

# COMPUTED TOMOGRAPHY (CT) ZYGOMATIC SALIVARY GLAND ANATOMY IN BRACHYCEPHALIC DOGS

Verdés J<sup>1</sup>, Espada Y<sup>1,2</sup>, Novellas R<sup>1,2</sup>

<sup>1</sup>Hospital Clínic Veterinari Universitat Autònoma de Barcelona (UAB) <sup>2</sup>Departament de Medicina i Cirurgia Animals (UAB)

## INTRODUCTION / PURPOSE

- ✓ The **zygomatic salivary gland (ZG)** is located within the **pterygopalatine fossa**, lateral to the origin of the pterygoid muscle.
- ✓ In the authors' experience, in **brachycephalic breeds**, the ZG can be displaced:
  - rostrally, extending through the maxillary foramen into the infraorbital canal
  - laterally, extending dorsally to the zygomatic arch
- ✓ The aim of this observational retrospective study is to describe the anatomical landmark variability of ZG in brachycephalic dogs.

## METHODS

- ✓ Head CT studies of brachycephalic dogs were retrospectively reviewed and included if the ZG parenchyma could be completely evaluated
- ✓ A control group with non-brachycephalic breeds was also included
- ✓ Transverse images in soft tissue window were evaluated

## RESULTS

- ✓ 42 brachycephalic dogs (82 ZG): 21 French Bulldogs (FBD), 7 Boxers, 3 Pugs, 8 English Bulldogs and 3 Shih-tzus
- ✓ 18 dogs in control group (36 ZG), of 14 different breeds
- ✓ 50% of the evaluated ZG in brachycephalic dogs were abnormally positioned
- ✓ 35.7% of the brachycephalic dogs presented one abnormally positioned ZG
- ✓ In 30.9% of the brachycephalic dogs both ZG showed an anatomical variation
- ✓ None of the included dogs presented any associated clinical signs related to this variable positioning of the ZG

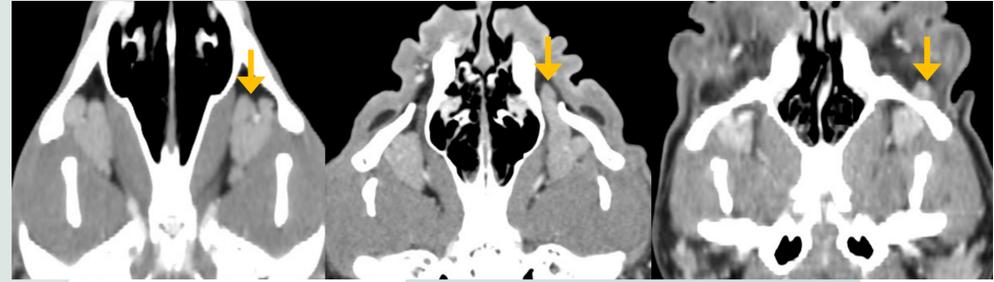


Image 1. Reconstructed dorsal plane soft tissue algorithm postcontrast. Left: Australian sheepdog, control group, normal anatomical location of the ZG. Middle: FBD with left abnormal ZG extending rostrally through the maxillary foramen. Right: Pug with unilateral left ZG displaced laterally, extending dorsally to the zygomatic arch.

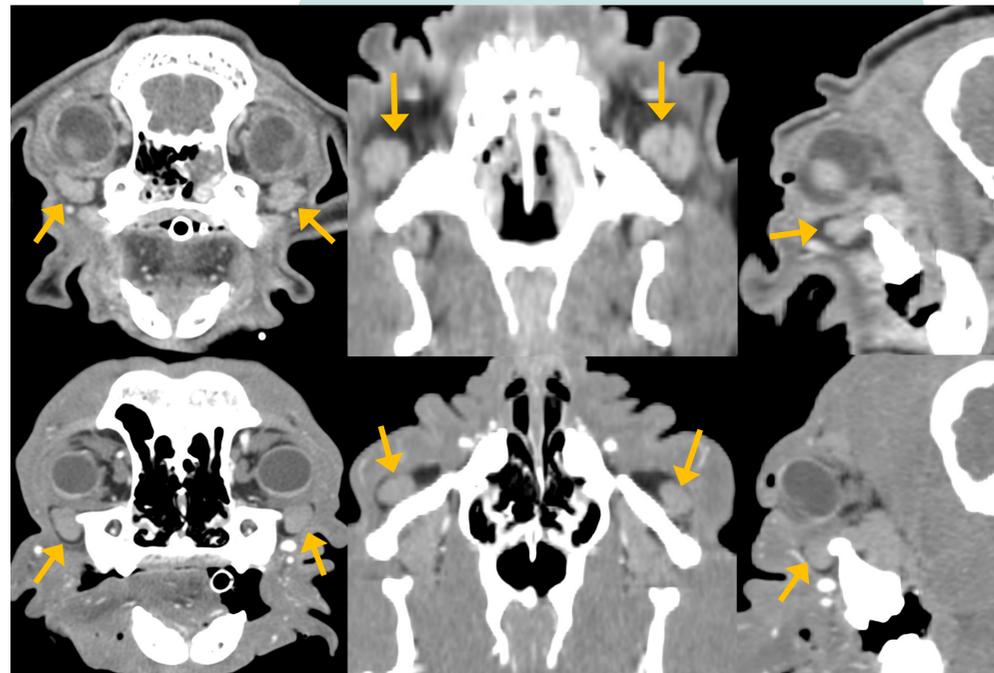


Image 2. Computed tomography images with soft tissue algorithm after intravenous contrast administration. Top row: Pug. Bottom row: English Bulldog. Both of them with both ZG displaced laterally. Left column: transverse plane; middle column: dorsal plane; right column: sagittal plane.

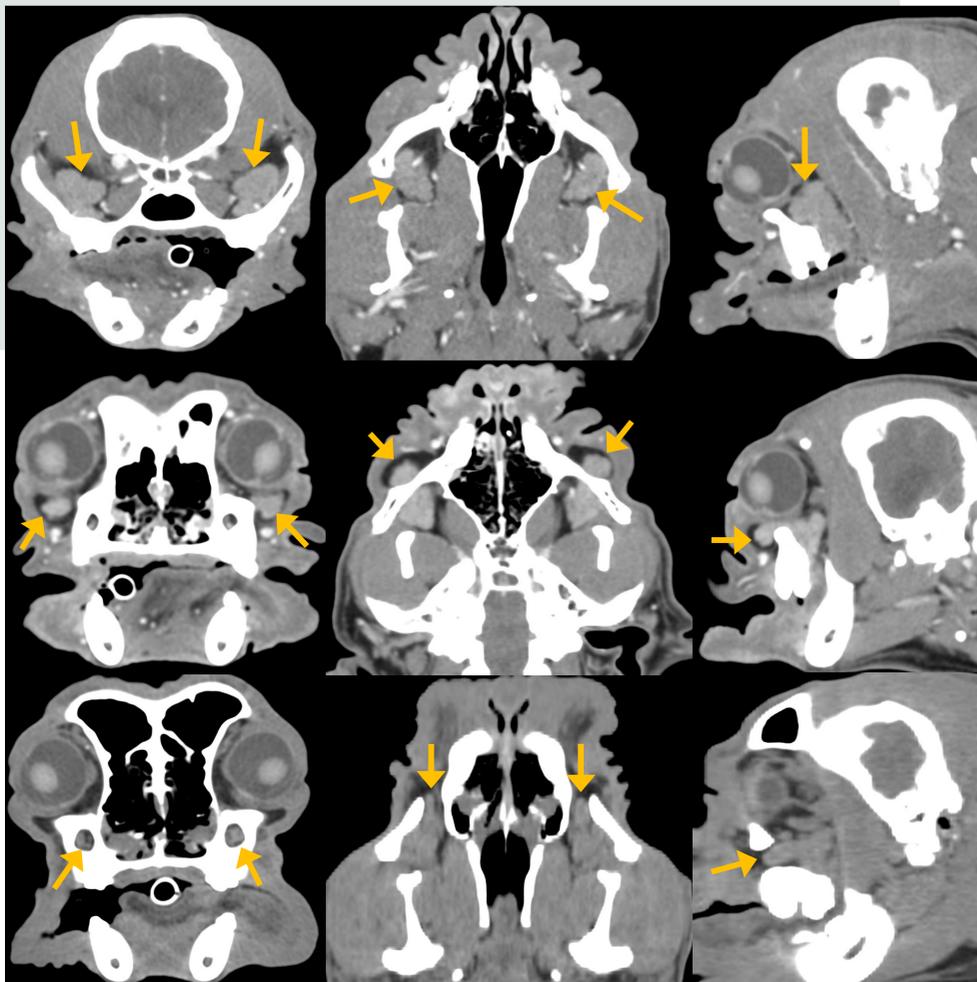


Image 3. Computed tomography images with soft tissue algorithm after intravenous contrast administration except in bottom row. Top row: FBD with both normal positioned ZG. Middle row: FBD with both ZG displaced dorsolaterally. Bottom row: FBD with both ZG displaced rostrally. Left column: transverse plane; middle column: dorsal plane; right column: sagittal plane.

## DISCUSSION

- ✓ Durand et al., described atypical ZG laying at the rostroventral aspect of the masseter, directly under the skin surface.<sup>1</sup>
- ✓ Packer et al., found as a risk factor for corneal ulceration the brachycephalic morphology, because foreshortened muzzles are associated with shallow orbits, resulting in exophthalmia.<sup>2</sup> We hypothesized the same explanation for reduction in volume of the pterygoid fossa contributing to zygomatic salivary gland parenchyma displacement.

## CONCLUSION

**This study demonstrated that 50% of the zygomatic salivary glands in brachycephalic dogs were not enclosed to the pterygoid fossa due to the anatomical conformation of the skull in these breeds without associated clinical signs.**