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Traumatic Ulcerative Granuloma with Stromal Eosinophilia of The Lateral Border of Tongue Mimicking Oral Squamous Cell Carcinoma: A Case Report

Running Title: Tugse In Right Lateral Border of Tongue

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Abstract

Traumatic ulcerative granuloma with stromal eosinophilia (TUGSE) is an uncommon benign inflammatory lesion of the oral mucosa characterized by persistent ulceration accompanied by a dense eosinophil-rich inflammatory infiltrate within the connective tissue. Clinically, the lesion often presents as a chronic indurated ulcer and may closely resemble oral squamous cell carcinoma, creating diagnostic uncertainty. Histopathologically, it typically shows ulcerated stratified squamous epithelium with a polymorphous inflammatory infiltrate predominantly composed of eosinophils extending into

deeper connective tissue and skeletal muscle bundles. We report a case of a 75-year-old female presenting with a persistent ulcer on the right lateral border of the tongue associated with chronic mechanical irritation. The clinical, histopathological and follow-up findings were consistent with traumatic ulcerative granuloma with stromal eosinophilia, and the lesion resolved completely after elimination of the traumatic factor.

Keywords: Traumatic ulcerative granuloma, eosinophilic ulcer, stromal eosinophilia, tongue ulcer.

Case Report

A 75-year-old female patient from a semi-urban locality presented to the Department of Oral and Maxillofacial Pathology, Guru Nanak Institute of Dental Sciences and Research, Panihati, Kolkata, with the chief complaint of a persistent ulcer on the right lateral border of the tongue that had been present for approximately one year. The patient reported that the lesion initially appeared as a small ulcer which gradually increased in size over time. The ulcer was associated with a burning sensation and occasional referred pain toward the ipsilateral ear, causing mild discomfort during mastication and tongue movement. No history of fever, weight loss, or other systemic symptoms was reported.

The patient's medical history revealed no significant systemic illness and there was no relevant family history. She denied any history of tobacco or alcohol consumption.

Extraoral examination revealed no facial asymmetry or regional lymphadenopathy. The overlying skin appeared normal without evidence of swelling or discoloration.

Intraoral examination revealed a solitary ulcerative lesion measuring approximately 2 × 1.5 cm on the right lateral border of the tongue. The lesion showed well-defined margins with slight elevation and an erythematous base. On palpation, the margins of the ulcer appeared mildly indurated and tender. The patient's oral hygiene was poor and fractured cuspal surfaces of mandibular teeth 45 and 46 were observed in close proximity to the lesion, suggesting possible chronic mechanical irritation. No bleeding or discharge was noted from the ulcer surface.

Based on the clinical findings and chronic nature of the lesion, a provisional diagnosis of chronic traumatic ulcer with suspicion of oral squamous cell carcinoma was considered. Differential diagnoses included traumatic ulcerative granuloma with stromal eosinophilia, eosinophilic ulcer of the oral mucosa, and deep fungal infection.

Considering the persistent nature of the lesion, an incisional biopsy was performed from the representative site after obtaining written informed consent from the patient. The biopsy specimen was fixed in 10% neutral buffered formalin and processed routinely for histopathological examination.

FIG 1 (A): EXTRAORAL PHOTOGRAPH OF THE PATIENT SHOWING NO GROSS ASYMMETRY; (B) INTRAORAL PHOTOGRAPH SHOWING A SOLITARY ULCER ON THE RIGHT LATERAL BORDER OF THE TONGUE, MEASURING ABOUT 2 CM X 1.5 CM WITH WELL-DEFINED BORDERS AND EVERTED MARGINS

Microscopic examination of hematoxylin and eosin-stained sections revealed parakeratinized stratified squamous epithelium with focal ulceration and irregular epithelial hyperplasia at the margins. The underlying connective tissue stroma exhibited a dense polymorphous inflammatory infiltrate predominantly composed of eosinophils along with lymphocytes and plasma

cells. Inflammatory cells were observed extending deeply into the connective tissue and infiltrating between skeletal muscle bundles, imparting an infiltrative appearance. Numerous dilated vascular channels were also present within the connective tissue stroma.

These characteristic histopathological findings were consistent with Traumatic Ulcerative Granuloma with Stromal Eosinophilia (TUGSE).

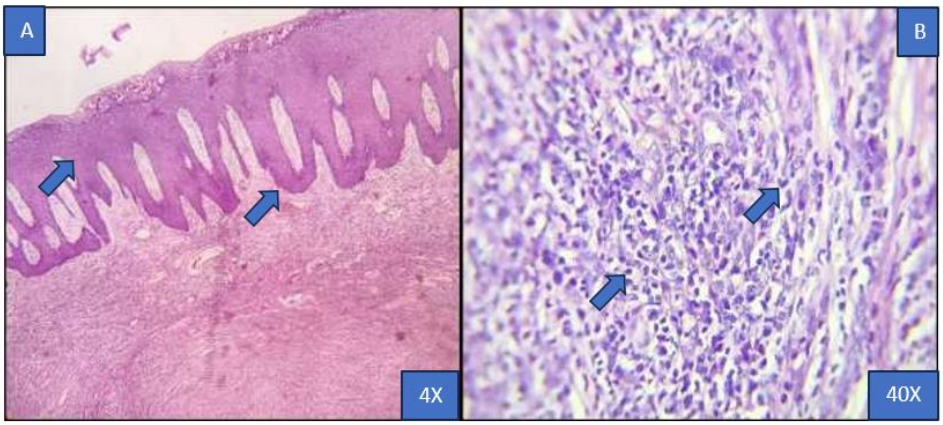

FIG 2 (A): SCANNER PHOTOMICROGRAPH (4x) SHOWING PRESENCE OF HYPERPLASTIC PARAKERATINIZED STRATIFIED SQUAMOUS EPITHELIUM WITH ELONGATED IRREGULAR RETE-RIDGES BACKED BY FIBROVASCULAR CONNECTIVE TISSUE STROMA IS CHARACTERIZED BY PRESENCE OF DIFFUSE CHRONIC INFLAMMATORY INFILTRATES; (B) HIGH POWER PHOTOMICROGRAPH (40x) SHOWING PRESENCE OF INFLAMMATORY INFILTRATES WITH PREDOMINANCE OF EOSINOPHILS AND PLASMA CELLS IN THE CONNECTIVE TISSUE STROMA

Following confirmation of the diagnosis, treatment was directed toward elimination of the local traumatic factor. The fractured cuspal edges of teeth 45 and 46 were smoothened, and the patient was advised to maintain proper oral hygiene and avoid further mechanical irritation.

During follow-up evaluation, partial healing of the lesion was observed after one week, and complete resolution of the ulcer occurred within three weeks following removal of the traumatic irritant. No recurrence was observed during subsequent follow-up visits.

FIG 3 (A): PHOTOGRAPH SHOWING POST-OPERATIVE HEALING AFTER 7 DAYS; (B) FIG 5: PHOTOGRAPH SHOWING POST-OPERATIVE HEALING AFTER 21 DAYS.

Discussion

Traumatic ulcerative granuloma with stromal eosinophilia (TUGSE) is a rare benign inflammatory lesion of the oral mucosa characterized by persistent ulceration accompanied by a prominent eosinophil-rich inflammatory infiltrate within the connective tissue. The lesion was first described by Shapiro and Juhlin as eosinophilic ulcer of the tongue and has subsequently been reported under various terminologies including eosinophilic ulcer of the oral mucosa and traumatic eosinophilic granuloma.[1–3] Despite its benign nature, the lesion frequently demonstrates indurated margins and delayed healing, which may clinically mimic malignant ulcerative lesions such as oral squamous cell carcinoma.

The exact pathogenesis of TUGSE remains incompletely understood. However, repeated mechanical trauma is widely considered the most important precipitating factor. Continuous irritation from fractured teeth, sharp cusps, dental restorations, or ill-fitting prostheses may result in disruption of the mucosal surface followed by infiltration of inflammatory cells into the underlying connective tissue.[4] Several studies have also suggested that immunologic mechanisms involving activated T-lymphocytes and eosinophils may contribute to the development of this lesion.[5] Activated eosinophils release cytotoxic mediators such as major basic protein and eosinophil cationic protein, which may induce tissue damage and delay epithelial repair, thereby contributing to the chronic nature of the lesion.[8]

Epidemiologically, TUGSE can occur over a wide age range but is more commonly reported in middle-aged and elderly individuals.[6] The tongue, particularly the lateral border, represents the most frequently affected site due to its susceptibility to mechanical trauma during mastication and speech. Other intraoral sites reported in the literature include the buccal mucosa, gingiva, palate, and lips.[4,6] Most cases present as solitary lesions, and no clear gender predilection has been consistently documented.

Clinically, the lesion typically presents as a persistent ulcer with indurated or elevated margins and may remain for several weeks or months. Because of its induration and infiltrative appearance, TUGSE often raises clinical suspicion of oral squamous cell carcinoma.[5] In the present case, the patient presented with a chronic ulcer on the lateral border of the tongue associated with burning sensation and referred pain toward the ear. Similar clinical presentations involving persistent ulcers of the tongue have been described in previously reported cases of TUGSE.[5,6] Furthermore, the presence of fractured cuspal surfaces of teeth 45 and 46 adjacent to the lesion suggests that repeated mechanical trauma may have played a significant role in the development of the ulcer which is clinically corroborative to the findings of previous researchers.

Histopathologically, TUGSE demonstrates ulceration of the surface epithelium with an underlying polymorphous inflammatory infiltrate composed predominantly of eosinophils along with lymphocytes, plasma cells, and histiocytes. A distinctive microscopic feature frequently described in the literature is the deep infiltration of inflammatory cells into the connective tissue and skeletal muscle bundles, which may impart an infiltrative appearance despite the benign nature of the lesion.[7] These histopathological findings were also evident in the present case and strongly supported the diagnosis.

From a diagnostic perspective, TUGSE should be differentiated from several ulcerative lesions of the oral cavity including traumatic ulcer, deep fungal infection, lymphoma, and oral squamous cell carcinoma. Because of its clinical resemblance to malignancy, histopathologic examination remains the gold standard for establishing the correct diagnosis.[9]

Management of TUGSE primarily involves elimination of the underlying traumatic stimulus. In most cases, removal of the irritant results in rapid healing of the lesion within a few weeks.[9] In the present case, smoothing of the fractured cuspal surfaces led to progressive healing with complete resolution of the lesion within three weeks.

The prognosis of TUGSE is generally favorable, and recurrence is uncommon once the traumatic source has been eliminated. However, persistent or recurrent lesions may occasionally occur if the local irritant remains uncorrected.[10] Therefore, careful clinical evaluation and elimination of predisposing factors are essential to prevent recurrence and ensure complete healing.

Recognition of this entity is therefore important for clinicians and pathologists, as early diagnosis allows conservative management and prevents unnecessary aggressive treatment that might otherwise be considered for suspected malignant lesions.

Conclusion

Traumatic ulcerative granuloma with stromal eosinophilia is a benign inflammatory lesion that may clinically resemble oral malignancy. Accurate diagnosis depends on careful clinicopathologic evaluation and histopathologic confirmation. Early recognition of this condition allows conservative management and prevents unnecessary aggressive treatment.

Acknowledgement

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