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Synchronous oral squamous cell carcinoma and oral heterotopic gastrointestinal cyst: first case report

Carcinoma de células escamosas oral e cisto gastrointestinal heterotópico síncrono: primeiro relato de caso

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ABSTRACT

Background: Oral squamous cell carcinoma (OSCC) is the most common malignancy of the oral cavity. However, its synchronous occurrence with lesions of a different nature is exceedingly rare, particularly arising at the same anatomical site. Heterotopic gastrointestinal cysts (HGICs) are developmental anomalies containing ectopic gastrointestinal epithelium, typically observed in pediatric patients and rarely reported in adults. **Objectives:** This report describes an unprecedented case of synchronous OSCC and HGIC of the mouth floor, underscoring the critical role of thorough histopathological evaluation for accurate diagnosis and appropriate management. **Description:** A 62-year-old man presented with an ulcerated lesion on the right mouth floor. Incisional biopsy followed by histological analysis revealed two distinct lesions: one characterized by a proliferation of atypical squamous cells, consistent with OSCC, and the other by a cystic cavity lined with tall columnar epithelial cells showing basally located nuclei and apical microvilli (brush border), consistent with the diagnosis of HGIC. Definitive treatment included tumor resection and ipsilateral neck dissection. The patient remains under clinical follow-up. **Conclusion:** To the best of our knowledge, this is the first reported case of synchronous OSCC and HGIC at the same site, highlighting the need for individualized therapeutic planning based on the biological behavior of each lesion.

KEYWORDS

Choristoma; Dentistry; Mouth Neoplasms; Oral Pathology; Squamous Cell Carcinoma of Head and Neck.

RESUMO

Contexto: Carcinoma espinocelular oral (CECO) é a neoplasia maligna mais comum da cavidade oral. No entanto, sua ocorrência simultânea com lesões de natureza distinta é extremamente rara, especialmente quando ambas surgem no mesmo sítio anatômico. Cistos gastrointestinais heterotópicos (CGIHs) são anomalias do desenvolvimento que contêm epitélio gastrointestinal ectópico, sendo tipicamente observados em pacientes pediátricos e raramente descritos em adultos. **Objetivos:** Este relato descreve um caso inédito de ocorrência simultânea de CECO e CGIH no assoalho bucal, ressaltando a importância fundamental da avaliação histopatológica minuciosa para um diagnóstico preciso e conduta terapêutica adequada. **Descrição:** Um paciente do sexo masculino, de 62 anos, apresentou-se com lesão ulcerada no assoalho bucal direito. A biópsia incisional, seguida de análise histológica, revelou duas lesões distintas: uma caracterizada por proliferação de células escamosas atípicas, compatível com CECO, e outra por uma cavidade cística revestida por epitélio colunar alto, com núcleos localizados basalmente e microvilosidades apicais (borda em escova), compatível com o diagnóstico de CGIH. O tratamento definitivo incluiu ressecção tumoral e esvaziamento cervical ipsilateral. O paciente permanece em acompanhamento clínico. **Conclusão:** Até onde é do nosso conhecimento, este é o primeiro caso descrito de ocorrência sincrônica de CECO e CGIH no mesmo sítio anatômico, ressaltando a necessidade de um planejamento terapêutico individualizado, fundamentado no comportamento biológico de cada lesão.

PALAVRAS-CHAVE

Coristoma; Odontologia; Neoplasias Bucais; Patologia Oral; Carcinoma Espinocelular de Cabeça e Pescoço.

INTRODUCTION

Among head and neck malignancies, oral cavity cancer stands out due to its high prevalence and significant contribution to global mortality [1]. Over 90% of cases arise from the epithelium of the oral mucosa and are referred to as oral cavity squamous cell carcinoma (OSCC) [2,3]. OSCC primarily affects men in their fifth and sixth decades of life [4,5] and is associated with risk factors such as tobacco use and alcohol consumption [2]. Furthermore, human papillomavirus infection (high risk) has been characterized as the main risk factor for oropharyngeal cancer, particularly affecting younger patients [6].

Synchronous lesions are defined as two or more lesions that arise simultaneously or within six months of the primary lesion [7]. After this period, they are considered as metachronous lesions [8]. Although relatively common in the head and neck region, concomitant lesions encompass a wide range of diagnoses, from benign conditions such as hyperplasia to malignancies [9,10].

OSCC may occasionally present alongside other simultaneous lesions, both benign and malignant, complicating diagnosis and clinical management. Metachronous lesions associated with OSCC are more common than synchronous lesions, but both scenarios pose considerable diagnostic challenges [11-16].

Heterotopic gastrointestinal cyst (HGIC) of the oral cavity, also referred to as 'enterocystoma', 'choristomatic cyst' or 'lingual duplication cyst' [17] is a rare and benign condition characterized by the presence of ectopic gastrointestinal tissue in an unusual location [18-20]. Although typically diagnosed in childhood, this condition can also occur in adults [21,22]. The etiology of this cyst is poorly understood, but the most accepted hypothesis suggests that, during embryonic development, endodermal cells may migrate to an abnormal location [23,24]. Clinically, the cyst may be asymptomatic; however, significant growth can interfere with feeding and oral function [23]. Among the most affected anatomical regions are the tongue and the floor of the mouth [23,25].

This case report aims to describe a rare and unprecedented coexistence of OSCC and a concomitant HGIC of the mouth floor, highlighting the clinical and prognostic implications of this unusual association for accurate diagnosis and personalized management.

CASE REPORT DESCRIPTION

A 62-year-old caucasian male presented with the chief complaint of discomfort in the floor of the mouth. Intraoral examination revealed a crater-like ulcerated lesion approximately 2 cm in diameter, with raised and indurated borders, and 8-month history (Figure 1). The patient had a significant history of smoking for 36 years and regular alcohol consumption. Extraoral examination identified submandibular lymphadenopathy on the right side.

An incisional biopsy was performed, and histopathological analysis revealed two distinct lesions. The first, diagnosed as OSCC, was characterized by a proliferation of oral keratinocytes with moderate cellular atypia, pleomorphism (25%-50%), and nuclear hyperchromatism. Significant abortive keratinization (>50%) and occasional mitotic figures were also noted (2 mitoses/10 fields, 400x). The neoplastic cells were arranged in islands, trabeculae, and solid cords, consistent with the typical architectural pattern of well-differentiated OSCC (Figure 2).

The second lesion, an incidentally diagnosed HGIC, was characterized by a pathological cavity lined by tall columnar epithelial cells with basally displaced nuclei and apical microvilli [brush border] was identified, resembling duodenal mucosecretory epithelium. PAS-positive diastase-resistant Goblet cells and tubular structures like Brunner's glands were also observed. The overlying oral mucosa was lined with stratified squamous parakeratinized epithelium, with acanthosis and hydropic degeneration (Figure 3). The diagnosis of synchronous well-differentiated OSCC and a HGIC was confirmed based on histopathological findings.

Figure 1 - Ulcerated lesion located on the floor of the mouth.

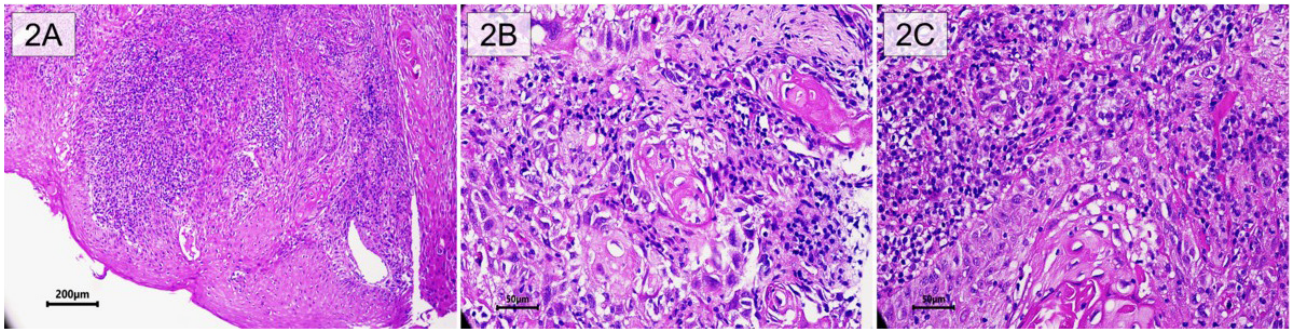

Figure 2 - Histopathological features of the squamous cell carcinoma component (H&E). **A**. Infiltrative neoplastic proliferation with nests of atypical epithelial cells invading the underlying connective tissue (100 ×). **B**. At higher magnification, tumor cells with nuclear pleomorphism, atypical mitoses, and areas of keratinization (200 ×). **C**. Inflammatory infiltrate associated with the tumor, composed of lymphocytes, plasma cells, and macrophages (200 ×).

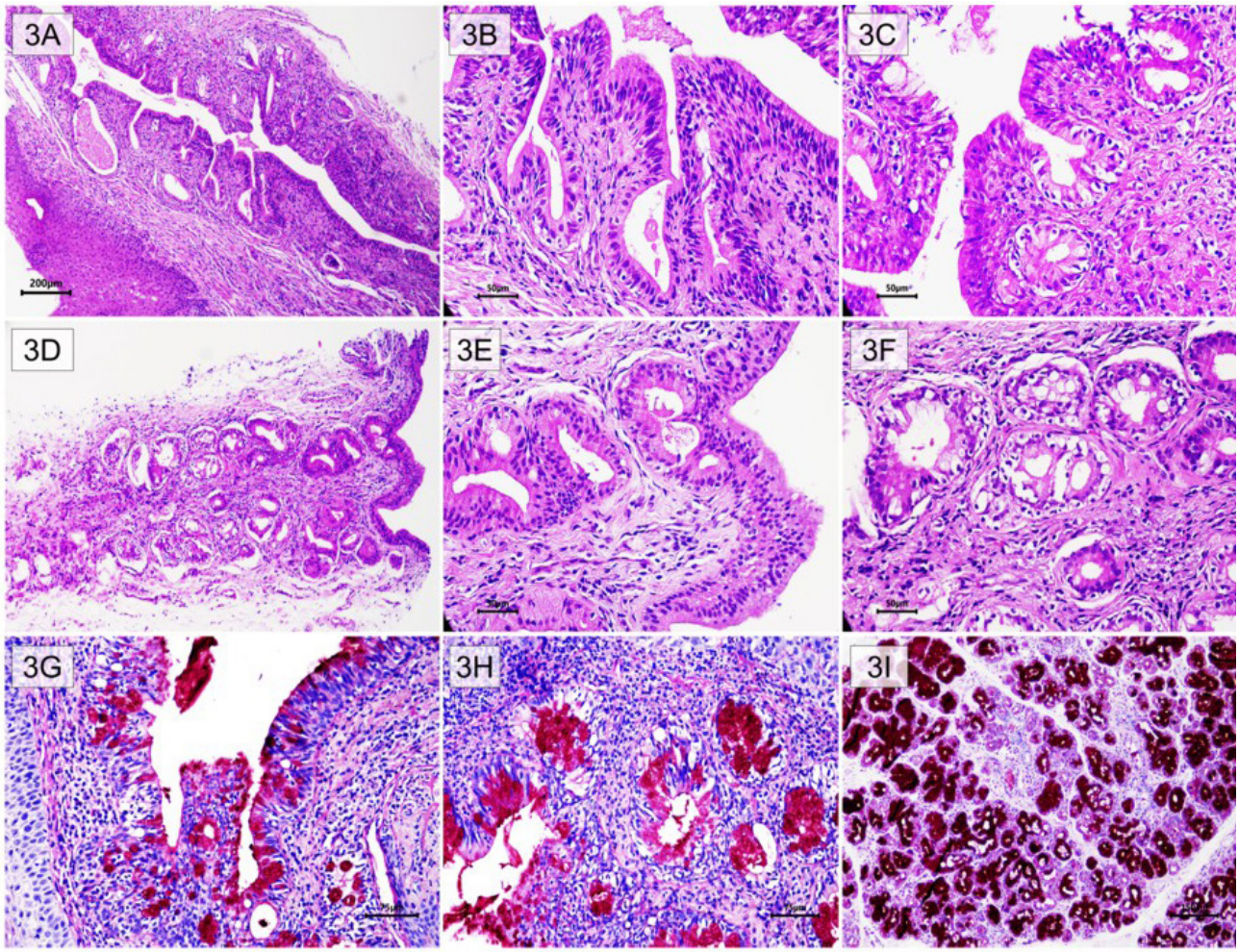

Figure 3 - Histopathological features of the Heterotopic gastrointestinal cysts. **A**. Pathological cavity lined by tall columnar epithelial cells in a single layer (100 ×). **B and C**. The nuclei are displaced toward the basal pole, with apical borders displaying microvilli (brush borders) (200 ×). **D**. In the adjacent mucosa, tubular structures lined by columnar cells and mucus-secreting cells are observed (100 ×). **E**. The epithelium forms villi that project into the cystic lumen (200 ×). **F**. Interspersed are goblet-shaped mucus-secreting cells, with a lightly eosinophilic and slightly granular cytoplasm (goblet cells) (200 ×). **G**. PAS staining highlights apical microvilli, intracellular mucus within goblet cells, and luminal secretion, confirming the mucosecretory nature previously observed with H&E staining (200 ×). **H**. PAS staining revealed marked positivity for polysaccharides within the cytoplasm of acinar cells and in the luminal secretions (200 ×). **I**. PAS staining revealed mucosecretory cells with morphological features resembling Brunner's glands (200 ×).

Owing to the rare and complex nature of the simultaneous occurrence of a well-differentiated OSCC and an HGIC in the floor of the mouth, multidisciplinary discussions were conducted to determine the most appropriate surgical approach and follow-up plan. The definitive treatment was

tumor resection together with neck dissection on the affected side. The patient has been under follow-up for nine months, with no evidence of disease recurrence.

DISCUSSION

Although the simultaneous occurrence of OSCC with other lesions has been reported in the literature [16,26,27], to the best of our knowledge, this is the first report of its combination with an HGIC. In addition to being exceedingly rare, this unusual association underscores the importance of careful clinicopathological evaluation to guide effective clinical management and tailor treatment to the distinct biological behavior of each lesion. Hence, properly understanding the influence of the synchronous occurrence of OSCC with other lesions, different in nature and pathogenesis, on its management and prognosis may represent a challenge in clinical practice, particularly when both are diagnosed in the same anatomical site.

In the present case, the concurrent occurrence of HGIC did not appear to impact the clinical course, therapeutic strategy, or prognosis of OSCC. A comparable scenario was reported by Caltabiano et al. (2008), who described a case of OSCC concomitant with a benign granular cell tumor of the tongue. In that instance, surgical excision was the chosen treatment modality, with no evidence of recurrence during a 12-month follow-up period [26].

In contrast, Sarode et al. [16] emphasized that the presence of multiple lesions can complicate both diagnostic and therapeutic processes, often requiring a multidisciplinary approach. Nakahara et al. [27] described a case involving the synchronous manifestation of OSCC and melanoma, for which a combined therapeutic regimen (comprising cryosurgery, immunotherapy, and chemotherapy) was implemented due to the extent and distinct biological behaviors of the tumors. Immunotherapy and cryosurgery appeared to be effective in treating the melanoma, whereas chemotherapy yielded favorable outcomes in the management of OSCC. In other types of cancer, such as colorectal cancer, synchronous lesions are associated with a worse prognosis and more aggressive treatments [28].

This case underscores the need for detailed histopathological evaluation of unusual oral lesions, especially in patients with high-risk factors, such as smoking and alcohol consumption, which are known to increase the incidence of OSCC [29]. The coexistence of an HGIC, which typically does not present malignancy [30], with an OSCC raises questions about possible interactions between these lesions, though the literature on this topic is limited.

Compared to previous studies reporting isolated HGIC or OSCC, this case highlights a combination that may be underdiagnosed due to the rarity of the heterotopic condition and the clinical predominance of the carcinoma [31]. Precise differential diagnosis and consideration of multiple hypotheses are crucial to avoid diagnostic errors and plan appropriate treatment.

In this case, the coexistence of an HGIC (benign) with OSCC (malignant) raises important prognostic questions. Although the cyst alone has a favorable prognosis [18,30], the presence of OSCC significantly worsens the condition. The interaction between these lesions is still poorly understood, suggesting a need for further research.

Treatment planning and patient follow-up may be complicated due to the synchronous lesions. The patient in this case remains under regular monitoring, with additional exams for local disease control. This unique case, as an initial report, has limitations that include the need for long-term follow-up to assess prognosis and clinical behavior. Future cohort studies could help clarify the clinical and prognostic implications of the coexistence of benign and malignant lesions in the oral cavity.

CONCLUSION

To the best of our knowledge, this is the first reported case of synchronous OSCC and HGIC at the same site, highlighting the need for individualized therapeutic planning based on the biological behavior of each lesion. Recognizing HGIC as an incidental finding is essential to prevent diagnostic confusion and ensure that treatment remains focused on the malignant lesion, avoiding unnecessary interventions for the benign cyst. Awareness of this uncommon coexistence supports a precise, multidisciplinary approach tailored to the biological behavior of each lesion, ultimately optimizing patient management.

Author's Contributions

CAS, LPR, TSR: Conceptualization, Data Curation, Formal Analysis, Investigation, Writing

– Original Draft, Writing – Review & Editing. AR, ERCR: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Supervision, Writing – Review & Editing. FM, ROG: Conceptualization, Methodology, Project Administration, Supervision, Writing – Review and Editing. RLCAJ: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Supervision, Writing – Original Draft, Writing – Review & Editing.

Conflict of Interest

No conflicts of interest declared concerning the publication of this article.

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Regulatory Statement

This study was conducted in full accordance with the guidelines and policies of the local human subjects oversight committee; informed consent was obtained and signed by the patient.

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