Cytopathology of extracranial ectopic and metastatic meningiomas.

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Abstract

Introduction: Extracranial meningiomas may infrequently be encountered as ectopic or metastatic tumors. Their rarity and unique cytomorphology often pose significant diagnostic dilemmas. The aim of this study was to report our experience with a series of ectopic and metastatic meningiomas, characterizing their cytomorphology with histological correlation. Materials and Methods: A retrospective analysis involving 13 patients with cytological preparations from extracranial meningiomas was performed. Cytology cases were correlated with available surgical resection specimens. Data regarding clinical findings, tumor information, cytomorphology, follow-up histological features and immunohistochemistry were recorded and analyzed. Results: There were 5 cases with metastases and 8 ectopic meningiomas. Metastases occurred in the scalp/skull, lung, paraspinal soft tissue and liver. Primary ectopic meningiomas were located in the paranasal sinuses and ear, orbit and neck. Cytomorphological features characteristic of meningiomas were identified in the majority of samples including tightly cohesive clusters of spindled cells, whorls, intranuclear inclusions, nuclear grooves and psammomatous calcification. Unusual cytomorphological features identified in only a few cases included epithelioid cell predominance, abundant inflammatory cells, small-cell change, papillary structures and pseudoacinar growth. Metastatic tumors exhibited more nuclear atypia and occasionally mitoses or necrosis. Meningiomas were shown to be immunoreactive for epithelial membrane antigen, pancytokeratin and vimentin. Conclusion: Although rare, extracranial meningiomas can be encountered in cytologic specimens and should be included in the differential diagnosis when characteristic morphological features of meningiomas are seen. Cytopathologists should be aware that these lesions could be mistaken for other tumors, especially when confounded by atypia and unusual cytomorphological features. © 2013 S. Karger AG, Basel.

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