PhD Project – Identifying and defining upper respiratory obstruction in different brachycephalic dog breeds

Flat faced (brachycephalic) dogs are increasingly popular in the UK. The conformation can cause problems, including breathing obstruction (BOAS) and neurological problems (Chiari-like malformation and syringomyelia CM/SM). Brachycephalic obstructive airway syndrome (BOAS) is an upper airway syndrome that causes significant welfare issues to affected individuals, with exercise and heat intolerance, regurgitation, sleep disorders and in the worst cases, collapse and death.

We have designed non-invasive ways to screen breathing in three breeds, bulldogs, French bulldogs and pugs, with respiratory function grading (RFG) and whole body plethysmography (WBBP) that has shown that there are clear breed differences. It is also apparent that, within the three breeds we have looked at, it is not possible predict if a dog will develop obstructed breathing from external conformation. In one brachycephalic breed, the Boxer, BOAS is rarely seen, whilst in the bulldog it is common. Many other brachycephalic breeds, such as the Pekingese, Japanese Chin and Griffon Bruxellois, have affected individuals within the breed though seemingly at a reduced incidence. Some of these breeds also have neurological problems that are due to malformation at the base of the skull and shortening of the craniofacial bones. The anatomical variations between different brachycephalic breeds have not been clearly described and we would like to study the relationship between respiratory function, neurological conditions and conformation in order to define the risk of disease in a breed and improve the health schemes. We will also collect data for future genetic studies.

This project involves interacting with breed clubs and welfare charities to access approximately 120 dogs from each breed. As part of the study the student will have to perform dog dentals (on the imaged patients).

The student will:
• Design and validate a questionnaire including data on BOAS, neurological signs, dermatological lesions, eye problems and dental issues
• Communicate with the breed health clubs and Kennel Club as required, including holding breed health seminars
• Develop clinical skills in airway disease recognition
• Learn how to use whole body plethysmography
• Learn to use horos or mimics software including anatomical measurements on CT scans
• Learn basic statistical analysis
• Develop a breed specific respiratory functional grading scheme
• Disseminate the information via social media/ conferences/ publications

Expected Funding: Full Home fees plus a maintenance stipend to the successful candidate.

Expected Start Date: April 2021

How to apply: Expressions of interest must initially be made to the supervisor via the Postgraduate Administrator Fiona Roby [fr288@cam.ac.uk]. When the project funding has been confirmed all suitable applicants will be invited to formally apply and take part in the selection process. Please contact Fiona Roby for more details. Please do not apply without contacting us first.