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Case Report

Chronic Traumatic Ulcer of the Tongue. Two Case Reports Highlighting Diagnostic Challenges and Malignancy Mimicry

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ABSTRACT

This case report highlights a traumatic ulcer mimicking oral squamous cell carcinoma (SCC). Oral ulcers, commonly caused by trauma, often present diagnostic challenges. Two male patients, aged 25 and 90, reported painful solitary lingual ulcers resembling malignancy. A biopsy was performed, leading to significant regression and complete healing. Initially misdiagnosed as SCC, the ulcers required careful clinical evaluation, medical history review, and additional investigations for accurate diagnosis. Histopathology confirmed the diagnosis, emphasizing biopsy's role in both diagnosis and healing. This report highlights the importance of biopsy in distinguishing traumatic ulcers from malignancy and facilitating proper management.

Keywords: Biopsy, differential diagnosis, single oral ulcer, squamous cell carcinoma, traumatic ulcer

Introduction

The oral mucosa is susceptible to various lesions resulting from chronic mechanical irritation caused by teeth or dentures, with chronic traumatic ulcers being the most prevalent.[1] These ulcers typically present as single lesions with irregular, erythematous margins and a clean base covered by a pseudo-membrane.[2] The most commonly affected sites include the buccal mucosa (28.5%), tongue (16.6%), and lower lips (8.3%).[3] Painful in nature, they often arise from trauma due to sharp teeth, accidental bites, or ill-fitting dentures. Contributing factors include physical, chemical, or thermal injuries, such as improperly aligned teeth, sharp or jagged edges from decay or fractures, defective restorations, hot food, or excessive brushing.[4] In addition, they may result from exposure to substances such as topical acetylsalicylic acid, pancreatic supplements, potassium tablets, bisphosphonates, trichloroacetic acid, and certain oral care products, particularly in individuals with swallowing difficulties that prolong oral contact with these agents.[5-8] Cases linked to topical cocaine application have also been reported.[9]

Oral ulcers are classified as either acute or chronic. Acute ulcers develop suddenly and heal quickly, whereas chronic ulcers progress gradually.[10] Diagnosing a single, isolated oral ulcer can be challenging due to its varied presentations and multiple possible causes.[11] In some cases, a chronic, painless traumatic ulcer with a raised border and firm base has been suggested as a potential factor in oral carcinogenesis, though this remains a subject of debate.[12]

Moreover, healing oral traumatic ulcers bear a clinical resemblance to oral squamous cell carcinoma (OSCC) due to their reddish-pink granulation tissue at the base. Therefore, ruling out OSCC is crucial in diagnosis.[4] Effective management of chronic traumatic ulcers primarily involves identifying and eliminating the underlying causes, as timely intervention is key to promoting healing.[13]

We present two different cases of a tongue ulcer exhibiting clinical features suggestive of malignancy, reported by the SCARE 2020 criteria.[14]

Case Description and Results

Case presentation 1

A healthy 25-year-old man with no habits presented with a painful lingual lesion persisting for 2 months. He reported severe pain aggravated by food, tooth contact, and difficulty eating. Examination revealed a tender, firm, and mobile right submandibular adenopathy, with no other palpable lymph nodes. Intraorally, a coated tongue and a solitary 20 mm × 20 mm lingual ulcer were observed. The lesion had an exophytic base, elevated borders, and a fibrin-covered center, adjacent to the right mandibular second molar (47), which had a sharp lingual edge [Figure 1]. The cusp was smoothened, and differential diagnoses included traumatic ulcer and malignancy.

The patient was advised to consume soft foods, maintain oral hygiene, and use antiseptic mouthwash and topical hyaluronic acid gel 4 times daily. An incisional biopsy was performed, and histopathology revealed hyperkeratinized stratified squamous epithelium with mild dysplastic changes, including basal cell hyperplasia, loss of polarity, irregular stratification, nuclear hyperchromatism, and an altered nuclear-cytoplasmic ratio [Figure 2]. The connective tissue was collagenous with inflammatory cells, multiple blood vessels, muscle tissue, and adipocytes [Figure 3].

Within 7 days, the ulcer had reduced in size and become erythematous [Figure 4]. Significant regression was noted after 2 weeks, and complete healing occurred within a month [Figure 5]. Follow-ups at 6 months and 1 year showed no recurrence or complications.

Figure 1: Solitary lingual ulcer with fibrinous exudate

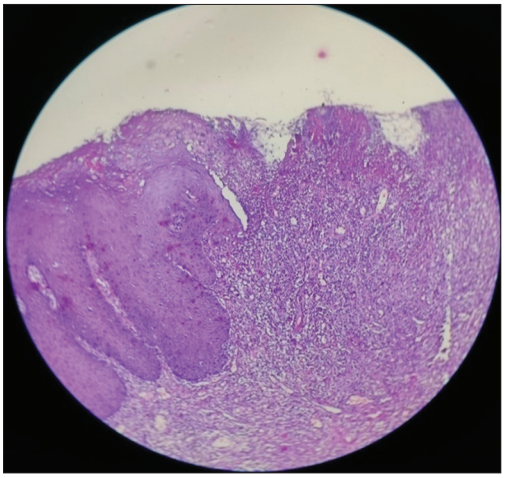


Figure 2: Keratinized stratified squamous epithelium with dysplasia

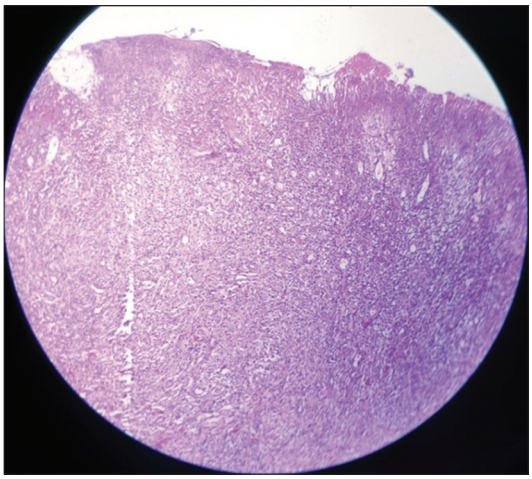


Figure 3: Connective tissue with subepithelial band of inflammatory cells

Case presentation 2

A 90-year-old man in good overall health, with no known habits, presented to our department with a painful lingual lesion that had developed 2 weeks prior. He reported severe pain exacerbated by food intake and contact with his teeth, leading to eating difficulties. No palpable lymph nodes were detected.

Figure 4: Diminished size of ulcer after 7 days

Figure 5: Complete healing of ulcer after 1 month

Intraoral examination revealed a coated tongue with a single, large ulcer on the right lateral border, adjacent to the right mandibular second molar. The lesion measured 20 mm × 15 mm, had a rubbery consistency without induration, an infiltrated and exophytic base, elevated borders, and a center covered with fibrinous exudate [Figure 6]. Examination of the posterior maxillary and mandibular teeth showed fractures with sharp edges. Given their unrestorable condition, extractions of teeth 46, 47, 16, and 17 were performed to eliminate any potential traumatic cause.

Based on the patient's history and clinical presentation, a malignant lesion of the tongue was initially suspected. An incisional biopsy was taken for histopathological evaluation. The patient was advised to consume soft foods, avoid hot and spicy items, maintain oral hygiene, and use a tongue scraper. In addition, antiseptic mouthwash and a hyaluronic acid-based topical gel were prescribed for application 4 times daily for 1 week.

Microscopic examination revealed keratinized stratified squamous epithelium with areas of discontinuity covered by a fibrinopurulent membrane [Figure 7]. The underlying connective tissue exhibited intense inflammation with numerous chronic inflammatory cells, predominantly lymphocytes and plasma cells [Figure 8].

Three days later, the ulcer had reduced in size and appeared erythematous [Figure 9]. After 2 weeks, significant regression was observed, and complete healing occurred within a month [Figure 10]. Ultimately, the final diagnosis was a traumatic ulcer of the tongue.

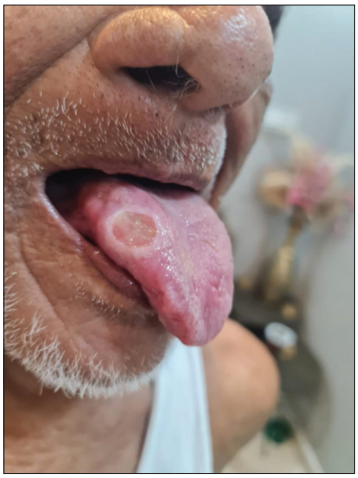


Figure 6: Ulcer with elevated border and fibrinous exudate

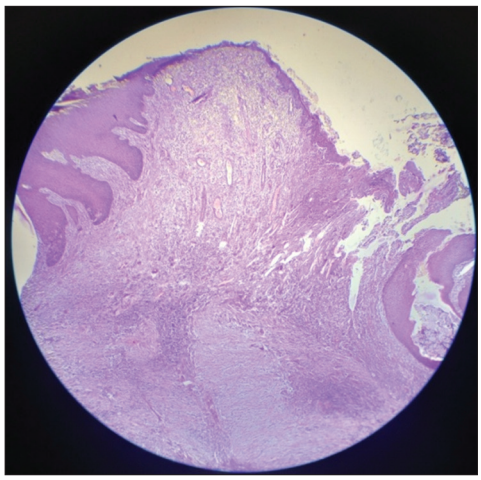


Figure 7: Epithelium with discontinuity covered by fibrinopurulent membrane

Discussion

Medical practitioners and dentists frequently encounter a wide range of oral mucosal lesions in daily clinical

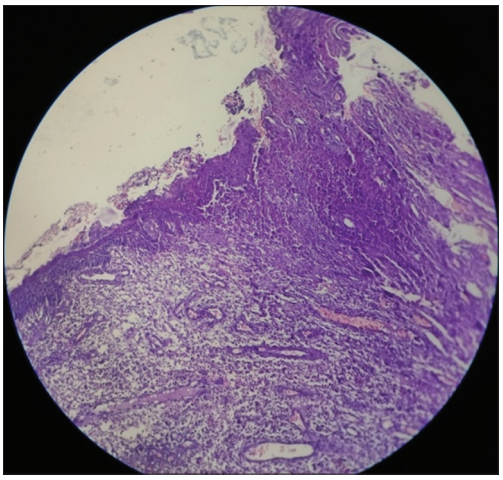


Figure 8: Highly inflamed connective tissue

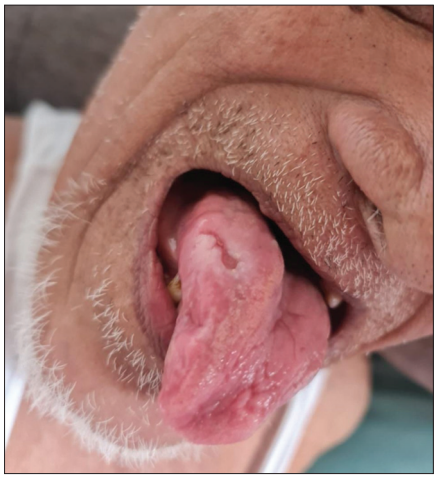


Figure 9: Diminished size of ulcer after 3 days

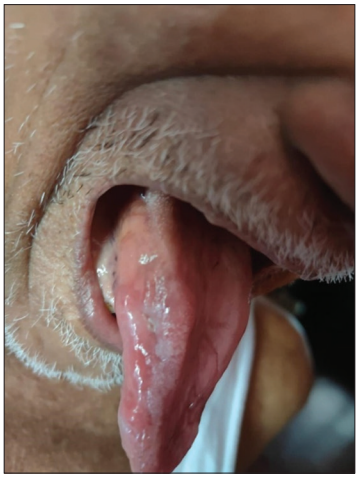
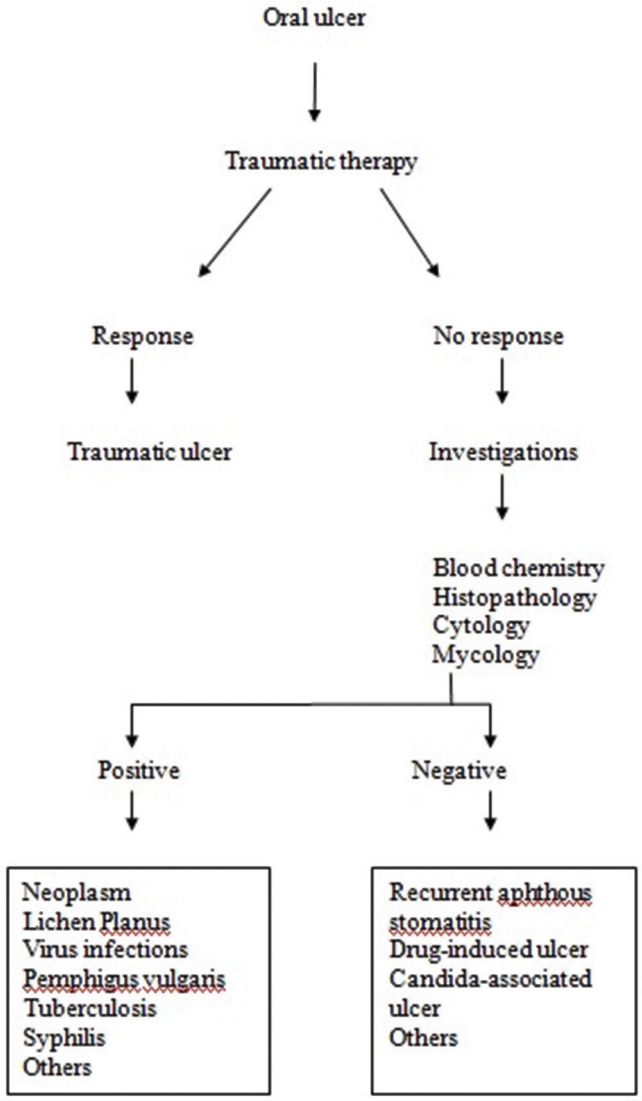


Figure 10: Complete healing of lesion after 1 month

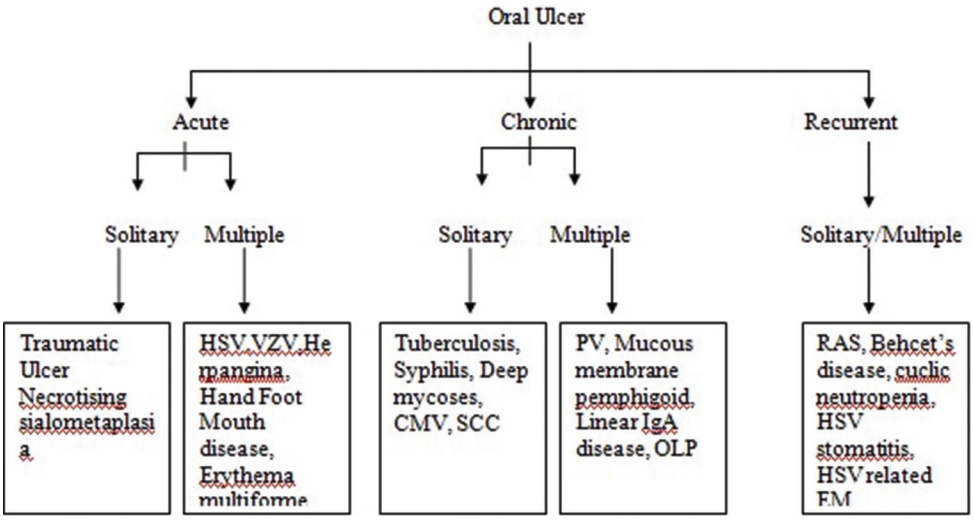
practice, varying from minor mucosal alterations to potentially life-threatening conditions such as carcinomas.



Flowchart 1: Diagnostic sequence of an ulcer

Squamous cell carcinoma (SCC) is the most prevalent form of oral cancer and continues to rise. In 90–95% of cases, it presents as a non-healing ulcer. Tobacco use is the primary etiological factor, with a higher incidence in males.[15] SCC of the tongue has a poorer prognosis compared to other oral sites due to its higher metastatic potential, attributed to the tongue's dense lymphatic network.[16]

The first case presented involved a lesion on the tongue appearing as an erythematous, solitary lingual mass with a rubbery consistency, an infiltrated and exophytic base, and elevated borders resembling SCC. There was no history of trauma or harmful habits. The lingual cusp of tooth 47 was smoothened, and the patient was prescribed an antiseptic mouthwash and a hyaluronic acid-based topical gel to be applied four times daily for a



Flowchart 2: Differential diagnosis of an ulcer

week. An incisional biopsy revealed epithelial dysplasia. Following the biopsy, the lesion significantly regressed and fully healed within a month, with no recurrence observed after 6 months to a year of follow-up.

In the second case, the patient presented with a coated tongue and a solitary lingual mass, which was rubbery in consistency, indurated, and had an exophytic base with elevated borders. The lesion was located on the right lateral border of the tongue, with no reported history of trauma. Based on its clinical presentation, a provisional diagnosis of SCC of the lateral tongue was made. However, an incisional biopsy and subsequent histopathological analysis confirmed the presence of a traumatic ulcer. The lesion regressed significantly after the biopsy and healed completely within a month.

Traumatic ulcers are among the most common oral ulcers, typically presenting as short, painful episodes. They can result from trauma, chemical exposure, electricity, or heat.[10] Self-inflicted injuries, such as accidental biting while chewing, sleeping, or talking, often lead to acute traumatic ulceration, which heals spontaneously without complications. Conversely, chronic traumatic ulcers arise from persistent irritation caused by sharp teeth, restorations, or dental appliances, particularly ill-fitting dentures. In infants and newborns, natal teeth can cause trauma leading to Riga–Fede syndrome. Clinically, some chronic traumatic ulcers can resemble malignant ulcers, especially when they are persistent and indurated. When there is no history of trauma, diagnosing these ulcers can be challenging. A thorough clinical examination, including medical history, inspection, and palpation, is essential for identifying the underlying cause. In our cases, neither patient reported recent trauma. Flowchart 1 outlines the diagnostic process for oral ulcers, while Flowchart 2 details the differential diagnoses. A biopsy is generally unnecessary for ulcers with a clear traumatic etiology, as healing typically occurs within 2 weeks once the irritant is removed.[17] However, histopathological examination is crucial for suspicious or non-healing ulcers. For lesions smaller than 5 mm, an excisional biopsy is recommended, whereas an incisional biopsy is preferred for those larger than 5 mm.[18] In both reported cases, a biopsy was performed due to the lesion's resemblance to malignant ulcers. Significant healing was observed following the biopsy, further supporting the diagnosis.

Conclusion

Oral ulcers are common lesions that can arise from various causes, including mechanical trauma, chemical exposure, and thermal injury. While most traumatic ulcers are self-limiting and heal once the causative factor is removed, persistent and indurated ulcers may closely resemble malignancies such as OSCC. Accurate diagnosis is crucial in distinguishing benign traumatic ulcers from potentially malignant lesions, particularly when there is no clear history of trauma. In both cases presented, the clinical appearance of the lesions initially raised suspicion for OSCC. However, histopathological examination confirmed them as traumatic ulcers. Management of such cases should focus on eliminating traumatic factors, ensuring close monitoring, and performing a biopsy when necessary to rule out malignancy. These cases highlight the importance of a comprehensive clinical examination,

appropriate diagnostic approaches, and follow-up to facilitate proper healing and exclude more serious conditions.

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IM, SP: Manuscript writing.
SM, Prathiba: Manuscript overview.

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Data Availability Statement

Not applicable

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No.

Conflicts of Interest

The authors declare no conflict of interest.

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