

Brachycephalic Obstructive Airway Disease (BOAS) in dogs

What is BOAS?

BOAS is a combination of upper airway problems seen in dogs that are bred to have short noses and high domed foreheads (eg Pugs, French Bulldogs, English Bulldogs). This breeding causes an excess of soft tissues in the upper airways that obstructs airflow and forces the animal to rely on open mouth breathing.

What are the structures affected?

The opening of the nostrils may be narrow or completely closed. The soft palate (at the back of the mouth) may be overlong and get dragged into the larynx (voicebox) when the dog breathes in. Sometimes the tonsils are very large and inflamed and protrude into the back of the mouth. Finally the larynx may be swollen and the mucosal lining of the sides may bulge into the airway contributing to airway obstruction (everted laryngeal ventricles).

All of these breeds have noisy breathing, what are the symptoms?

Dogs affected with BOAS may have one or all of these structures affected and this causes obstruction to airflow through the upper airway. This means that the dog may snore very loudly when asleep, or even snore when awake and at rest. When they exercise they have to pant continuously and have difficulty exercising when the weather is warm. They often pant for a long time after exercise has finished as they cannot easily cool down or cope with their oxygen requirements. Some dogs collapse when they exercise or get excited, and may become so hypoxic (seen when the tongue turns a blue/purple colour) that they lose consciousness or even die. As dogs have to pant to lose heat, these dogs are also more prone to heat stroke which can also cause loss of consciousness or death.

What if I do not want my dog to have surgery?

All brachycephalic dogs are affected to a greater or lesser extent with this syndrome. Dogs that are not severely affected may cope very well for their normal lifespan so long as they do not get too heavy and are never exercised or exposed to warm weather. However if there is long term increased resistance to airflow in the upper airway (the nose and throat) then over time the dog may develop *laryngeal collapse* which is due to the pressure on the larynx (voicebox). When this happens the resistance to airflow becomes very much worse and can be very difficult to treat.

What surgery is recommended?

We usually recommend anaesthesia to evaluate the back of the throat first. We will also look at the larynx to see if there is any evidence of laryngeal collapse. We then do surgery to widen the nostrils and to shorten the soft palate to an anatomically correct position. Sometimes we remove the tonsils and any everted laryngeal ventricles. Treatment of laryngeal collapse is usually delayed to see if the dog improves after BOAS surgery.

What is the recovery time?

Dogs usually recover very quickly from this surgery and are discharged the same day with some pain relief, anti-inflammatory medication and antibiotics. They should be rested for 7 days post operatively but thereafter can be treated normally. Some dogs also require treatment for pneumonia.

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Are there any other problems that are associated with BOAS?

Many dogs affected with BOAS will have difficulties eating or swallowing as they struggle to breathe while eating or drinking. However about 30% of these dogs also have a tendency to regurgitate saliva or food. Most of the dogs will improve after surgery, but often they will require antacid medication. Some dogs also have a hiatal hernia which causes regurgitation of food from the stomach and this may require medication for life, or occasionally surgery if it does not settle down after BOAS surgery.

If my dog is diagnosed with a hiatal hernia will it need surgery for the hernia?

Most dogs with hiatal hernia improve when the resistance to airflow from the upper respiratory obstruction is relieved with airway surgery. This causes a lowered negative pressure when the dog breathes in and less movement of stomach contents back and forth into the lower oesophagus. Treatment with antacid medication is usually sufficient. However some dogs do not improve sufficiently to give them a good quality of life and regurgitation and 'heart burn' (when acidic stomach fluids reflux into the oesophagus) continue. In these cases, we will discuss surgery to move the stomach back further into the abdomen.

If you are not sure if your dog would benefit from airway surgery, you can ask your vet to refer you to a Soft Tissue Surgery Specialist who can assess the history and clinical signs and provide you with advice.

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