






Extensive necrotizing sialometaplasia mimicking squamous cell carcinoma

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Abstract:

Necrotizing sialometaplasia is a benign, self-limiting inflammatory condition that predominantly affects the minor salivary glands, particularly in the hard palate region. It typically begins as a painless submucosal swelling that progresses into a well-defined necrotic ulcer. Due to its clinical and histopathological resemblance to malignant neoplasms, presents a significant diagnostic challenge, highlighting the importance of a thorough differential diagnosis to rule out malignancy. This article reports the case of a 64-year-old male patient with a necrotic ulcer on the hard palate, which developed progressively over the course of one month. Two incisional biopsies were performed: the first was inconclusive, while the second confirmed the diagnosis of necrotizing sialometaplasia through histopathological analysis. Although the exact etiology remains unclear, it is believed to result from localized vascular ischemia leading to glandular necrosis. It is therefore essential that dental surgeons are familiar with the differential diagnoses in order to adopt the most conservative treatment approach and avoid unnecessary or iatrogenic procedures.

Keywords: Necrotizing sialometaplasia; Minor Salivary Gland; Squamous cell carcinoma;

INTRODUCTION

Necrotizing sialometaplasia is a rare, benign, and self-limiting inflammatory lesion that predominantly affects the minor salivary glands located in the hard palate of the oral cavity. First described by Abrams et al. in 1973¹, this condition is locally destructive and may exhibit clinical features suggestive of malignancy, often mimicking lesions such as squamous cell carcinoma and mucoepidermoid carcinoma^{2,3}. Clinically, it presents as an ulcer that alters the normal anatomy of the affected area⁴. Microscopically, it may also mimic malignant neoplasms, particularly mucoepidermoid carcinoma^{5,6}.

The clinical and histopathological resemblance of necrotizing sialometaplasia to malignant neoplasms renders its diagnosis particularly challenging. It has been reported in only 0.03% of biopsied oral lesions, with a higher prevalence among white individuals, an age range of 17 to 80 years, and a slight male predominance, with a 2:1 ratio^{7,8}.

Although its exact etiology remains unclear, the condition is believed to result from vascular obstruction triggered by factors such as trauma, smoking, and alcohol consumption⁸, ultimately leading to ischemic necrosis of the minor salivary glands in the palatal region.

Statement of Clinical Significance

Necrotising sialometaplasia closely mimics oral malignancies both clinically and histologically. Awareness of this condition is essential for accurate diagnosis, enabling dental surgeons to avoid unnecessary aggressive treatments and adopt a conservative, patient-centred approach.

This study aims to report a case of necrotizing sialometaplasia in a male patient with a history of smoking.

CASE REPORT

A 64-year-old Brazilian male patient was referred to the Stomatology Clinic at the University Dental Clinic (COU-UEL) with a complaint of a painful ulcer on the palate that had progressively increased in size over the course of one month. The patient reported smoking one pack of cigarettes per day and consuming alcohol daily. He denied any history of trauma to the affected area.

Intraoral examination revealed a deep, necrotic ulcer with a brownish appearance, approximately 3 cm in diameter, located at the midline of the hard palate (Figure 1). An incisional biopsy was performed under

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local anesthesia. Histopathological analysis revealed ulcerated mucosa with granulation tissue and a mixed inflammatory infiltrate in the underlying connective tissue; however, the findings were inconclusive for a definitive diagnosis. This first biopsy probably did not sample a representative area, perhaps because it was performed in the area of extensive necrotic tissue. One week later, the patient reported spontaneous detachment of the necrotic tissue from the lesion (Figure 2). A second biopsy was performed, and histopathological analysis subsequently confirmed the diagnosis of necrotizing sialometaplasia (Figure 3 and 4). The patient underwent three sessions of photobiomodulation therapy, and at the 1-month follow-up, complete healing of the lesion was observed (Figure 5).

DISCUSSION

Although necrotizing sialometaplasia may occasionally present as a non-ulcerated swelling, the most



Figure 1. Extensive deep ulcer in the middle hard palate.



Figure 2. Clinical aspect of the ulcer after detachment of the brown necrotic tissue.

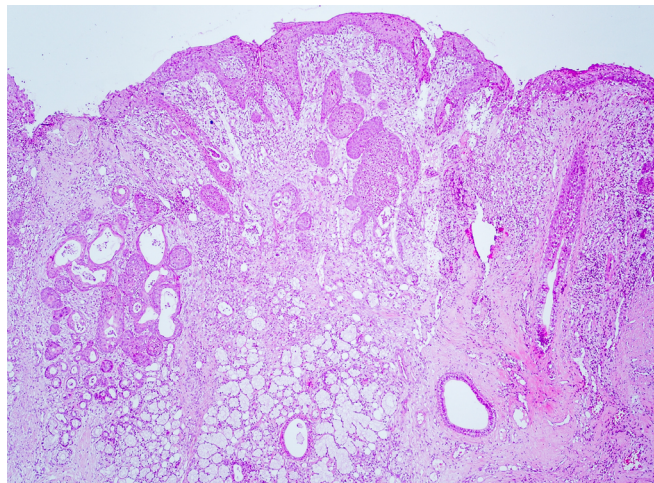


Figure 3. Microscopic image revealing areas of mucosal ulceration and epithelial atrophy, accompanied by a mixed inflammatory infiltrate in the underlying connective tissue and squamous metaplasia of the salivary ducts. (HE, 40x)

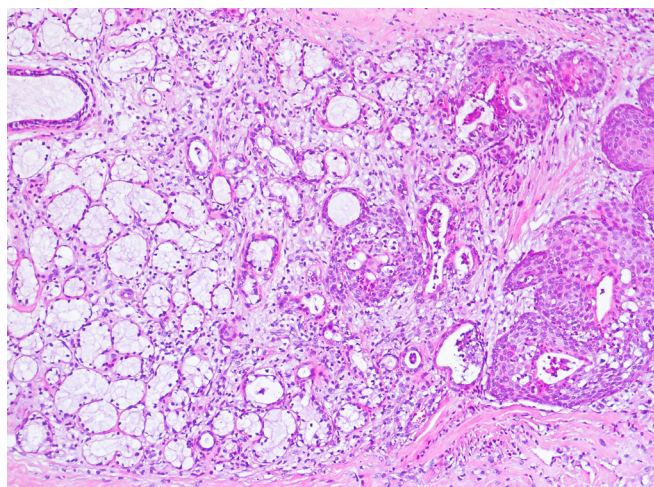


Figure 4. Higher magnification highlighting the squamous metaplasia of the ducts, with no evidence of cellular atypia. (HE, 200x)



Figure 5. Complete healing with no sign of recurrence after 10 months.

typical manifestation is a deep ulcer, as observed in the present clinical report. NS has been reported more frequently in middle-aged men and less commonly in women⁹, with the hard palate being the most commonly affected site¹⁰⁻¹², as seen in this case.

Anneroth and Hansen proposed that the pathogenesis of NS can be categorized into five overlapping stages: infarction, sequestration, ulceration, repair, and healing¹³. The severity and extent of the lesion depend on the tissue's capacity for repair, and different stages may occur simultaneously in distinct areas. Although the exact etiology remains unclear, NS is thought to result from vascular obstruction triggered by factors such as trauma, smoking, and alcohol consumption^{8,14}.

In the present case, the patient did not report any trauma at the site, suggesting that smoking may have been the primary contributing factor. The patient also wore a complete denture, which could have been a potential cause of local trauma. However, this was ruled out after clinical evaluation revealed a well-adapted prosthesis with no signs of mechanical irritation.

The malignant ulcerative appearance of necrotizing sialometaplasia can cause significant concern for both the patient and the dental surgeon, highlighting the importance of a thorough clinical examination to support an accurate diagnosis^{15,16}. In the present case, following the clinical evaluation, an incisional biopsy was performed to allow histopathological analysis. The biopsy revealed granulation tissue and a mixed inflammatory infiltrate in the underlying connective tissue, with inflammation observed around the acini of the minor salivary glands. In other words, degeneration of these acini was occurring, resulting in ductal metaplasia.

In this context, the lesion may closely mimic a carcinoma, and the definitive distinction between a malignant lesion and NS is made through histopathological examination. In the current study, this confirmed the diagnosis of NS. Treatment is generally unnecessary, as the lesion tends to resolve spontaneously once the predisposing factor is removed. However, biopsy is always indicated to exclude malignancy, as was done in this case. Local debridement may be considered in cases of extensive ulceration to accelerate the healing process¹⁷.

In the case presented, three sessions of photobiomodulation therapy were administered to assist in the healing process, yielding excellent outcomes with an almost immediate clinical response. Photobiomodulation therapy has been associated with promoting tissue regeneration and wound healing, and cases of necrotizing sialometaplasia successfully managed with the aid of

photobiomodulation have already been reported in the literature¹⁸. Some authors recommend additional palliative measures for pain management, such as the prescription of analgesics and the application of chlorhexidine to the affected area to prevent secondary infection¹⁹.

CONCLUSION

Therefore, given that necrotizing sialometaplasia presents clinical features that may closely mimic malignant lesions, it is essential for dental surgeons to possess a thorough understanding of this rare condition. A lack of awareness may result in unnecessary interventions and inappropriate management. Accordingly, meticulous clinical examination, accurate diagnosis, and careful interpretation of histopathological findings are critical for appropriate case management.

AUTHORS' CONTRIBUTIONS

BMI: Writing – original draft. JSB: Writing – original draft. FAI: Investigation, Writing – review & editing. WRP: Investigation, Writing – review & editing. ATJ: Investigation, Supervision, Writing – review & editing.

CONFLICT OF INTEREST STATEMENT

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Ethics approval: The authors affirm that the study was conducted in accordance with the guidelines of the Research Ethics Committee of the institution of origin.

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