

LINGUAL MANDIBULAR BONE SEQUESTRATION : A CASE REPORT

MANDİBULANIN LİNGUAL KEMİK SEKESTRASYONU: VAKA RAPORU

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ABSTRACT

Lingual mucosal ulceration with bone sequestration may be influenced by some local and systemic factors. These etiologic factors may disrupt the blood supply of bone and lead to mucosal ulceration with bone sequestration. Thermal traumatic effect of a thermoplastic impression material may induce adverse tissue reaction such as ulceration or bone sequestration.

This report describes the presentation of oral ulceration associated with bone sequestration overlying the mylohyoid ridge of the mandible followed by the use of a thermoplastic border molding material.

Key Words: Bone sequestration, impression material, thermoplastic, mandible, ulceration

ÖZET

Lingual mukozanın ülsere olmasıyla oluşan kemik sekestrasyonu bazı lokal ve sistemik faktörler ile alakalıdır. Bu etyolojik faktörler kemiği besleyen kan desteğinin kesilmesine neden olarak mukozal ülserasyonla beraber kemik sekestrasyonuna neden olabilirler. Termoplastik ölçü maddelerinin termal travmatik etkisi de ülserasyona ya da kemik sekestrasyonuna neden olabilmektedir.

Bu olgu sunumunda termoplastik ölçü maddesinin kullanımı sonrasında mandibulada mylohyoid sırtın üzerindeki mukozanın ülserasyonunu takiben oluşan kemik sekestrasyonunu sunmaktadır.

Anahtar kelimeler: Kemik sekestrasyonu, ölçü maddesi, termoplastik, mandibula, ülserasyon

INTRODUCTION

The disruption of blood supply of bone as a response to various local or systemic factors can cause bone sequestration with ulcerations¹. This condition could occur in response to direct mechanical, chemical, or thermal trauma. Alternatively, mucosal ulceration and bone sequestration could occur in a variety of etiologically distinctive conditions that include infections, diabetes, leukaemia, radiation, Paget's disease of bone, fibrous dysplasia, malignant

bone change, malnutrition or heavy metal poisoning^{2,3}. These lesions are usually sensitive and sometimes painful. The associated morbidity can also cause considerable disruption to patients usual lifestyle⁴.

Thermal trauma may occur while using thermoplastic impression materials if they aren't used according to manufacturer's instructions. Impression compound is a thermoplastic impression material which is usually preferred for border molding of an acrylic custom tray in order to take the secondary or functional impression of a complete denture⁵.

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Compound softens over a flame or by immersion in a warm water bath. The material should be uniformly soft at the time it is placed in the tray and thoroughly cooled in the tray before the impression is withdrawn from the mouth⁵. When a direct flame is used for softening the material, it should not be allowed to boil, because this may cause thermal trauma on the soft tissue of the oral cavity. Thermal traumatic effect of a thermoplastic impression material may induce adverse tissue reaction such as ulceration or bone sequestration. In this condition, spontaneous loss or surgical removal of the sequestrum results with healing³.

This report describes the presentation of oral ulceration associated with bone sequestration on the right posterior lingual mandible at the level of the mylohyoid ridge after the use of a thermoplastic border molding material.

CASE REPORT

A 44 year-old male was referred to our clinic with complaint of orofacial pain in his posterior right mandible. The patient complaint about the pain followed by application of impression material by a general practitioner before 7 days. The pain had arisen a few days following session of impression and had increased gradually in severity, necessitating analgesics. He had no other orofacial symptoms nor history of predisposing systemic conditions.

Intraoral examination revealed round ulcer with erythematous halo approximately 0.5cm in diameter associated with exposed underlying bone involving the prominence of the mylohyoid ridge on the right mandible (Figure 1). The surrounding soft tissue margins were extremely sensitive. On radiographic view, there were no abnormalities examined.

Oral antibiotic (Amoxycillin 500mg, three times a day orally for 5 days), analgesic (Flurbiprofen 100 mg, two times a day orally for 5 days) and benzydamine hydrochloride mouth rinse were prescribed. After 5 days, the bone sequestrum was removed under local field anesthesia without the need for surgical intervention. Histopathological examination of specimen revealed non-vital, irregularly resorbed bone fragments with associated bacterial masses (Figure 2). The ulcer resolved rapidly and the soft tissue defect

reepithelialized within a few days later. The healing of the ulcer was uneventful (Figure 3).



Figure 1. Intraoral view of the round ulcer with erythematous halo associated with exposed underlying bone involving the prominence of the mylohyoid ridge on the right mandible.

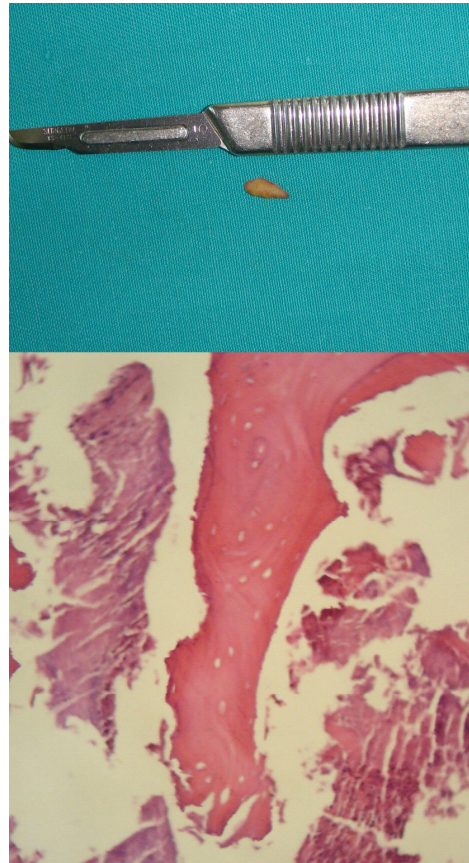


Figure 2. The removed bone sequestrum and histopathologic appearance of the specimen. Non-vital, irregularly resorbed bone fragments with associated bacterial masses were shown. (HEx200)

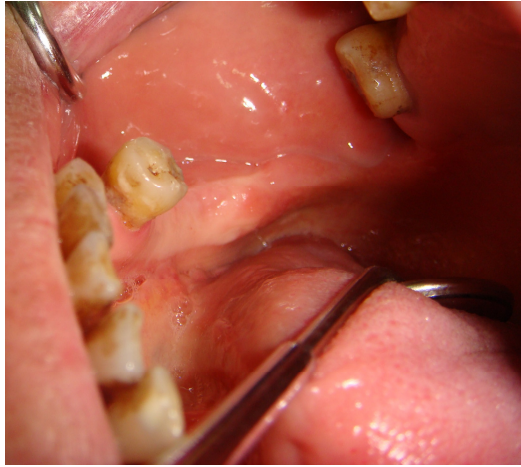


Figure 3. Postoperative intraoral view of the patient's right mandible.

DISCUSSION

Various methods and impression materials have been used for successful shaping of the borders of a denture according to the morphological and functional conditions of an edentulous mouth. The advantages and disadvantages of the materials were well reported and the physiologic response of the involved tissues were studied previously⁶⁻¹³. Generally, compound was used as border molding material for functional impression. The manipulation of this material needs to be sensitive, since it is softened by heating⁵. Overheating can give damage to the physical properties of the material and if it is not well cooled under the tolerance limit of the soft tissues, contact between the compound and living tissues in the mouth may induce adverse tissue reaction such as mucosal ulceration, hypersensitivity and allergic reaction.

Thermal injury is one of the local causes of oral ulceration and is often painful, requiring analgesics during the healing period. Healing of the ulcerated mucosa is usually delayed when the lesions overlie the maxillary or mandibular alveolar process. In severe ulcers, secondary infection, scarring, contracture, and disfigurement are potential problems.

The lingual mandibular cortex is far from the infrabony alveolar arteries. The trauma disrupts this lower local blood supply in the area supplied by the periosteal microvasculature and leads to ischaemic bone necrosis and sequestration^{3,14} as it is presented in our report.

The lingual inclination of mandibular molars protect the mylohyoid ridge. If this anatomic relationship were altered or molar teeth were missed such as in the presented case, the mucosa over the mylohyoid ridge would not be shielded from repeated trauma during mastication.

There have been some previously studies reported about sequestration after bisphosphonates therapy, trauma, minor aphthous ulceration and dental extraction.^{1,3,5,11-15} Our study is first to report bone sequestration associated with mucosal ulceration after compound application for border molding.

The following conclusion can be drawn with the present case; dental materials and dental equipments have to be used according to the manufacturers' instructions. If the dentists are not sensitive on this subject, they may give irreversible, serious damage to their patients.

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