



ORIGINAL ARTICLE

Peritumoral infiltrate in the prognosis of epidermoid carcinoma of the oral cavity<sup>☆,☆☆</sup>



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KEYWORDS

Squamous cell carcinoma;  
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Abstract

**Introduction:** Patients with squamous cell carcinoma of the oral cavity present deficits in their cellular immunity that contribute to neoplastic growth. Thus, the inflammatory activity, such as the immunological response to the tumor, can be used as a prognostic factor.

**Objectives:** To evaluate the correlation between peritumoral inflammation and clinical characteristics of the patients, survival, and the disease-free interval.

**Methods:** The study sample consisted of a retrospective hospital-based cohort of patients undergoing surgery for resection of oral cavity tumor. The inflammatory infiltrate on the slides was evaluated semi-quantitatively, and were divided into minor and major inflammatory processes.

**Results:** This study included 57 tumor samples, with infiltration of lymphocytes, plasma cells, and histiocytes. The log-rank test showed no significance for the survival curves and recurrence of the “minor inflammatory” and “major inflammatory” processes, with  $p=0.14$  and  $p=0.24$ ,

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respectively. A direct association between age and inflammation ( $p=0.04$ ) was observed, as well as an indirect association between the degree of tumor differentiation and inflammation ( $p=0.01$ ).

**Conclusion:** Although associated with histological differentiation, the peritumoral inflammatory process cannot be considered a prognostic factor in squamous cell carcinoma of the oral cavity, as it is not related to survival and disease-free interval.

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## PALAVRAS-CHAVE

Carcinoma de células escamosas;  
Neoplasias bucais;  
Sobrevida;  
Prognóstico

## Infiltrado peritumoral no prognóstico do carcinoma epidermoide de cavidade oral

### Resumo

**Introdução:** Pacientes com carcinoma epidermoide de cavidade oral mostram déficits em sua imunidade celular, que contribuem para o crescimento neoplásico. Assim, a atividade inflamatória, como resposta imunológica ao tumor, pode servir como fator prognóstico.

**Objetivos:** Avaliar a correlação entre o processo inflamatório peritumoral com as características clínicas dos pacientes, com a sobrevida e com o tempo livre de doença.

**Método:** A amostra deste estudo foi composta por uma coorte retrospectiva de base hospitalar com pacientes submetidos à cirurgia para remoção de carcinoma epidermoide de cavidade oral. O infiltrado inflamatório presente nas lâminas foi avaliado semi quantitativamente, sendo dividido em processo inflamatório: menor e maior.

**Resultados:** Analisaram-se 57 amostras tumorais, com infiltrado de linfócitos, plasmócitos e histiócitos. O teste *log-rank* não mostrou significância para as curvas de sobrevida e de recidiva dos processos "inflamatório menor" e "inflamatório maior",  $p=0,14$  e  $p=0,24$ , respectivamente. Observou-se associação direta da idade com o processo inflamatório ( $p=0,04$ ), e relação indireta entre o grau de diferenciação tumoral e o processo inflamatório ( $p=0,01$ ).

**Conclusão:** O processo inflamatório peritumoral, embora relacionado com a diferenciação histológica, não pode ser considerado fator prognóstico de carcinoma epidermoide de cavidade oral, pois não se relaciona com sobrevida e tempo livre da doença.

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## Introduction

Despite treatment advances over the last 20 years, squamous cell carcinoma of the oral cavity (SCCOC) continues to have survival rates at five years of 45–50%,<sup>1–3</sup> mainly due to its heterogeneous behavior.<sup>4</sup> This fact has led to several studies aiming to detect biological and molecular characteristics that may indicate prognosis and treatment of these tumors; most of them relate to histopathological staging of the surgical specimen and do not have direct impact on clinical practice.<sup>5</sup> Currently, it is also known that the presence of neck metastasis and surgical margin involvement are prognostic factors for SCCOC.<sup>6,7</sup>

Innate immunity is the first reaction of the host to an offending agent. Adaptive immunity is a delayed type of immunity that leaves immunological memory, with the participation of B lymphocytes (humoral immunity) and cytotoxic T lymphocyte (cellular immunity). According to Abbas et al.<sup>8</sup> the main anti-tumor defense mechanism is the death of neoplastic cells by CD8+ T or cytotoxic T lymphocytes. However, individuals with SCCOC have cellular immunity deficits, including alterations in monocyte chemotaxis and defects in the interaction between the monocytes that have antigens and lymphocytes. These

defects contribute to neoplastic growth. According to Whiteside<sup>9</sup> the same mechanisms used for immunological escape in human malignancies may explain discrepancies between failures and successes in immunotherapy.

Inflammatory activity, such as immunological response to the tumor, could be used as a prognostic factor, since the lower the inflammatory infiltrate, the greater the risk of regional or distant metastasis.<sup>10–12</sup> However, Vieira et al.<sup>7</sup> observed a correlation between a higher degree of malignancy and higher inflammatory intensity, suggesting a positive association between the intensity of the inflammatory response and the degree of tumor differentiation, without necessarily influencing patient prognosis.

Therefore, this study aimed to evaluate the correlation between the peritumoral inflammatory process and clinical characteristics of patients with SCCOC, as well as survival and disease-free interval.

## Methods

The study sample consisted of a retrospective hospital-based cohort of patients undergoing surgery from March of 2003 to June of 2010 for resection of SCCOC, of which

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