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Anaplastic carcinoma of the pancreas with rhabdoid features: an immunohistochemical analysis of six autopsy cases

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Anaplastic carcinoma with rhabdoid features is a rare and aggressive subtype of pancreatic carcinoma. Here, we determined the immunohistochemical phenotypes in six autopsy cases. The anaplastic carcinoma and rhabdoid cells were positive for pan-cytokeratin (AE1/AE3) and vimentin. Meanwhile, downregulation or aberrant cytoplasmic localization with focal aggregation of E-cadherin, β-catenin and EMA were frequently observed in the rhabdoid cells. The intracytoplasmic inclusions in the rhabdoid cells were labeled with selective autophagy-related molecules including p62/SQSTM1, ubiquitin and KEAP1. Nuclear NRF2 and overexpression of its target molecule MRPI were commonly observed in the rhabdoid cells. Therefore, these results suggest that p62-mediated aggregation of ubiquitinated intermediate filaments and membranous proteins is an important phenomenon in the rhabdoid phenotype. Indeed, the ubiquitinated aggregates of p62 and KEAP1 would induce activation of NRF2 and upregulation of MRPI, leading to potential chemo-resistance of anaplastic carcinoma with rhabdoid features.

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The cellular microenvironment in nasal B cell lymphomas

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The cellular microenvironment (CME) in nasal B cell lymphomas (nBCL) comprises macrophages (MPs) and dendritic cells (DCs) among lymphoma cells when the MPs are tumor-associating cells (TAMs). This study characterized nBCL’s CME by means of antigen retrieval immunohistochemistry of CD68, CD163, CD204, inducible nitric oxide synthase (iNOS), folate receptor β (FRβ), thymidine phosphorylase (TP), Fascin and DC-sign (CD209) in the biopsy specimen’s paraffin sections of 7 lesions of respiratory mucosa (RM), 27 lesions of nBCL (2 lymphoblastic type (LB), 2 mucosa-associated lymphoid tissue type (MALT), 1 mantle cell lymphoma (MCL)), and 22 diffuse large B cell lymphoma (DLBCL) and 14 lesions of squamous cell carcinoma (SCC) in RM. In germinal center (GC) of RM tonsillar tissue there are some CD68+ MPs and Fascin+ DCs (GC type). In the marginal zone/areas (MZ) of the tonsillar tissue there are some CD163+ MPs and TP+ Fascin+ DCs (MZ type). In RM there are some CD163+ CD204+ iNOS+ TP+ MPs and a few Fascin+ DC-sign+ DCs (RM type). TAMs in SCCs were MPs of RM type. LB and some DLBCL showed GC type CME. MALT type and some DLBCL revealed MZ type CEM. MCL, 2 cases of CD5+ DLBCL and some DLBCL indicated RM type CME. These findings suggested that CME in nBCL is different from each other subtype and reflects the CME where lymphoma cells appear. Although DLBCL used to be categorized according to the clinical information such as international prognostic index (IPI), DLBCL would be subcategorized according to the CME and might indicate different prognosis.