MANAGEMENT OF NON-HEALING SOLITARY ORAL ULCER IN PATIENT RECEIVING COMPLETE DENTURE: A CASE REPORT

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Abstract
Non-healing oral ulcer with non-vital bone exposure is an uncommon phenomenon and rarely seen in daily clinical practice. The clinical presentation of this kind of ulcer usually mimics a carcinoma appearance, which always gives a diagnostic dilemma. Regarding this case, an accidental finding of a solitary non-healing oral ulcer on the hard palate of a 65-year-old complete edentulous patient has been observed. The painless ulcer has existed for more than three months before the patient came to the clinic. This article provides a detailed description of the investigation done to obtain a proper diagnosis for this case and the treatment that has been given until the patient is cured. It highlights a take-home message that oral mucosa lesion is difficult to manage and might require a multidisciplinary approach for the success of treatment.

Keywords: Oral ulcer, Sequestrum, Carcinoma

Introduction

Oral mucosal lesions or oral ulcers are common in the mouth. According to a national epidemiological survey of oral mucosal lesion in Malaysia, 9.7% of the population are having oral mucosal lesions (1). Most ulcers are benign and heal on their own, with only a small percentage being malignant. Oral ulcers are typically painful lesions caused by variety of disorders that originated inside the mouth. They can be categorised as acute or chronic depending on how they present and develop. A chronic ulcerative lesion is one that lasts for two weeks or longer; if not, it is an acute ulcer (2).

Chronic oral ulcers are usually complicated with illnesses like lupus erythematosus, mycosis, pemphigus vulgaris, mucosal pemphigoid, oral lichen planus, a few bacterial and parasite infections, whereas some of them are associated with a malignant lesion (3). Owing to the variety of causative factors and present characteristics, they usually cannot be easily diagnosed. To determine the proper treatment, a correct differential diagnosis must be made, taking into consideration all potential oral cavity ulcer causes. The purpose of this article is to describe a case report of the management of a chronic solitary non-healing ulcer in a patient receiving complete denture treatment.

Case Report

A 65-year-old Malay man came to our Prosthodontic specialist clinic requested a new set of complete dentures. He was edentulous for more than 20 years and had several sets of complete dentures before. At present, he has not worn his dentures for three months as the dentures have broken and did not fit very well. On further questioning, he works as a farmer and a known smoker for more than 30 years. His medical history showed that he was diagnosed with diabetes mellitus and hypertension well controlled with oral medications (Enalapril 5 mg OD and Metformin 500 mg OD). On physical examination, he was found to be moderately built, well-nourished, as well as alert to time, place, and person. His face was symmetrical, and all neck lymph nodes were not palpable. During the oral examination, it was noted that he was completely edentulous. There was a single round ulcerative lesion on the right side of his posterior hard palate measuring about 1.5 cm in diameter (Figure 1). The ulcer had indurated margins, exposing the non-vital palatal bone giving a clinical picture that it might be a malignant lesion. The patient claimed that he noticed the ulcer since the past

three months and just ignored it since it was a painless ulcer. On further questioning, he cannot recall any frequent recurrence of oral ulceration since he did not feel any pain in the mouth. The patient was sent for an orthopantomogram (OPG) for further investigation.

The image of OPG showed a pedunculated bone sequestrum present at the lesion area (Figure 2).

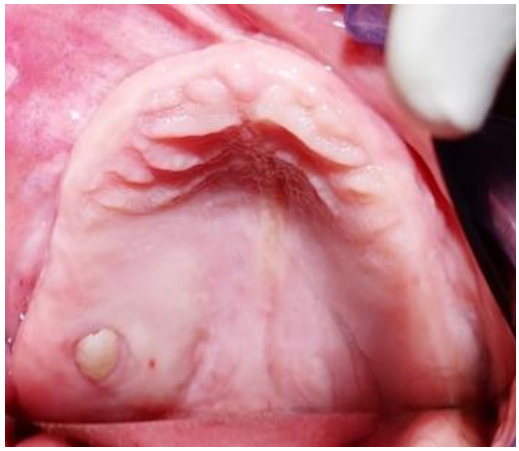

Figure 1: Single round ulcerative lesion on right side of posterior hard palate.

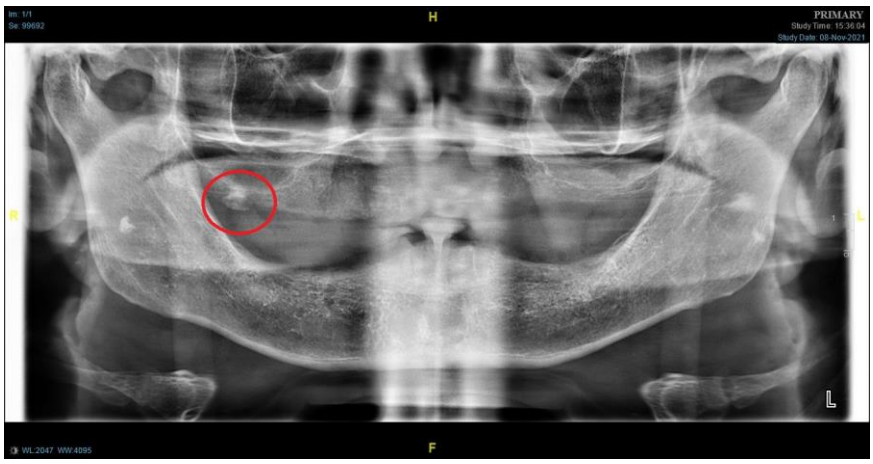

Figure 2: OPG investigation revealed a pedunculated bone sequestrum at right posterior hard palate.

He then was referred to an Oral and Maxillofacial specialist clinic for further diagnosis and management. An incisional biopsy of the ulcer and bone sequestrum was performed. The histopathological analysis of soft tissues surrounding the ulcer displayed mucosa tissue fragments partially covered by stratified squamous epithelium with focal ulceration. The squamous epithelium showed reactive changes without dysplastic change. There were dense lymphoplasmacytic infiltrates in the subepithelial stroma (Figure 3A). Bacterial colonies as well as hyphae-like structures were observed (Figure 3B). Inflammatory infiltrate was also seen. The analysis of bone sequestrum showed the presence of necrotic bone with dense acute inflammatory infiltrates mixed with histiocytes and lymphoplasmacytic infiltrates in the marrow spaces. Abundant aggregates of gram-negative fine filamentous bacteria were apparent at the surface of the bone fragment (Figure 3C).

Hence, an oral swab was done and sent for the culture and sensitivity test. However, the result of the culture was unable to identify any associated organism. Based on the clinical presentation and the histopathology analysis, the patient was diagnosed with a major aphthous ulcer and bone sequestration complicated by bacterial infection. An oral antibiotic 250 mg Amoxicillin capsule together with 0.12% chlorhexidine mouthwash was prescribed to the patient. He was then advised to get well-balanced nutrition and a healthy lifestyle. His condition was followed up until the complete healing of the ulcer.

The ulcerative lesion healed eight weeks after the treatment (Figure 4). Fabrication of his new complete dentures was successfully done following the complete healing of the lesion. A few reviews visit was scheduled

for the patient to check for any recurrence of the oral ulcer, and it was noted that no more ulceration was present. The patient was happy and satisfied with his new denture.

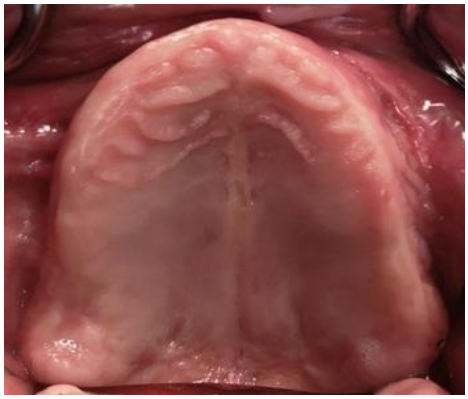

Figure 3: The result of histopathological analysis. A) Dense lymphoplasmacytic infiltration within the submucosa; B) Periodic acid Schiff staining highlighting the bacterial colonies and hyphae-like structures within the mucosa adjacent to the bone; C) Non- vital bone fragments associated with mix acute and chronic inflammatory cells. Presence of numerous aggregates of bacterial colonies seen at the surface of the bone.

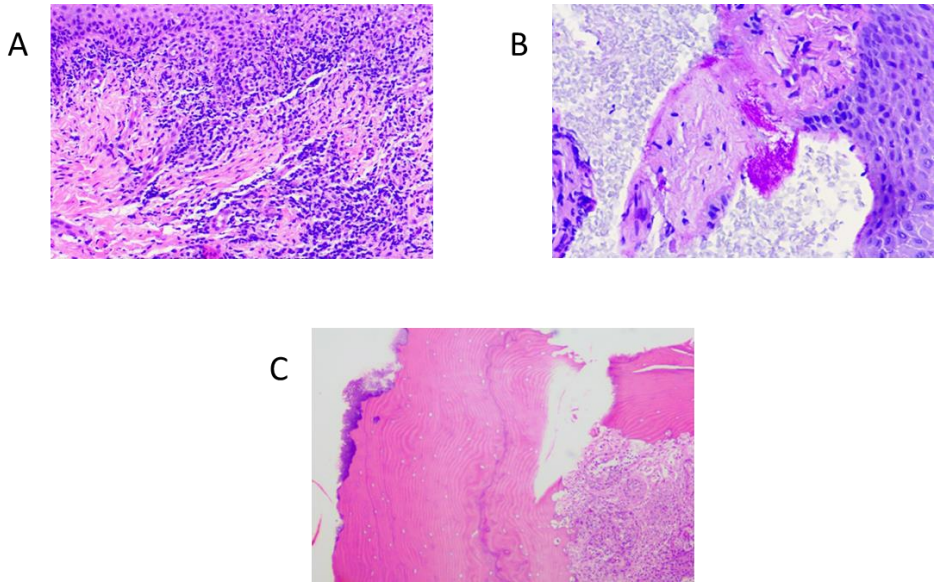

Figure 4: Healing of ulcerative lesion eight weeks after the treatment.

Discussion

The patient in this case report was presented with a single unhealed chronic ulcer. Although the ulcer was suspected from trauma to an ill-fitting denture, the ulcer still did not resolve when the patient stop wearing the denture for a few weeks. This condition eventually led to possible suspicion of oral malignancy. According to Mehta, Haran (4), any single persistent oral ulcer showing no sign of healing ten to fourteen days after any putative trauma is removed must be considered malignant, unless proven otherwise. Histopathological examination is paramount in this case since the ulcer has appeared for more than three months. Therefore, an accurate diagnosis of a major aphthous ulcer with bone sequestrum can be made. The differential diagnosis for chronic non-healing oral ulcer is

broad and includes primary palate adenocarcinoma, squamous cell carcinoma, subacute necrotising sialadenitis (SANS), necrotising sialometaplasia, mucoepidermoid cancer, secondary syphilis, and tuberculous ulcer (5). Aphthous ulcer diagnosis is not easy and is dependent on a complete clinical history and a well-planned biopsy investigation. The most typical sample comes from a biopsy collected from the ulcer's base and the edge with most indurated and elevated. It is frequently helpful to combine histology and clinical information when making the definitive diagnosis in this case.

Recurrent aphthous ulceration (RAU) can be classified into three types (6). The first type, which accounts for 80% of all occurrences, is known as minor aphthous ulcer. This kind of ulcer has a diameter of less than 5mm and cures spontaneously in one to two weeks. Major aphthous ulcers are the second type; they are huge frequently exceeding 10mm, typically take weeks or months to heal, and they leave scar. Herpetiform ulcers, often known as numerous pinpoint ulcers, that heal in a month, are the third type. RAU's specific aetiology is still unknown. There has never been a specific cause identified, and most individuals do not appear to have a genetic predisposition to this sort of lesion.

However, some predisposing and environmental factors may contribute to RAU such as hormonal changes including menstrual cycle, pregnancy and dysmenorrhea (7). Trauma from tooth brushing and dental prostheses also may predispose an individual to RAU (8). Boulinguez, Cornee-Leplat (9) reported an association between the use of drugs such as sodium hypochlorite, piroxicam, phenobarbital, phenindione, niflumic acid, nicorandil, gold salts, captopril, and RAU. Patients with nutrient deficiency associated with anaemias (iron, serum ferritin) have been reported to be twice as common in RAU patients (10). A higher level of psychological stress also may play an important role in RAU development (11). Several systemic disorders also have been linked to RAU such as Behcet's syndrome, cyclic neutropenia, HIV infection, reactive arthritis, Sweet's syndrome and Magic syndrome (12, 13). As for the patient in this case, the trauma from the ill-fitting denture, stressful lifestyle, oral medication from his systemic disease and nutritional deficiency may have contributed to predisposing factors for the occurrence of RAU.

Bony exposure and sequestration are rarely associated with oral ulcer (14). This phenomenon is frequently linked to osteonecrosis caused by antiresorptive and antiangiogenic drugs, osteoradionecrosis related to radiation, osteomyelitis, oral cancers, as well as illnesses of the immune system and bones (15-17). However, this patient was not involved in the mentioned treatments or conditions. A sequestrum is a section of non-vital bone isolated from nearby sound bone by localised necrosis, followed by site boundary resorption. During sequestration, the blood supply to the bone is often interrupted, and several factors may contribute the development of this bone devitalization. It is most likely that traumatic irritants including food trauma or ill-fitting denture disrupt the local blood supply by generating a rupture in the mucosal soft tissue, including the adjacent subperiosteum. If the underlying bone is left unprotected, ischemic necrosis could be developed (18). Some prominent features, in this case, include the condition of complete edentulous and ill-fitting dentures that may increase the risk of food trauma since the food particles are not properly reflected away from the oral soft tissues, which is compounded by the accumulation of debris in the posterior part of the oral cavity because of the comparative lack of cleansing capability of the relatively non-mobile posterior portion of the tongue. This condition could render exposed bones more vulnerable to subsequent infection, along with microbial contamination (19).

Conclusion

The diagnosis of oral ulcer is often intricate and necessitates a complete medical history, as well as clinical and laboratory examination. It is undeniable that oral presentation may be a symptom of a more serious systemic illness. A histological analysis of any ulcer that lasts longer than two weeks is required. Since a straightforward incisional biopsy is required to confirm the histological diagnosis and to rule out more serious disease processes, the work of the oral pathologist is vital. Emphasis should also be placed on maintaining good-quality dentures so that the patient can have a pleasant life and that this condition does not recur in the future.

Competing interests

The authors declare that they have no competing interests.

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