

Brachycephalics- the Worst Is Yet to Come  
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Brachycephalic dogs, or short nosed dogs are increasingly popular in the US, with the French Bulldog, perhaps better named the California bulldog, recently overtaking the Labrador retriever as the most popular dog in the US. Respiratory and subsequent gastrointestinal distress are the most common problems, but other diseases can also impact quality of life. Heat stress associated with either ambient temperatures or exertion can lead to airway obstruction and severe heat stroke with death from organ failure possible.

Starting with the upper airway, all brachycephalics have some component of brachycephalic obstructive airway syndrome (BOAS). Classical features include stenotic nares, long/thick soft palate, everted laryngeal sacculles, tracheal hypoplasia, and in some dogs laryngeal collapse or nasopharyngeal turbinates. Laryngeal collapse is often end-stage disease, resulting in extreme life-limitation and/or permanent tracheostomy. Brachycephalic dogs are prone to anesthetic concerns, specifically difficulty with regurgitation and extubation. In general, while intubated these dogs are happy! However, during recovery, vomiting or regurgitation may be common due to swallowed air, and airway swelling may accompany intubation. Guidelines for brachycephalics include: Fasting to avoid a full stomach and pre-treatment with metoclopramide (Reglan) is wise. For elective surgery, pre-treatment with omeprazole is ideal if possible. Intubation requires a good light source, and ideally to have success confirmed with end-tidal CO<sub>2</sub> assessment. The tube should be maintained for as long as possible post operatively and the BC should not be left to recover unobserved. Brachycephalics are also very prone to decompensation in the hospital due to the stress of hospitalization and occasionally handling. Excessive stertor should be treated before airway obstruction develops and all lay staff should additionally be educated on upper airway disease.

Bulldogs are also predisposed to two type of cardiovascular disease, the first being arrhythmogenic right ventricular cardiomyopathy (ARVC); this is similar to the boxer cardiomyopathy, where often more of the disease reflects ectopy, rather than myocardial dysfunction. Bulldogs are notoriously hard to auscultate due to upper airway sounds, and thoracic radiographs are hard to interpret. Bulldogs (and other BC breeds) are also prone to the development of heart based tumors (not hemangiosarcoma) which may result in exercise intolerance or syncope for compression of the pulmonary artery or pericardial effusion. Xrays will again be hard to interpret, and jugular venous distension is hard to appreciate in a bulldog. Diagnosis is by echocardiography or (less commonly) CT scan.

Gastrointestinal disease can a major player in brachycephalics due to swallowing air and sliding hiatal hernias. Chronic therapy with a proton pump inhibitor, such as omeprazole (1 mg/kg or 20 mg/bulldog) may be helpful and can be considered in all bulldogs. Frenchies are prone to an ulcerative colitis, which can lead to marked diarrhea and loss of condition. . Avoidance of obesity is also useful with many dogs benefitting from clear-cut veterinary recommendations.

Neurological disease is particularly rampant in Frenchies, with rapid onset of paralysis associated with IVDD at often a younger age and with a high chance of recurrence. Brachycephalics in general are more likely to develop brain tumors, specifically gliomas, which can progress rapidly. Additionally, Frenchies are often affected with humeral fractures, due to abnormal ossification of the distal humerus.

*New developments in brachycephalics include the BRISK score and OFA clearances*

(Tarricone, J, Hayes, GM, Singh, A, Davis, G. Development and validation of a brachycephalic risk (BRisk) score to predict the risk of complications in dogs presenting for surgical treatment of brachycephalic obstructive airway syndrome. *Veterinary Surgery*. 2019; 48: 1253– 1261. <https://doi.org/10.1111/vsu.13291>  
<https://www.avma.org/news/health-screening-test-rolled-out-brachycephalic-dog-breeds>

What does this mean for the clinicians and technicians?

- 1) Educate owners as much as possible about risks of brachycephalic dogs
- 2) If owners are insistent, try to encourage
  - a) getting dogs that have OFA clearance

- b) having palliative surgery performed if needed/recommended
  - c) avoiding obesity
  - d) considering pet insurance or a pet -saving account.
- 3) Educate your staff that a brachycephalic in distress can decompensate quickly
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