Histological tumour grade (Core)

Reason/Evidentiary Support

The histologic (microscopic) grading of salivary gland carcinomas has been shown to be an independent predictor of behaviour and plays a role in optimizing therapy. Further, there is often a positive correlation between histologic grade and clinical stage.[1-4] However, as alluded to above, most salivary gland carcinoma types have an intrinsic biologic behaviour and attempted application of a universal grading scheme is not recommended.[3] Thus by assigning a histologic type the tumour grade itself is often implied. Thus a generic grading scheme is no longer recommended for salivary gland carcinomas.[5]

Carcinoma types for which grading systems exist and are relevant are incorporated into histologic type. The major categories that are amenable to grading include adenoid cystic carcinoma, mucoepidermoid carcinoma, and adenocarcinoma, not otherwise specified.[2,3,6] Additionally, with the new World Health Organization (WHO) classification, polymorphous adenocarcinoma is another tumour type that is to be graded,[7] with the understanding that a validated grading scheme has not yet been established.

In adenoid cystic carcinoma histologic grading is based on growth pattern.[6] Those adenoid cystic carcinomas showing 30% or greater of solid growth pattern are considered to be histologically high grade carcinomas. However, recent studies suggest that any solid component may still be of prognostic relevance.[8] The histologic grading of mucoepidermoid carcinoma includes a combination of growth pattern characteristics (e.g. cystic, solid, neurotropism) and cytomorphologic findings (e.g. anaplasia, mitoses, necrosis).[9-11] Adenocarcinomas, not otherwise specified, do not have a formalized grading scheme and are graded intuitively based on cytomorphologic features.[3] Similarly, as the concept of grading polymorphous adenocarcinomas will be a new one,[7] as these also lack a formalized grading scheme. Currently, the recommendation is to grade these intuitively based on cytomorphologic features, acknowledging that the majority will be low grade.

High grade transformation has evolved into an important concept of tumour progression in salivary gland carcinomas. Historically designated as ‘dedifferentiation’, it describes progression of a typically monomorphic carcinoma into a pleomorphic high grade carcinoma.[12] The importance of this phenomenon is that tumours demonstrating high grade transformation show an aggressive clinical course that deviates drastically from the usual behaviour for a given tumour type, thus alerting to the potential need for more aggressive clinical management. Tumours for which this phenomenon is well characterized include acinic cell carcinoma, adenoid cystic carcinoma, and epithelial-myoepithelial carcinoma. Mammary analogue secretory carcinoma and polymorphous adenocarcinoma also rarely undergo high grade transformation.[13,14]

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