



5 THINGS PET OWNERS NEED TO KNOW ABOUT BOAS

(Brachycephalic Obstructive Airway Syndrome)

1

Why does my pet have this condition?

The word "brachycephalic" comes from the Greek brachy meaning short, and cephalos meaning head. Brachycephalic dog breeds are breeds of dogs with a short head, or more precisely a short or flat nose like the Bulldogs (French and English) and the Pugs.

In brachycephalic dogs, the bones of the head are shorter and there is less space in the nasal passages and the back of the mouth, but the soft tissues inside the nose and mouth take up most of the space. Therefore, the space available for air to pass into the airways is reduced. In addition, brachycephalic dogs often have narrower nostrils compared to dogs of other breeds, which also limits the space for air to pass. Taken together, these differences mean that there is much more resistance for the air when the dog is breathing in. In most cases, brachycephalic dogs start getting more severely affected when they are young adults (1 to 3 years old)

2

How does it affect my pet?

• **Breathing** As we have seen, in brachycephalic dogs there is a high resistance for air to enter the lungs. This means that much more effort is required for the dog to be able to breathe. The roof of the mouth is composed of the hard palate and behind it, the soft palate. In brachycephalic dogs, the soft palate is often relatively too long and as more effort is needed to breathe air into the chest, the soft palate also gets "sucked" into the airway and causes more obstruction of the airway. This is the "snoring" that can be heard. This also causes inflammation and thickening of the soft palate, which causes even more obstruction of the airway. Therefore, this is a vicious cycle: more obstruction means more breathing effort, but the increased breathing effort causes more obstruction.

In addition, some brachycephalic dogs also have particularly soft cartilage in the larynx (entrance to the airways), which means that the larynx can collapse and become narrower due to the negative pressure necessary to suck the air into the chest. Finally, some dogs also have a relatively narrow windpipe (trachea) for their size. Laryngeal collapse and a narrow trachea can make the airway resistance significantly worse.

- + Collapse** Under extreme conditions of stress or excitement, and particularly if the air temperature is high, brachycephalic dogs can sometimes collapse due to the lack of oxygenation. In this case, the tongue can turn slightly blue-ish, which is a sign of the poor oxygenation of the blood.
- + Vomiting /Regurgitation** Because of the high resistance in the airway, a lot of effort is needed for brachycephalic dogs to expand their chest so that the air can flow into the lungs. This extra strong expansion of the chest also causes stomach content or the stomach itself to be "sucked" into the chest. This can cause vomiting and/or regurgitation. When acidic stomach content flows back into the oesophagus, this irritates the lining of the oesophagus and causes inflammation and discomfort (like heartburn).
- + Aspiration Pneumonia** The fact that the soft palate is too long and takes up a lot of space at the back of the mouth, combined with the risk of vomiting and regurgitation means that there is an increased risk of food or water being aspirated into the airways. If stomach content or fluid goes down into the lungs, this causes pneumonia called 'aspiration pneumonia' and makes the breathing difficulties even worse.

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What can be done about it?

Surgery is required to correct some of the causes of the increased resistance in the airways: the nostrils are widened and the soft palate is shortened. Unfortunately, if the larynx is too soft and/or the trachea too narrow, there is nothing that can be done surgically to alleviate these problems.

It is recommended to take radiographs or a CT scan of the chest before surgery in order to check that there is no aspiration pneumonia. If there is pneumonia, then treatment of the pneumonia with antibiotics is recommended before proceeding with the operation.

Vomiting and regurgitation is treated with medication aimed at preventing vomiting and reducing the acidity of the stomach contents.

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What outcome can I expect?

In most cases your dog will be able to go home the day after the operation. The operation will create more space at the back of the mouth for the air to go through and the reduced resistance obtained by widening the airway will enable your dog to tolerate more exercise again. The snoring is usually somewhat improved but some snoring remains in most cases. The stitches used in the mouth and in the nostrils are dissolvable and do not need to be removed. The stitches in the nostrils can take several weeks to fall out. This is normal and nothing to be worried about.

In cases where the larynx has a tendency to collapse or where the trachea is very narrow, surgery tends to be less successful, and there is a higher risk of problems recurring after a period of time.

The main risk with the surgical procedure is the anaesthetic and more precisely the recovery from the anaesthetic. Although rare, serious complications can occur during the recovery period which can include death.

