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Commentary

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Salivary Gland Tumours Surgery

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ABSTRACT

Salivary gland tumours are a rare, heterogeneous group of neoplasms that pose significant diagnostic challenges for the histopathologist. There are currently over thirty different subtypes in the 2017 World Health Organisation classification of head and neck tumours. Histopathological diagnosis relies primarily on morphological assessment, with ancillary special stains and immunohistochemistry.

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Introduction

Salivary gland tumours are a rare, heterogeneous group of neoplasms that pose significant diagnostic challenges for the histopathologist. There are currently over thirty different subtypes in the 2017 World Health Organisation classification of head and neck tumours. Histopathological diagnosis relies primarily on morphological assessment, with ancillary special stains and immunohistochemistry.

Salivary gland tumours represent one of the most challenging areas in diagnostic head and neck pathology. These rare tumours exhibit a diverse array of morphological features, such that there are currently over thirty subtypes in the current World Health Organisation (WHO) classification of head and neck tumours. Traditionally, these tumours are diagnosed on morphological grounds, with ancillary special stains and immunohistochemistry.

Several salivary tumours are now characterised by key genomic alterations, including gene fusions and mutations. These genomic events can have diagnostic, prognostic and increasingly, potentially therapeutic implications. This review will highlight some of the key recent discoveries in this area.

Acinic cell carcinoma

Acinic cell carcinoma (ACC) is a low-to-intermediate grade neoplasm most commonly arising in the parotid gland. Although rare, it is one of the more common salivary gland malignancies, arising mostly in the fifth to sixth decide. It is the second most common salivary gland carcinoma in children. Morphologically, the tumour is characterised by macro- and microcystic proliferations of acinar and intercalated-type cells with resemblance to normal serous parotid acini

Molecular profile

Recently, a recurrent t(4,9) (q13; q31) rearrangement has been described in ACC, resulting in upregulation of the NR4A3 transcription factor.8 This event is likely a key oncogenic driver in ACC. Immunohistochemistry for NR4A3 has also recently been described as a surrogate test to confirm this translocation.

Although these tumours tend to behave in a low to intermediate grade fashion the majority of the time, high grade transformation (de-differentiation) is recognised in ACCs and it may be that NR4A3 testing via immunohistochemistry, fluorescent in-situ hybridisation (FISH) or next-generation sequencing (NGS) may be useful to confirm diagnosis of ACC in such situations.

Secretory carcinoma

Originally described by Skalova and colleagues as 'mammary analogue secretory carcinoma' (MASC), this tumour has been recognised in the current WHO classification of head and neck tumours as a new entry, under the term 'secretory carcinoma

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