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Update molecular diagnosis and treatment on salivary gland tumors – Mammary Analog Secretory Carcinoma- Beverly Wang, UC Irvine School of Medicine

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Background: Mammary analog secretory carcinoma (MASC) was first described in 2010 as a rare salivary glands malignancy characterized by similarities to breast secretory carcinoma (BSC) in histology, immunohistochemistry and genetics. It accounts for less than 1% of salivary tumors, with a mean age of 46 years. The majority cases occur in the parotid gland, and the mean size of the tumors is 2.1 cm, with almost no gender predilection. Morphologically, it usually is a low grade malignancy, with lowgrade nuclei and moderate eosinophilic granular cytoplasm.

Differential Diagnosis: Immunohistochemistry shows MASC to be positive for cytokeratins AE1/3, CK7, CK8, CK18, Mammaglobin, S100, Vimentin and STAT5a, but negative for Dog1, ER, PR and Her-2. GCDFP-15, p63, SMA and Calponin are also positive in some MASC tumors. The major differential diagnoses of MASC are acinic cell carcinomas, mucoepidermoid carcinomas, adenocarcinomas not otherwise specified (NOS) and cystadenocarcinomas.

Molecular Testing: FISH analysis ETV6-NTRK3 fusion gene t(12;15)(p13;q25) product is a constitutively active chimeric tyrosine kinase and has the transformation capacity in the mammary epithelial and myoepithelial cells. It has been reported that the ETV6-NTRK3 fusion is unique to MASC.

Molecular Treatment: The prognosis of low grade MASC is very good, although local recurrence may occur, and rarely there is distant metastasis. Recent studies of targeting receptor Kinases-2 on Entrectinib clinical trial STARTRK-2 show patients with NTRK1/2/3 gene rearrangements may potentially benefit from treatment with Entrectinib. Entrectinib (formerly RXDX-101) is a potent inhibitor of kinases encoded by the gene NTRK3 of MASC. thus requires further standardized research in future in particular in tackling pharmaco-resistant schizophrenia.

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