

Management of chronic traumatic ulcer mimicking oral squamous cell carcinoma on the tongue

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ABSTRACT

Background: Traumatic ulcers represent the most common oral mucosal lesions that can be differentiated from oral squamous cell carcinoma (OSCC) by their clinical appearance. From a clinical perspective, OSCC may resemble a chronic traumatic ulcer (CTU) because the base of the CTU that is healing is filled with reddish-pink granulated tissue, similar to that in OSCC. **Purpose:** The aim of this case report is to provide information about the oral management of a CTU case that imitates OSCC. **Case:** A 30-year old female presented with a major, painful, non-healing ulcer located on the right lateral of the tongue for the previous two months. Approximately two years before, she had experienced a similar lesion on the tongue. Intra oral examination showed a 10 mm x 5 mm yellowish ulcer with a fibrous center, erythematous irregular-induration margin and concave yellow base. The 15, 44 and 47 teeth were sharp and on occlusion caused trauma to the right lateral border of the tongue. **Case management:** Based on the clinical features, the lesion was imitating OSCC. After a case history review, clinical examination and appropriate investigation, the patient was diagnosed as suffering from a chronic traumatic ulcer. The primary treatment of traumatic ulcers involves eliminating etiological factors. As pharmacological therapy, a mixture of triamcinolone acetonide and 1 mg dexamethasone tablet was administered in addition to folic acid and vitamin B12. **Conclusion:** Clinical presentation of traumatic lesions varies significantly and may, at times, be ambiguous. It is important to immediately establish a correct diagnosis and implement prompt treatment of CTU lesions because they play a role at the oral carcinogenesis promotion stage.

Keywords: management; chronic traumatic ulcer; oral squamous cell carcinoma

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INTRODUCTION

Oral mucosa can feature numerous lesions resulting from chronic mechanical irritation caused by either teeth or dentures. The most common lesion is a chronic traumatic ulcer.¹ A traumatic ulcer is usually a single lesion with erythematous, irregular margins and a clean base covered with a pseudo-membrane. Usually painful, they occur due to a bite or trauma from sharp teeth or ill-fitting dentures.² Injury of the oral mucosa may result from physical, chemical and/or thermal injury possibly originating from an accidental bite to the inside of the cheek, sharp edged food, sharp edge of teeth or dentures, excessively hot food or overzealous brushing of the teeth.²

Oral traumatic lesions are divided into acute and chronic varieties. Clinical presentation of traumatic lesions varies significantly and the cause and the effect can usually be established by thorough case history compilation and clinical examination.³ A chronic traumatic ulcer (CTU) within the oral cavity is a relatively frequent lesion that usually develops in the posterior or middle third of the edge of the tongue or in the posterior third of the occlusal axis of the cheek mucosa.⁴ A chronic, yet painless, traumatic ulcer which sometimes develops with a hardened base and raised border is an etiologic agent in oral carcinogenesis, although this issue remains controversial to the present.⁵ Moreover, CTU may clinically resemble an oral squamous cell carcinoma (OSCC) because the base of the healing

CTU may be filled with reddish-pink granulation tissue, similar to an OSCC.⁶

OSCC is the most common persistent ulcer affecting the oral cavity which encompasses 90-95% of oral cancers. Usually painless, located on the tongue, especially on the lateral posterior border, early lesions are often asymptomatic^{6,7} – a fact that can cause the patient to delay seeking treatment.⁸ An early OSCC lesion may be a shallow ulcer with a velvety red base and a firm, raised border. A healing chronic traumatic ulcer can resemble an early OSCC lesion because its base may be filled with reddish-pink granulation tissue.⁶ A number of studies have revealed a connection between persistent inflammation and cancer through the overexpression of immune evasion and proliferation-regulating genes. For this reason, chronic mechanical irritation may also play a role in provoking a continuous inflammatory state.¹

The management of CTU is largely based on eliminating all factors underlying the injury. Needless to say, prompt diagnosis and elimination of the causative factors is expected to promote the healing process.⁹ This article reports the case of a tongue ulcer which was mimicking malignancy, but after extraction, followed by grinding the sharp teeth and pharmacological treatment, healed completely.

CASE

A 30-year old female attended the Oral Medicine Department of Dr. Hasan Sadikin Hospital with a painful, non-healing ulcer on the right lateral of the tongue that had been present for two months and gradually increasing in the size. The patient had experienced and recovered from the same medical condition two years before. She was not suffering from any systemic disease and demonstrated no undesirable habits such as chewing or smoking tobacco or consuming alcohol. This patient also complained about swelling of the right mandible gingiva causing difficulty when eating.

On the first visit, (2nd October, 2017) the right submandibular lymph nodes were palpable, tender, firm



Figure 1. Intra oral finding on the first visit : a 10 x 5 millimeter yellowish ulcer with a fibrous center, erythematous irregular-induration margin and concave yellow base (blue arrow).

and mobile during extra oral examination. This examination confirmed the presence of a 10 mm x 5 mm yellowish ulcer with a fibrous center, erythematous irregular-induration margin and yellow, concave base. The ulcer was on the lateral of the right tongue, parallel to the second molar mandibular. The 15 and 44 teeth were sharp and on occlusion causing trauma to the right lateral of the tongue. The base of the tongue and throat were normal and no other intra oral lesion was detected (Figure 1).

CASE MANAGEMENT

Treatment for the patient included grinding the cups of the right maxillar second premolar and right mandibular first premolar teeth improving the patient's nutritional intake by giving multivitamins, as well as antiseptic mouthwash and topical corticosteroid (a mixture of 0.1% triamcinolone acetonide in orabase and 1 mg dexamethasone tablet) which was prescribed for the inflammation. Laboratory tests including an 8 parameter blood test, anti IgG HSV-1, Ig E and plasma glucose tests were conducted to eliminate the possible causes of ulcer due to viruses and allergens. The patient was referred to the oral surgery department for extraction of the right mandibular second molar in order to eliminate the predisposing factor.

Two weeks later (16th October 2017), these severity had been reduced. Intra oral examination showed a yellowish ulcer with a fibrous center, an erythematous irregular-induration margin and a yellow concave base with slight



Figure 2. Slight improvement in the lesions found during the first visit at a 2-week-follow-up (blue arrow).



Figure 3. Improvement in the lesions at the two week follow-up (blue arrow).

improvement (Figure 2). Laboratory investigation revealed a 38.10 (reactive) anti IgG HSV-1. At this point, the patient was referred to the oncology department for a biopsy to eliminate suspected risk factors of the possibility of OSCC, but she refused for psychological reasons.

15 days later, (20th November 2017) the lesion on the right lateral of the tongue gradually resolved (Figure 3). There was no pain or inhibited chewing. At the time of writing, the patient is still under observation without any signs of relapse.

DISCUSSION

Traumatic ulcers can result from physical, thermal or chemical injuries. Injuries self-induced by the patient may be caused by accidental biting while talking, sleeping or chewing. Accidental biting during mastication or rough food may cause acute traumatic ulceration. Such ulcers generally heal within a few days without complications. However, chronic trauma caused by the sharp edges of teeth, restorations and appliances particularly ill-fitting dentures, may cause chronic ulcers. In newborns and infants trauma can be due to natal teeth (Riga-Fede syndrome)¹⁰ Although the majority of such injuries are unintentional, self-inflicted injuries can also frequently occur.^{9,11–13}

The aim of our case study is to provide information regarding the oral management of traumatic ulcer cases that mimicking OSCC. The most common symptom of

OSCC is a non-healing sore or ulcer, while other potential symptoms including: pain, numbness, a persistent lump or thickened area, a persistent red or white patch, dysphagia, a sore throat or the sensation of something being "caught" in the throat. Clinically, OSCC appears as a mixed white or reddish proliferative growth-like lesion with raised margins and an ulcerated surface with yellowish greyish pseudomembranous tissue, particularly on the lateral and ventral of the tongue.^{14,15} OSCC also demonstrates other clinical characteristics such as exophytic (outward growing) or endophytic (inward growing), leukoplakic, erythroplakic all of which show visible changes to the surface.^{3,7} OSCC is characterized by firmness on palpation which can be a helpful diagnostic clue. Upon identification and biopsy of a suspicious lesion, an oral or general pathologist will diagnose the OSCC lesion by means of microscopic examination.

A CTU appears as a single ulcer indicating loss of continuity of epithelial tissue with the base covered by yellowish-white pseudomembranous tissue which is firm on palpation. Patients with CTU complain of tenderness or pain in the area of the lesion and the traumatic agent/factors can usually be readily identified.^{6,16} At the beginning, based on clinical features, the lesion in this case report was mimicking OSCC (a white ulcer with yellowish greyish pseudomembranous tissue). However, after reviewing the case history (a painful ulcer for two months), clinical examination and appropriate investigation (the absence of induration during palpation, the ridges of the 15 and 44 teeth

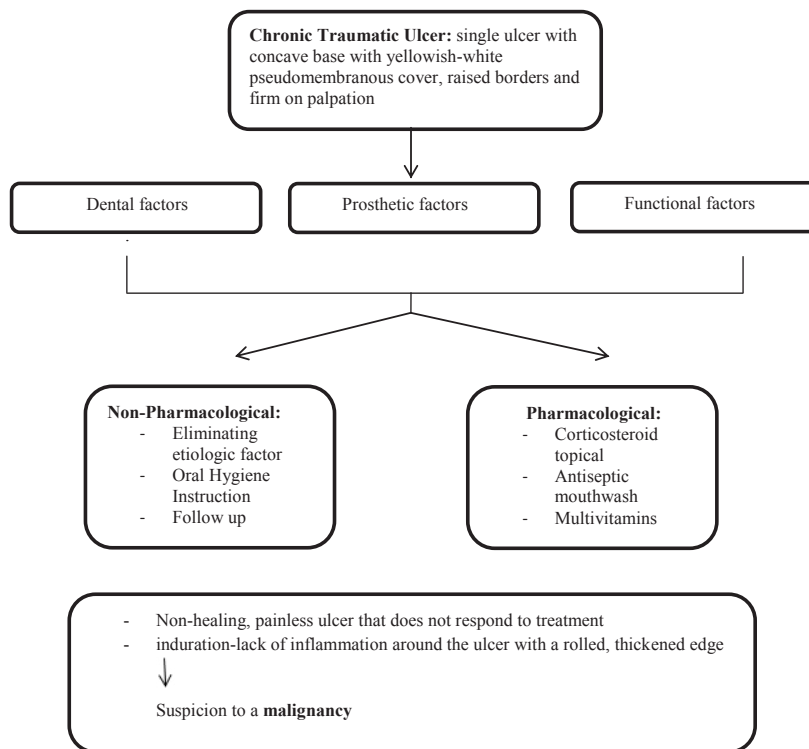


Figure 4. Diagram of the management of chronic traumatic ulcers in this case. The main management of CTU involves eliminating etiologic factor as non-pharmacological and using topical corticosteroid as pharmacological therapy.

being sharp), the patient was diagnosed as suffering from a chronic traumatic ulcer. The lesions showed significant improvement after the sharp teeth had been ground.

The main treatment for chronic traumatic ulcer consists of eliminating the etiological factors. There are three contributory factors of chronic mechanical irritation that can cause CTU and OSCC, namely: dental factors (dental malposition, diastema, sharp/jagged teeth and/or restoration, jagged teeth), prosthetic factors (sharp/rough dentures, denture retainers, overextended flanges, lack of retention and/or stability) and functional factors (tongue interposition, sucking, biting and parafunctional habits).¹ From the anamnesa and clinical examination, the etiology factors were identified as sharp 15, 44 and 47 teeth as well as parafunctional factors such as the interposition of the tongue because of the missing 16, 14, 24, 26, 36, 45 and 46 teeth. These factors lead to the formation of ulcers due to their constant contact with the right lateral of the tongue.

There are several stages of treatment that can be undertaken as planning such oral hygiene instruction (avoid coarse, hot and spicy food), correction of sharp cusps of the 15 and 44 teeth, multivitamins, topical corticosteroid application, antibacterial mouth wash and encouraging the patient to continue follow up.² It was decided to grind the 15 and 44 teeth and to extract the 47 tooth in order to eliminate the etiology because continuous contact with the cause of trauma can cause delayed healing of the ulcer.^{17,18} Topical corticosteroid (TC) plays a central role in the treatment of ulcerative oral mucosal lesions, but the evidence for efficacy of TC in oral medicine remains limited.¹⁹ The anti-inflammatory and immunosuppressive properties of topical corticosteroid is ideal for the management of specific immune mediated oral ulcerative conditions.²⁰ The potency, frequency and vehicle of application of the topical steroid should be tailored to each individual case and subsequent response to treatment.²¹ 0.1% triamcinolone acetonide was often used as the drug of choice.

As pharmacological therapy, an unguentum mixture consisting of 0.1% triamcinolone acetonide in orabase and a 1mg dexamethasone tablet applied directly to the lesion three times a day in order to reduce both healing time and the size of lesions was employed. Major challenges become more problematic as there are very few commercial products currently available for the topical treatment of the oral mucosal lesion. As the oral mucosal is constantly bathed in saliva, extremely mobile and highly permeable due to mostly non-keratinized epithelial tissue, adherent vehicles and aqueous solutions are among the most widely used.²² Persistent ulcers such as CTU will heal in approximately two to four weeks after the removal of causative factors and topical corticosteroid therapy.⁶ 0.1% triamcinolone acetonide in orabase that can adhere effectively to the dorsum of the tongue was mixed with a 1mg dexamethasone tablet because dexamethasone is a very powerful topical corticosteroid used in order to shorten healing time and reduce the size of the lesion.

After 45 days, the CTU in this case resolved and healed

on removal of the causative factor with scar formation dependent upon the extent of damage.¹⁶ Persistent ulcers that did not respond to this therapy were candidates for biopsy. This patient was asked to undergo a biopsy in the oncology surgery department, but refused for psychological reasons. The ulcer showed significant improvement after the sharp teeth had been ground. Malignancy should be suspected in the following cases: the ulcer is shallow with a velvety red base and firm raised border; a non-healing, painless ulcer has been present for more than three weeks after the elimination of predisposing factors or the ulcer has a rolled thickened edge and shows a lack of surrounding inflammation or local factors. The ulcer in this case showed significant improvement after the sharp teeth had been ground. Therefore, malignancy was excluded. After the lesion on the tongue had healed, in order to avoid self-biting of the mucosa, the patient was referred to a prosthodontics department for a dental prosthesis.

It is important to immediately establish a proper diagnosis and initiate prompt treatment of CTU lesions because they play a role at the stage of promotion of oral carcinogenesis. In this case, in order to facilitate interpretation, an algorithm of the management of chronic traumatic ulcers has been provided in Figure 4.

It can be concluded that clinical presentation of traumatic lesion varies significantly and may at times be ambiguous. An accurate diagnosis will be obtained through appropriate review of the case history, clinical examination and investigation. If the ulcer persists two weeks after the eradicating of etiological factors, the conducting of anatomy histopathological examinations such as a punch biopsy, microbrush, and excision and/or incision biopsy are important in order to eliminate suspected potential risk factors of OSCC. The main management of chronic traumatic ulcer imitating oral squamous cell carcinoma consists of eliminating etiological factors. As a pharmacological therapy, topical corticosteroid and multivitamins can reduce the size of lesions and shorten healing time.

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