

A PRESUMED DYSONTOGENETIC ORBITAL CYST IN A DOG

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Case

- ❖ 1- year-old male American Bulldog with a progressive swelling of the nasal aspect of the left eye of 4 months' duration
- ❖ Clinical examination
 - elastic swelling of the left nasal canthus area with orbital involvement
 - obstructed nasolacrimal duct
- ❖ Fine needle aspiration
 - 20 ml of an opaque brown fluid, non-diagnostic cytologic findings, negative culture
- ❖ Sclerotherapy
 - repeated injections of the sclerosing agent polidocanol (Aethoxysclerol®) into the cyst were not effective
- ❖ Surgery
 - transfrontal orbitotomy 6 months after initial presentation
 - removal of the entire cystic structure
 - recovery uneventful
 - postoperatively unimpaired eye movements and vision
 - left nasolacrimal drainage system continued to be obstructed
 - no recurrence of the cystic structure 7 months after surgery



Photographs of the patient 'Hank'. (a) before surgery, (b) 3 weeks after surgery, (c) 7 months after surgery

Definitions

- Dysontogenesis** defective embryonic development
- Primary cyst** no communication with surface epithelium, sinuses, nasal cavity, brain...
- Secondary cyst** extending into the orbit from adjacent structures

Orbital cysts in human medicine

- ❖ Cysts of surface epithelium
 - simple epithelial cyst (without adnexal structures)
 - epidermal, conjunctival, respiratory, apocrine gland
 - developmental/ after surgical or nonsurgical trauma
 - dermoid cyst (contains adnexal structures)
 - (epidermal and conjunctival)
- ❖ Teratomatous cysts, neural cysts, secondary cysts (e.g. mucocele), inflammatory cysts (parasitic cysts)

Veterinary medicine (no consistent classification)

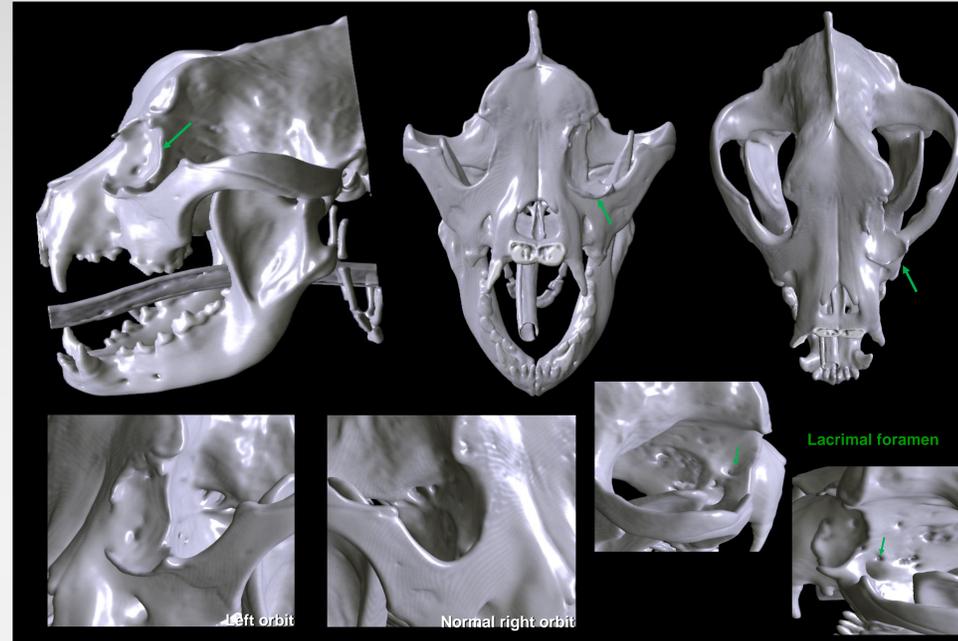
- Dacryops (cyst of lacrimal sac, cyst of lacrimal gland)
- Paraorbital (epithelial) cysts, Neural cysts, Dermoid cyst (horse, dog)
- Zygomatic and lacrimal mucoceles
- Cysts as a result of surgical or non surgical trauma
- Inflammatory cysts (parasitic cysts in a rabbit, a chinchilla and an ewe)

Purpose

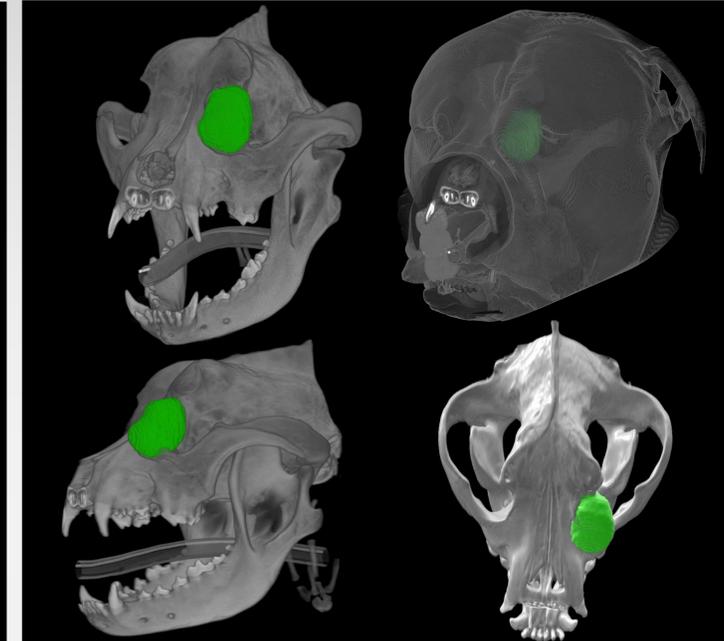
We describe the clinical, histopathological features and the treatment of a dysontogenetic orbital cyst in an American Bulldog.

Computed tomography and 3D – Reconstruction

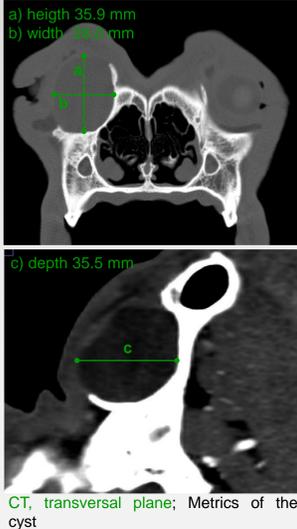
- ❖ large orbital cyst with thinning of the adjacent bony structures, periosteal reaction and deformation of lacrimal bone, orbit and maxillary bone



3D-illustration of the skull (Volume Viewer ImageJ); The left orbit exhibits marked cyst-induced osseous changes of its anterior aspect

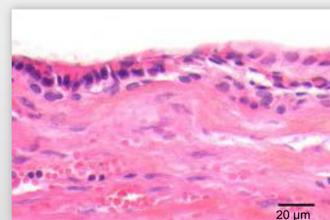


3D-illustration of the cyst after manual segmentation (Volume Viewer ImageJ)

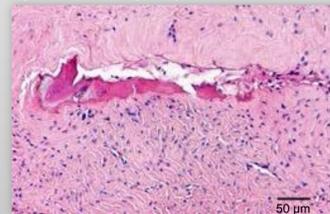


CT, transversal plane; Metrics of the cyst

Histopathology



Cyst lumen; The lumen is lined by a cuboidal to cylindrical, non-ciliated epithelium (single-layered to multi-layered)



Cyst wall; The cyst wall contains scarce fibrocytes with abundant collagen fibers with occasional osseous metaplasia.

Discussion and Conclusion

Etiopathogenesis

- | | |
|---------------------------------|--|
| Primary or secondary cyst | - primary: no communication with adjacent structures (lacrimal system, sinus, nasal cavity...) |
| Epithelial cyst or dermoid cyst | - epithelial cyst: no adnexal structures (hair, sebaceous or sweat glands...) |
| Dysontogenetic or posttraumatic | - dysontogenetic: no history of trauma or surgery |
| Original tissue | - gland, glandular excretory duct or nasolacrimal duct: cuboidal to cylindrical epithelium |

The described entity is likely to be a dysontogenetic orbital cyst. Etiopathogenesis remains unclear, however tissue derivation of the cyst from the lacrimal drainage system appears plausible.

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