What is brachycephalic syndrome?

The full name of this disorder is brachycephalic airway obstruction syndrome (BAOS). Brachycephalics are those breeds which have a comparatively short head. Because of their anatomy, virtually all dogs of these breeds have some degree of increased work associated with breathing from the time they are born. Many have varying degrees of obstruction to their airways, which causes signs ranging from noisy breathing to collapse.

The most common anatomical features that lead to the respiratory difficulties typical of these breeds, include an elongated and fleshy soft palate, and narrowed nostrils. Many affected dogs also have changes to the larynx (everted laryngeal saccules) and a relatively small trachea (hypoplastic trachea).

How is brachycephalic syndrome inherited?

Selection for exaggerated features has resulted in the respiratory difficulties in these breeds. For example breed standards for the English bulldog specify that the face should be very short, as should the distance between the tip of the nose and where it is set deep between the eyes. It is hardly surprising that this leaves little room for the structures involved in normal breathing.

What breeds are affected by brachycephalic syndrome?

These problems are generally most common and severe in the English bulldog. Other brachycephalic breeds in which this syndrome is found include the pug, Boston terrier, Pekingese, Cavalier King Charles spaniel, Chinese shar-pei, French bulldog, Lhasa apso, and shih tzu.

For many breeds and many disorders, the studies to determine the mode of inheritance or the frequency in the breed have not been carried out, or are inconclusive. We have listed breeds for which there is a consensus among those investigating in this field and among veterinary practitioners, that the condition is significant in this breed.

What does brachycephalic syndrome mean to your dog & you?

Problems associated with this syndrome range in severity, with most brachycephalic dogs snuffling and snorting to some degree. Some will have no further difficulties, but many will have problems such as increasingly noisy breathing, coughing and gagging, fainting or collapsing episodes, and a decreased tolerance for exercise (ie. they tire easily). Over the long term, this also puts an increased strain on the heart. Some dogs, such as English bulldogs, may have frequent episodes of sleep-disordered breathing.

Overheating is especially dangerous in these breeds, because increased panting (the normal mechanism for cooling in dogs) can cause further swelling and narrowing of the already constricted airways, which will increase your dog's anxiety. Excitement,

exercise, or warm weather (and especially a combination of these factors) can trigger this vicious cycle. These dogs can also have gastrointestinal problems, because of difficulties coordinating swallowing when they are working so hard at breathing. This can result in vomiting ar gagging because of swallowing so much air, or aspiration pneumonia, because of breathing in saliva or food particles.

All dogs of these breeds have an increased risk associated with sedation and anesthesia, for which your veterinarian will take extra precautions.

How is brachycephalic syndrome diagnosed?

These problems are usually evident from a young age. If your dog has respiratory difficulties, your veterinarian may discuss this syndrome with you as part of a regular visit, or you may bring your dog in because of an episode such as collapsing after exercise.

Because some changes in anatomy are common to all dogs of these breeds, diagnosis is really a question of the degree of abnormality. The overlong soft palate is best examined under general anesthesia, and so, because of the associated risks, your vet will most likely ask your permission in advance to surgically correct it at the same time if necessary. Neutering can often be performed at the same time.

How is brachycephalic syndrome treated?

Medical treatment (oxygen therapy, corticosteroids) can be used for short term relief of airway inflammation. Surgery is required where severe anatomic faults interfere with breathing. Most commonly this involves removal of some of the excess fleshy soft palate, and widening of air passages at the nostrils.

It is important to keep your dog from becoming overweight, as this will worsen his or her respiratory difficulties in the long run.

For the veterinarian: In mild episodes of obstruction, short-acting steroids, oxygen therapy, and cooling the dog while it calms down may be sufficient. Bear in mind that sedation without intubation will relax upper airway muscles and may increase obstruction, and that hyperthermia may develop in an oygen tent or cage and exacerbate the problem.

These dogs, particularly the English bulldog, have an increased risk of aspiration pneumonia following surgery to correct airway problems.

Breeding advice

This syndrome is directly related to the conformation or standards for these breeds. Although so common as to be accepted as normal for brachycephalics, BAOS causes serious physical problems and discomfort for individual dogs. Breed improvement by

breeding away from the extremes of conformation that cause these problems, is a challenge for responsible breeders.

Dogs with pronounced breathing difficulties or that have required surgery to correct airway obstruction, should not be used for breeding. These dogs should be neutered at the time surgical correction is performed.

FOR MORE INFORMATION ABOUT THIS DISORDER, PLEASE SEE YOUR VETERINARIAN.

Resources

Hendricks, JC. 1995. Recognition and treatment of congenital respiratory tract defects in brachycephalics. In JD Bonagura and RW Kirk (eds.) Kirk's Current Veterinary Therapy XII Small Animal Practice.p. 892-894. W.B. Saunders Co., Toronto.

Revised: .

This database is a joint initiative of the Sir James Dunn Animal Welfare Centre at the Atlantic Veterinary College, University of Prince Edward Island, and the Canadian Veterinary Medical Association.