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Intercalated Duct Adenoma of the Parotid Gland

A 56-year-old man presented with a 10-year history of gradually enlarging left pre-auricular mass. No biopsies were done. He underwent superficial parotidectomy which showed an enlarged parotid gland measuring 6 x 5.5 x 2 cm with a 0.5 x 0.2 x 0.2 cm discrete, cream-brown, ovoid intraparenchymal solid nodule. The latter was the lesion of interest.

Microscopic examination of the nodule shows a well-circumscribed, encapsulated proliferation of closely packed tubular ducts surrounded by non-neoplastic, otherwise histologically unremarkable lobules of serous acini with an intact ductal system. (*Figure 1*) The tubules within the nodule are lined by simple cuboidal cells having bland, uniform, round nuclei and moderate amounts of eosinophilic cytoplasm. (*Figure 2*) In some of these tubules, serous acinar cells containing coarse basophilic granules partly line the lumina, adjacent to or around the cuboidal cells. (*Figure 3*) Based on the morphological features, a diagnosis of intercalated duct adenoma (IDA) was rendered, occurring in a background that is suggestive of sialadenosis.

Intercalated duct adenomas are mostly asymptomatic, benign neoplasms identified incidentally in salivary glands removed for diverse lesions of either benign or malignant etiology.¹⁻⁴ They are most often found in the parotid gland of adults ranging from 41 to 73 years (mean 57 years) with a female-to-male ratio of 3:2.^{1,2}

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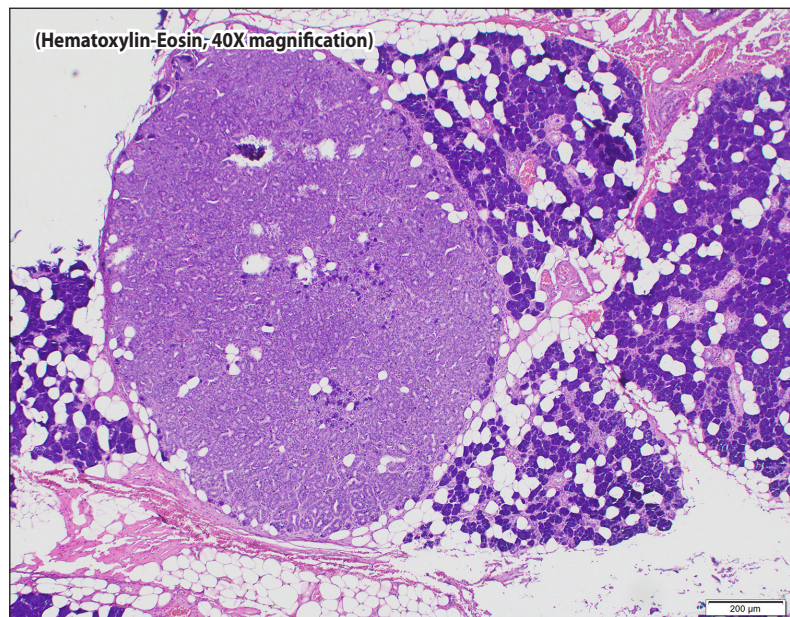


Figure 1. The lesion is a well-circumscribed, encapsulated proliferation of closely packed tubular ducts surrounded by non-neoplastic lobules of serous acini and adipocytes with an intact ductal system (Hematoxylin-Eosin, 40X magnification).

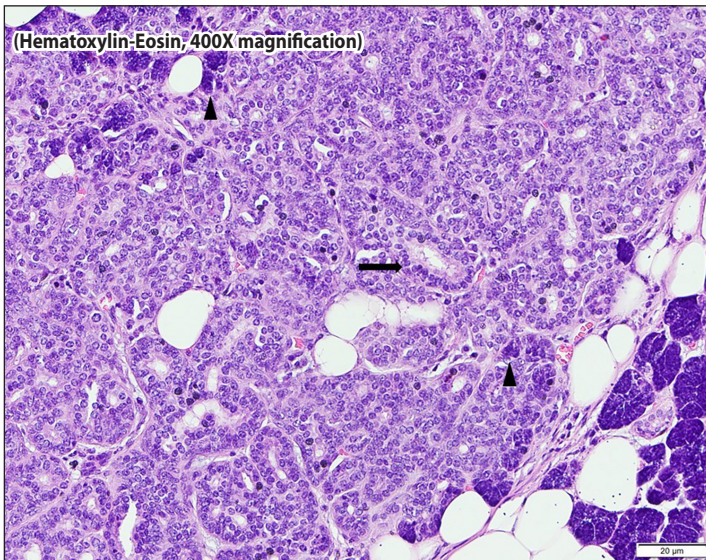


Figure 2. The tubules within the nodule are lined by simple cuboidal cells having bland, uniform, round nuclei and moderate amounts of eosinophilic cytoplasm (arrow); basophilic acinar cells are also seen (arrowheads) (Hematoxylin-Eosin, 400X magnification).

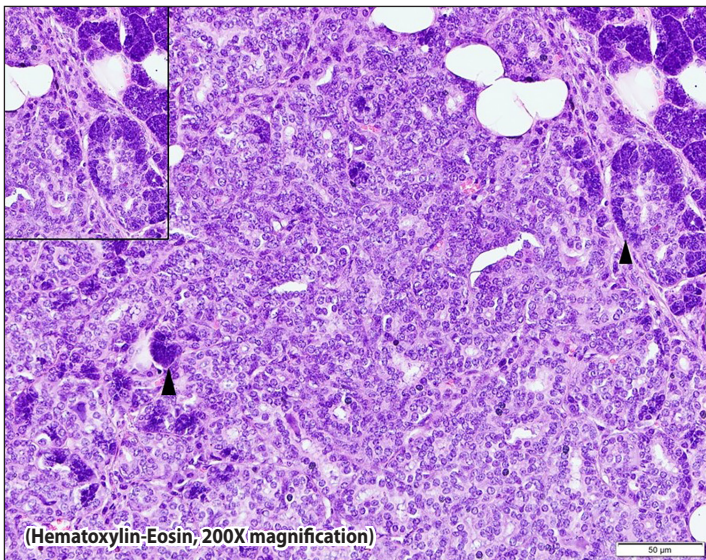


Figure 3. Closely packed tubular ducts lined by cuboidal cells; serous acinar cells containing coarse basophilic granules partly line the lumina, adjacent to or around the cuboidal cells (arrowheads and inset) (Hematoxylin-Eosin, 200X).

They belong to a group of ductal proliferations known as intercalated duct lesions (IDL) which are composed of compact proliferation of tubular ducts that are lined by cuboidal ductal cells. Scattered tubules have serous acinar cells complexed with the ductal cells, while others have inconspicuous myoepithelial cells that surround them. Intercalated duct lesions are arbitrarily divided into IDA – if encapsulated and discretely separated from adjacent acinar units, and intercalated duct hyperplasia (IDH) – if unencapsulated and blending into the adjacent acinar units.³⁻⁵

The ductal cells of IDA resemble those of non-neoplastic intercalated ducts on immunohistochemistry, staining diffusely with CK7 and S100, and focally for ER and lysozyme while CK14 and Calponin highlight the thin myoepithelial cells surrounding the ductal cells.^{1,3,4} Immunohistochemical stains for myoepithelial cells were not requested as we felt that the participation of acinar cells in a characteristic manner was sufficiently diagnostic of the entity.

Important benign differential diagnoses of IDA include striated duct adenoma, canalicular adenoma and basal cell adenoma.^{2,3} Striated duct adenoma and canalicular adenoma can both be distinguished from IDA due to lack of myoepithelial and acinar cells; the latter is also more commonly found in the minor salivary glands.^{2,3} Basal cell adenoma and adenocarcinoma on the other hand are challenging differential diagnoses due to significant overlaps in morphology. They tend to be larger (usually >10 mm) with prominent bilayering of luminal cells and distinct basaloid abluminal cells that show palisading. Basal cell adenocarcinoma importantly demonstrates an invasive growth pattern.^{3,5} IDA on the other hand are small and infrequently seen macroscopically, most often measuring less than 5 mm in diameter.²

Both IDA and IDL in general have an excellent prognosis upon complete surgical excision and recurrences are not reported. However, IDA's frequent co-occurrence with other salivary gland tumors has led to it being hypothesized as a potential precursor of salivary gland tumors, particularly of epithelial-myoepithelial carcinomas.¹⁻² Its coexistence with sialadenosis has not been previously reported. The diagnosis of IDA in conjunction with other salivary gland pathologies is therefore important to further elucidate the clinical, histopathological, and possible molecular nature and relationships of this lesion.

ACKNOWLEDGEMENTS

The authors wish to acknowledge Dr. Andrew D. Dimacali for the case referral.

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