

7-year-old, male, Persian cat with multiple nodules on face and right earpiece.

Which of the following is the most likely disease?

1. Infectious or non infectious granulomatous / pyogranulomatous dermatitis
2. Apocrine cystadenoma CORRECT
3. Cyst of the nasolacrimal system
4. Melanoma
5. Cystic dilatation of the Meibomian glands (chalazion)

Signalment: 7-year-old, male, Persian cat.

Persian cat, male, 7 years old visited on the rise of multiple nodules at the face level and the right earpiece

History: The cat was presented for the presence of abundant bilateral oculo-conjunctival discharge. On the eyelids of both eyes (Fig. 1), in the periocular region (especially medial canthus) and in the zygomatic region (Fig. 2), bilaterally, there are multifocal to coalescing, white-brownish to blackish, raised nodules ranging in size from few mm to 2 cm. The surface of the lesions appeared alopecic and smooth and the consistency was firm to soft. Similar nodules were present at the entrance of the external ear canal (Fig. 3). No pruritus or pain was noted by the owner.

A fine needle aspiration cytology from one of the eyelid nodules revealed a moderate cellularity on a background of finely granular and bluish material. The prevalent cell population was characterized by polygonal to round cells dispersed as single elements or clustered in small cohesive clusters and very rarely in acinar structures. Cells showed an increased nuclear / cytoplasmic ratio, well-defined cell borders, a scant amount of bluish cytoplasm, sometimes containing either optically empty vacuoles or pigmented granular material, and a central, round nucleus, with coarsely stippled chromatin and single nucleolus. Mitotic figures were rare. Admixed with this population were few macrophages with foamy cytoplasm or containing brown pigment. The cytological features were consistent with a cystic lesion or cystic neoplasm of glandular epithelial origin (Fig. 4).

Histopathologic Description: On histopathological examination, extending from the superficial to the deep dermis, were multiple cysts of various size, delimited by well differentiated cuboid or cylindrical epithelial cells. The cysts contained fluid of homogeneous appearance disseminated with brownish granules in varying amounts. Sometimes the epithelium was represented by several cell layers and by papillary projections within the cystic structures. Secretory products within the cytoplasm of the epithelial cells were PAS-positive. Cytokeratin and α -SMA immunohistochemistry revealed a positivity of the lining epithelium and peripheral mioepithelial cells, respectively (Fig. 5).

Morphologic diagnosis: Feline apocrine cystadenoma (apocrine hydrocystoma)

Comment: Apocrine cystadenoma (apocrine hydrocystoma) is a lesion characterized by the formation of multiple cysts resulting from the secretory portion of apocrine sweat glands. It has been described in human beings, dogs, and rarely in the cat. In the latter species, the onset of the neoplasia is often multiple with disseminated nodules on the head and muzzle; in Persian and Himalayan cats, lesions can also be observed in the ear and on the eyelid (apocrine cystadenomas) suggesting a possible breed predisposition. The lesions closely resemble to human apocrine hidrocystoma, which appears as a single or multiple cysts on the eyelids, ears, chest, face, shoulders, or feet. Apocrine hidrocystomas of the eyelids in human beings originate from the glands of Moll, which are the apocrine sweat glands located within the skin of the eyelid and in the eyelid margin. Histologically, the cysts are lined with a double row of secretory cells that may be bordered by myoepithelial cells. Both clinically and on histopathologic examination, the cysts the cat of this

case of the month resembled apocrine hidrocystoma as seen in human beings. The circumferential band of spindle cells with immunohistochemical reactivity to smooth muscle actin suggests the presence of myoepithelial cells. The pathogenesis of apocrine hidrocystoma in cats is not entirely clear. Some authors indicate the development of cysts by a secretory retention mechanism (retention cyst), while others identify a proliferative process. The Ki67-immunolabelling of a relative high proportion of proliferating cells demonstrated by some authors would indicate that these lesions are cystic adenomas of the apocrine sweat glands. The presence of pigmented skin nodules in the cat induces some differential diagnosis of melanocytic and vascular malignancies, despite the soft consistency that can prompt to cystic lesions. Treatment consists of surgical removal of the cystic structure with or without liquid nitrogen cryofreezing or trichloroacetic acid chemical ablation.

References:

Cantaloube B, Raymond-Letron I, Regnier A. Multiple eyelid apocrine hidrocystomas in two Persian cats. *Vet Ophthalmol.* 2004 Mar-Apr;7(2):121-5.

Chaitman J, van der Woerd A, Bartick TE. Multiple eyelid cysts resembling apocrine hidrocystomas in three Persian cats and one Himalayan cat. *Vet Pathol.* 1999 Sep;36(5):474-6.

Giudice C, Muscolo MC, Rondena M, Crotti A, Grieco V. Eyelid multiple cysts of the apocrine gland of Moll in Persian cats. *J Feline Med Surg.* 2009 Jun;11(6):487-91.

Gross, T. L., et al. *Skin diseases of the dog and cat: Clinical and histopathologic diagnosis.* 2005; Blackwell Science, Oxford, 2nd Edition, 668-680.

Kahane N, Ofri R, Prager O, Louka M, Aroch I. Apocrine Hidrocystoma in Four Persian Cats. *Israel Journal of Veterinary Medicine.* 2014, 69 (1): 29-34.

Pigatto JAT, de Albuquerque L, Petersen Becker M, Carboni da Silva T, Driemeier D. Eyelid Apocrine Hidrocystomas in a Cat. *Acta Scientiae Veterinariae*, 2016. 44(Suppl 1): 128.

Sivagurunathan A, Goodhead AD, Du Plessis EC. Multiple eyelid apocrine hidrocystoma in a domestic short-haired cat. *J S Afr Vet Assoc.* 2010 Mar;81(1):65-8.

Yang SH, Liu CH, Hsu CD, Yeh LS, Lin CT. Use of chemical ablation with trichloroacetic acid to treat eyelid apocrine hidrocystomas in a cat. *J Am Vet Med Assoc.* 2007 Apr 15;230(8):1170-3.

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Figures legend:



Figure 1. 7-year-old, male, Persian cat. Multiple, pigmented, nodular masses are present on the right eyelid, especially close to the medial canthus of the eye and on the ipsilateral zygomatic region.

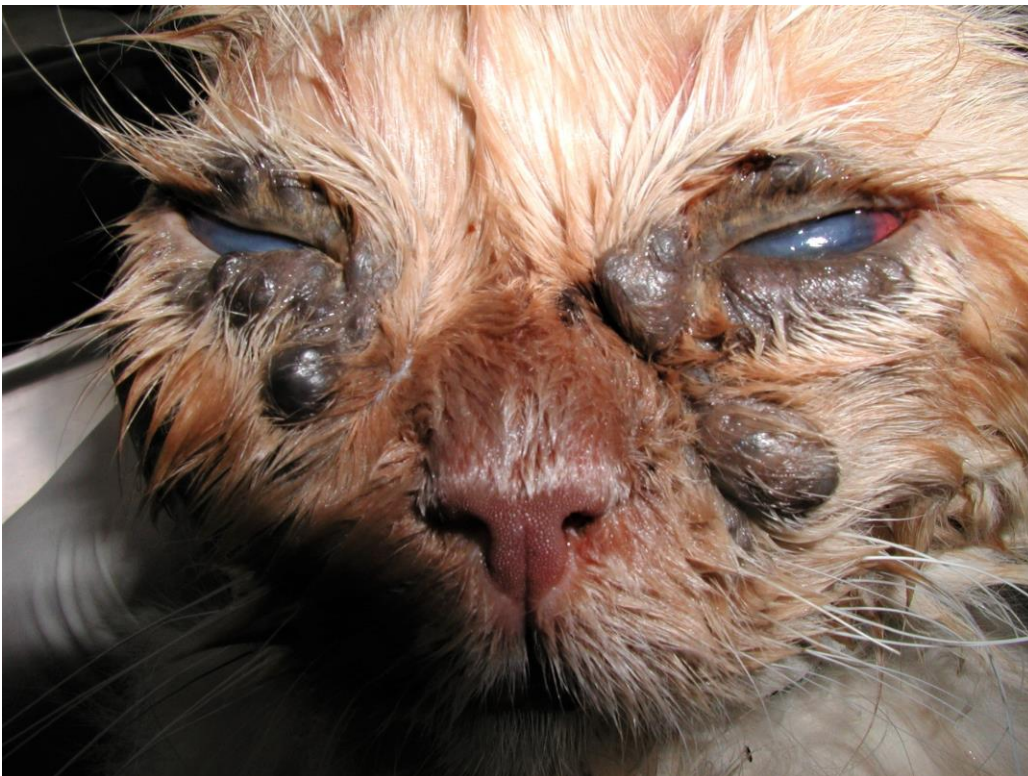


Figure 2. 7-year-old, male, Persian cat. Lesions are bilateral and well demarcated, raised, brownish-blackish and of soft to firm consistency.



Figure 3. 7-year-old, male, Persian cat. Similar nodules are present at the entrance of the external ear canal.

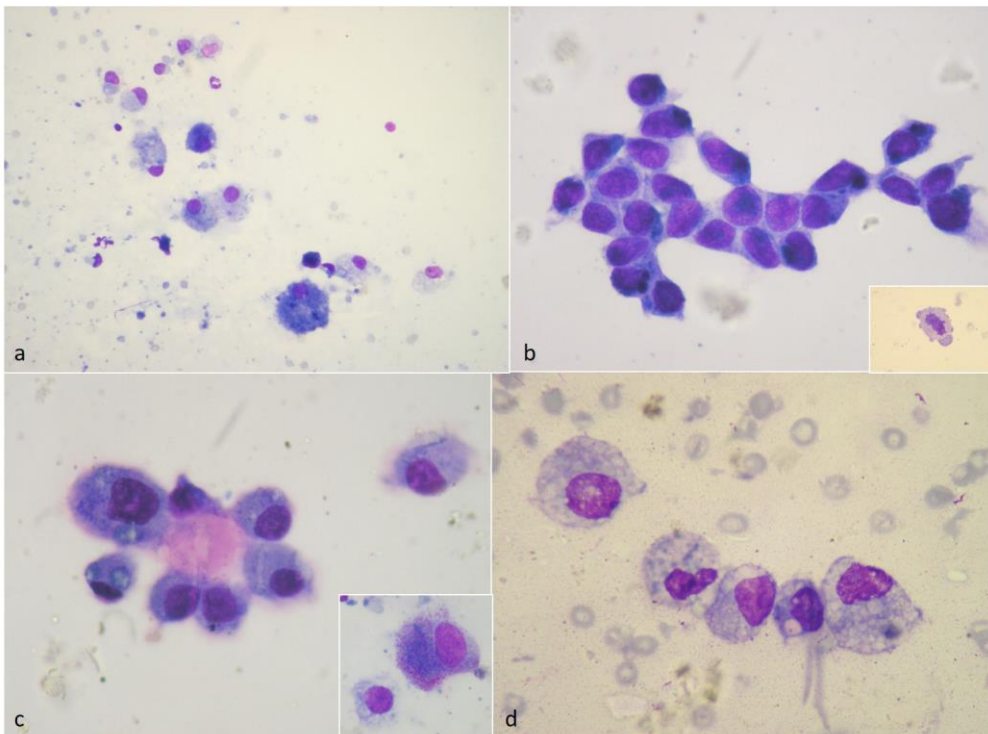


Figure 4. 7-year-old, male, Persian cat. The prevalent cell population was characterized by polygonal to round cells dispersed as single elements (a) or clustered in small cohesive clusters (b) and very rarely in acinar structures (c). Cells showed an increased nuclear / cytoplasmic ratio, well defined cell borders, a scant amount of bluish cytoplasm, sometimes containing either optically empty vacuoles or pigmented granular material (insert in c), and a central, round nucleus, with coarsely stippled chromatin and single nucleoli. Mitotic figures were rare (insert in b). Admixed with this population were few macrophages with foamy cytoplasm or containing brown pigment (d).

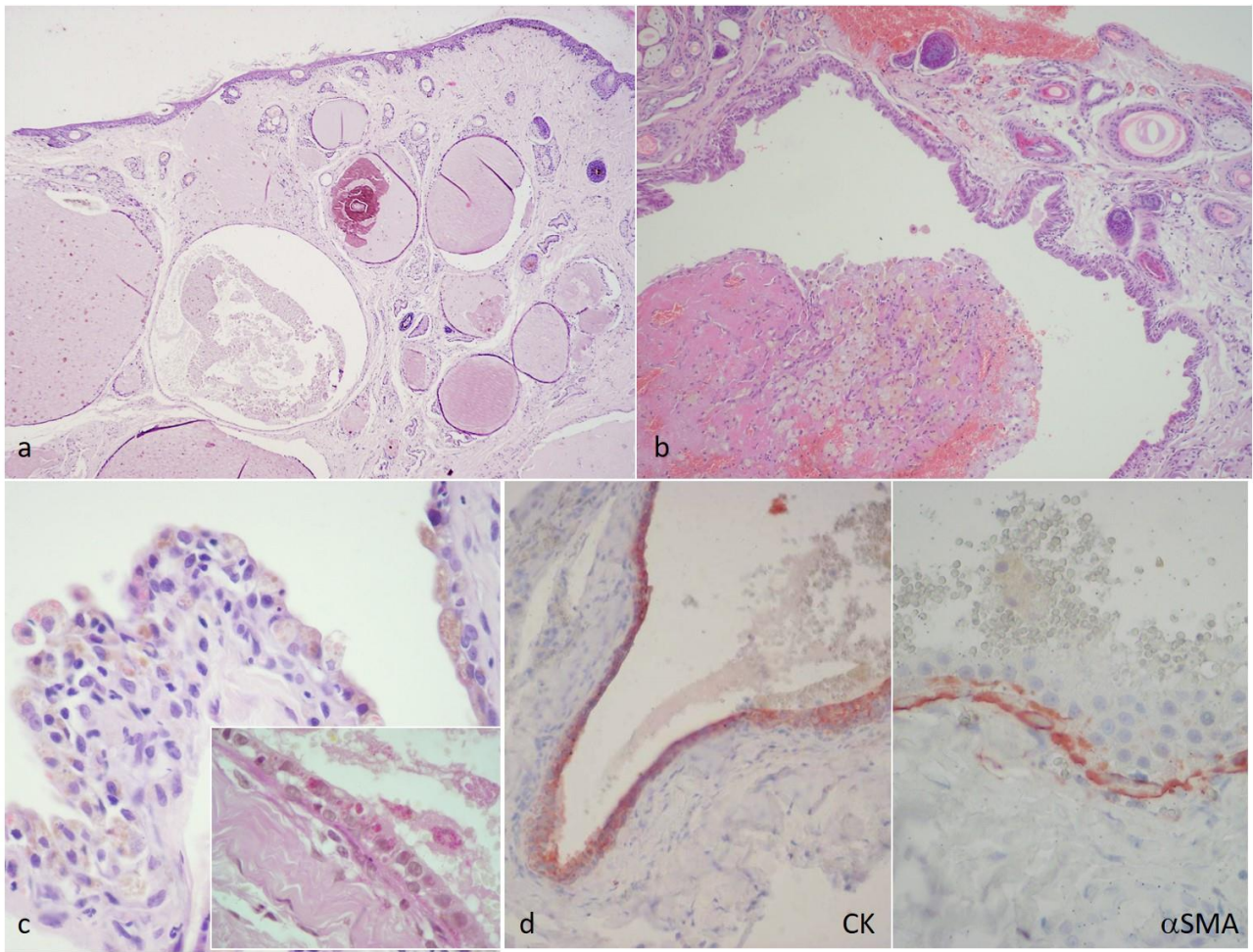


Figure 5. 7-year-old, male, Persian cat. The dermis is expanded by multiple cysts lined by cuboidal to flattened, generally monolayered and occasionally multilayered epithelial cells (a, b, c). Occasionally papillary projections towards the lumen are also present. The lumen is filled with amorphous granular material sometimes admixed with desquamated cells and infiltrating macrophages (a). PAS-positive granules are seen within the apical cytoplasm of many of the cells (insert in c). Cytokeratin and α -SMA immunohistochemistry revealed a positivity of the lining epithelium and peripheral mioepithelial cells, respectively (d).