

Retraction Halos in Adenoid Cystic Carcinoma

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Fine-needle aspiration (FNA) is an extremely useful diagnostic modality in the evaluation of head and neck masses, including salivary gland neoplasm, contributing to effective patient management. Adenoid cystic carcinoma (ACC) is a primary salivary gland neoplasm with characteristic cytomorphological features including the presence of tightly cohesive fragments of basaloid cells arranged around spheres of hyaline material. Histopathological patterns of growth include cribriform, solid, and tubular architecture. ACC is one of the most common primary malignant tumors, accounting for about 30% of all salivary gland cancers. A great proportion of ACC cases display perineural invasion. Surgery is the treatment of choice. ACCs are highly invasive with early regional and systemic metastasis. Recurrence is common and may occur many years after the primary occurrence.

Here, we report an unusual cytomorphological appearance in a case of ACC. The patient was a 26-yr-old otherwise healthy woman who noticed a "lump" in the right submandibular gland area, 2–3 mo before presentation. Bimanual palpation revealed an approximately 1.5- to 2-cm irregular, firm nodular region within the substance of the right submandibular gland. Inspection of the rest of the neck demonstrated no obvious lymphadenopathy. A review of CT scan showed a 1- to 1.5-cm hyperlucency in the right submandibular gland. An FNA of the submandibular mass was performed. Cytopathological examination of the aspirate revealed abundant blood with interspersed round globular structures without any associated cellular material. The eye-catching feature of these structures was the presence of large clear zones surrounding each globule or the "retraction halos" (RH) as observed on Papanicolaou-stained smears.

Higher magnification revealed the amorphous nature of these somewhat basophilic globules, with suggestion of concentric lamellations (Fig. C-1). A closer examination did reveal occasional small basaloid cells scattered in the background appearing mostly as naked nuclei. These nuclei were round to oval and monomorphic and were only rarely seen in proximity to the hyaline globules. A diagnosis of ACC was rendered in this case, although reservations were expressed in the cytological report because of a relative lack of cellular material. Several other entities were entertained in the differential diagnoses, such as mucoepidermoid carcinoma because the globular material did appear to have a mucinous quality. However, no evidence of either glandular or squamous component was observed. The similarity of the globular structures to the concentrically lamellated psammoma bodies raised the possibility of an occult thyroid papillary carcinoma. The clinical presentation was unusual for this scenario. After the FNA diagnosis, the patient underwent resection of the submandibular mass, which did reveal an ACC.

RHs are an artifact of smear preparation and fixation. RHs result from shrinkage of the cellular or matrix material, which leaves a circumferential zone of clear space not occupied by other cells or cellular products. This phenomenon has been observed frequently in malignant mesothelioma as observed in serous effusion samples. The RHs are created in alcohol-fixed smears and are seldom observed in air-dried material. The authors have not seen RHs in ACC, particularly in a setting where they are exclusively associated with the hyaline globules. A diagnosis of ACC was rendered in this case despite the relative paucity of the epithelial component. However, this was after careful exclusion of all other diagnostic possibilities.

The case described here highlights an unusual phenotypic appearance of ACC, which should be kept in mind when evaluating a salivary gland lesion on FNA. To the best of our knowledge, this peculiar cytomorphology has never been described before in ACC.

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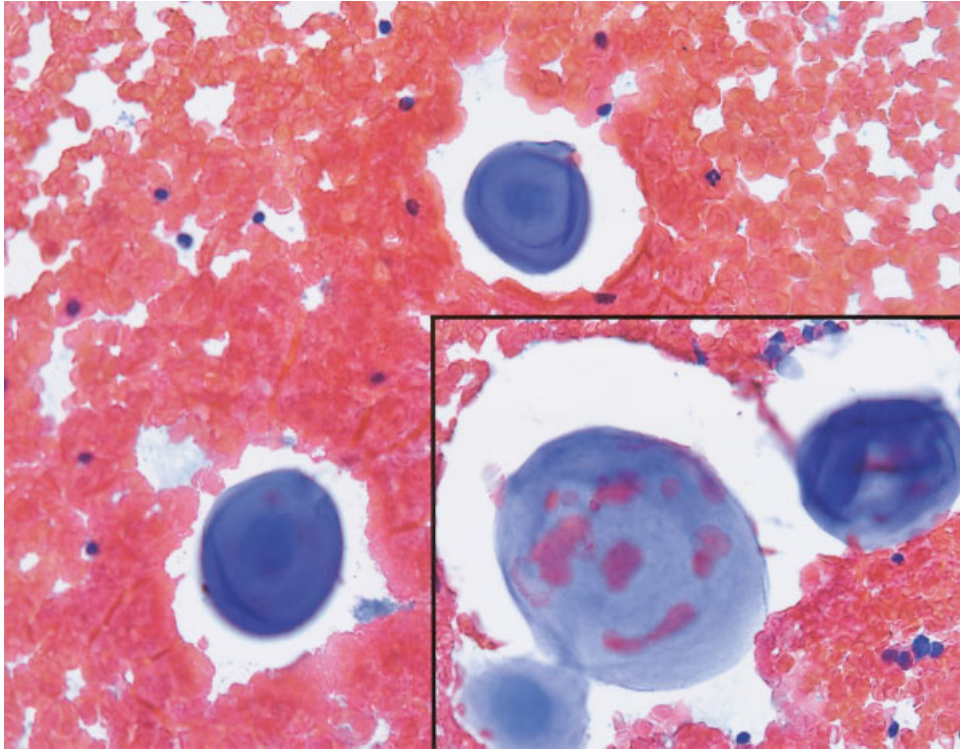


Fig. C-1. FNA of ACC. Characteristic hyaline globules with prominent RHs. Note the vague concentric lamellations simulating psammoma bodies (Papanicolaou stain, $\times 200$).