly to general dental practitioners.

Normally, the lower posterior teeth are lingually inclined and this provides protection to the underlying soft tissues. Extraction of lower molars, particularly the second and third molars allows the posterior lingual mucosa to be vulnerable to masticatory forces or occlusal trauma, which may lead to ulceration and bone denudation.

Wounds associated with the surgical removal of third molars are invariably closed with multiple sutures. Theoretically, tongue and associated tissues may exert a muscular pull against the sutured lingual mucosa causing lingual ulceration; however, clinically such ulcers are uncommon.

Generally, mandibular cortical bone is covered by thin mucosa and less vascular in comparison with the maxillary bone reflecting the prolonged healing time. Furthermore, the lingual cortex is distant from the main vascular bed of the mandible and largely depends on the periosteum vascularity, which contains a small amount of connective tissue.15

In the present case, although the extraction was atraumatic, minor trauma maybe was the initiating factor. It has been reported that minor trauma, such as those arising from scaling or even thermoplastic impression materials may initiate ulceration with subsequent bone necrosis.5,16 Trauma is a well-known precipitating factor in minor aphthous stomatitis, however, the clinical picture of the present case, particularly the lingual cortical bone necrosis is far from the diagnosis of minor aphthous ulcer.

Patients are usually unaware of bone exostosis or enlarged mylohyoid ridge until trauma causes ulceration. A careful examination of our case confirmed that none of such abnormalities are present.

Apparently, an interrupted suture was given to the socket; but we cannot confirm that it initiated ulceration. Furthermore, the presence of any contributing system factors has been excluded, as the patient’s medical history was clear.

Sequestrum formation is invariably associated with lingual ulceration.7 In the current case, neither clinically nor radiographically could see evidence of sequestrum formation. This is probably due to the early diagnosis and management of the case.
A variety of treatment modalities including prescription of antibacterial mouth rinses and anti-inflammatory creams as non-invasive and supportive treatment to aid the healing process have been advocated. Potential injury to tongue from the exposed necrotic bone has been reported. Therefore, controlling the acute symptoms and prevention of potential complication, as described earlier are mandatory and prior to any surgical intervention. However, some authors are reluctant to active surgical intervention asserting compromised cortical bone vascularity. In the absence of clear sequestration, removal of the necrotic surface layer provides better and quicker healing environment. The presented case showed complete healing in approximately 3 weeks after surgery. A radiographic examination 6 weeks post-surgical intervention revealed no adverse bone changes.

4. Conclusion

Lingual mucosal ulceration and associated osteonecrosis are presented clinically with mild to moderate symptoms. There might be an iatrogenic cause, nevertheless, in many cases there is no obvious attributable factor making the diagnosis quite challenging. Although oral and maxillofacial surgeons are encountering such cases in their practices, it is imperative for general dental practitioners to be familiar with the potential etiological factors and clinical presentation to exclude any sinister pathology and properly treat the patients.

References