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CLINICAL, MORPHOLOGICAL, AND IMMUNOHISTOCHEMICAL MARKERS OF SALIVARY GLAND TUMORS

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Abstract

Benign salivary gland tumors represent a heterogeneous group of neoplasms that vary in origin, histological structure, and clinical manifestations. This paper examines the key clinical and morphological features of the most common types of benign salivary gland tumors, including pleomorphic adenoma, monomorphic adenoma, basal cell adenoma, and others. Particular attention is paid to immunohistochemical markers used for differential diagnosis of these tumors. Research methods are described that allow for accurate determination of the nature of the tumor and selection of optimal treatment strategies. This paper is intended for specialists in oncology, pathology, and maxillofacial surgery.

Key words: Benign tumors, Salivary glands, Clinical characteristics, Tumor morphology, Immunohistochemistry, Tumor growth markers,

Introduction

Benign salivary gland tumors represent a group of heterogeneous neoplasms characterized by a variety of histological structures and clinical manifestations. Accurate diagnosis and adequate treatment of these tumors require a thorough understanding of their morphological structure and biochemical composition. Immunohistochemical studies allow the identification of specific markers characteristic of various tumor types, significantly improving diagnostic accuracy and facilitating the development of personalized treatment approaches.

Objective of the Study

The objective of this study was to investigate the clinical and morphological features and identify the spectrum of immunohistochemical markers of benign salivary gland tumors in order to optimize diagnosis and select the most effective treatment.

Materials and Methods

Tissue samples from patients with a confirmed diagnosis of benign salivary gland tumor were collected for the study. A total of 50 cases were analyzed. Histological examination was performed using standard methods using hematoxylin and eosin staining. Antibodies to the following markers were used for immunohistochemical evaluation: cytokeratins (CK), vimentin, S100, CD10, Ki67, p53, and others.

Results Clinical data

Middle-aged women (mean age 45 years) predominated among the patients examined. Most tumors were located in the parotid gland (80% of cases). Tumor sizes ranged from 1 to 5 cm in diameter. Most patients had painless, slow-growing lesions.

Morphological characteristics. Microscopic examination revealed the following tumor types: - Pleomorphic adenoma (40%) - Myoepithelioma (20%) - Basal cell adenoma (15%) - Monomorphic adenoma (10%) - Other types (15%). Pleomorphic adenomas were characterized by the presence of epithelial and mesenchymal-like components, while myoepithelomas demonstrated a pronounced myoepithelial component. Basal cell adenomas had a characteristic basaloid cell structure. Immunohistochemical profile

The immunohistochemical study revealed the following results:

- Cytokeratins (CK) were expressed in all cases of pleomorphic adenoma and myoepithelioma, confirming their epithelial origin.

- Vimentin was positive in most cases of myoepithelioma, reflecting the presence of a mesenchymal component.

- S100 stained positively in Schwann cells present in pleomorphic adenomas.

- CD10 was positive in some cases of basal cell adenoma, suggesting a possible stem cell origin.

- The Ki67 proliferation index was low (<5%) in all samples examined, consistent with the benign nature of the tumors.

- p53 expression was low or absent, further confirming the absence of malignant potential. Discussion

These data confirm the heterogeneity of benign salivary gland tumors in terms of both morphology and immunohistochemical profile. This diversity requires an individualized approach to each case for accurate diagnosis and treatment planning. The use of immunohistochemical markers allows for more precise tumor classification and prediction of their biological behavior.

For example, high cytokeratin expression in pleomorphic adenomas and myoepitheliomas helps differentiate these tumors from other types of neoplasms. The presence of vimentin in myoepitheliomas indicates their mixed epithelial-mesenchymal origin. A positive S100 reaction in pleomorphic adenomas confirms the presence of Schwann cells, which is important for determining surgical strategy.

Conclusion

The diagnosis and treatment of benign salivary gland tumors require a comprehensive approach, including clinical examination, morphological analysis, and immunohistochemistry. Correct interpretation of research results allows not only to establish an accurate diagnosis, but also to predict the course of the disease and select an adequate method of treatment.

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