Adverse features (Non-core)

While the cumulative summary of adverse features may be clinically helpful it is not a required component of the pathology report and is therefore listed as non-core. Individual features (tumour size and location) that are core are so listed in other sections.

Several categories of histological features are putative risk factors for development of metastases in multiple publications and overlap in the two major proposed scoring systems for risk stratification, PASS[1] and GAPP.[2] However, the individual parameters within the categories are assessed and weighted differently in the two systems. No scoring system is currently required or endorsed, but histologic features may be considered in conjunction with other data for cumulative risk stratification in order to optimally guide patient management. Comedonecrosis and growth pattern are the most readily recognized and possibly the most predictive parameters, while cellularity is potentially highly subjective. To reduce subjectivity, it was recommended that cellularity be quantitated by counting the number of cells within an area (U) encompassed by a square grid in a 10x ocular viewed with a 40x high power field (HPF), corresponding to 0.0625 mm.[2,3] Necrosis does not include ischemic necrosis secondary to therapeutic embolization or spontaneous infarction.

PASS was designed for phaeochromocytomas, while GAPP was intended for both phaeochromomocytomas and sympathetic paragangliomas. No scoring system currently applies to head and neck paragangliomas, although individual parameters may provide useful information for those tumours.[4] Use of either scoring system is optional. A 2019 meta-analysis of multiple papers employing PASS or GAPP, concludes that a low score with either histological system is a stong predictor of low metastaic risk but that high scores have little predictive value in the absence of additional features including genotype and biochemical testing.[5] Poor concordance between expert pathologists has been noted in a PASS study.[6]

Coarse nodularity is a gross finding reported to be associated with metastatic risk.[7]

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