Brachycephalic Airway Obstructive Syndrome

What is it?

Brachycephalic dogs have a compressed, shortened skull and a characteristic “smushed nose” appearance. Common brachycephalic breeds include English and French bulldogs, Boston terriers, Pugs, and Shih Tzu’s. Because of their abnormal skull conformation, these dogs are prone to a number of upper respiratory problems affecting the nose, mouth, and throat. Together, these problems are referred to as “brachycephalic airway obstructive syndrome”, or BAOS or BAS.

There are three primary physical abnormalities that comprise BAOS, but each dog will be affected to a varying degree:

1. **Stenotic nares** are nostrils that are excessively narrow, due to a congenital defect of nose cartilage. Air cannot flow smoothly through narrow nostrils, so increased respiratory effort and noisy breathing result. It is like a human trying to run while breathing through a straw.

2. **An elongated soft palate** refers to the soft structure at the back of the mouth behind the hard palate, which interferes with airflow into the main windpipe (the trachea), resulting in laboured breathing.

I – Shows a dog with mouth wide open to inspect the soft palate.

II – **Elongated soft palate** (the soft palate is too long) and sags into the opening of the throat. The dashed line shows where it should ideally end.

III – Cross section of the throat showing where the soft palate should end (dashed line).
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The turbulent flow of air down the trachea can cause inflammation of tissue by the larynx, i.e. everted laryngeal saccules. These tissues can become so swollen that they protrude into the main airway, making breathing difficult.

What are the symptoms?
Common symptoms include snorting, noisy breathing, and excessive panting and exercise intolerance. Heat, stress, or excitement can often make symptoms dramatically worse. Some dogs have so much difficulty breathing that they are unable to sleep for long periods of time (“restless sleepers”). Dogs who are severely affected may occasionally turn blue and pass out from lack of oxygen; death can eventually result. Although most airway problems are apparent from a young age, most dogs are 2 to 4 years of age before they are brought to a veterinarian for evaluation and treatment.

What tests are needed?
All prospective patients should have chest x-rays taken prior to surgery, to eliminate the possibility of underlying heart and/or lung disease.

What treatment is needed?
Fortunately, the three primary components of BAOS can be corrected surgically, usually with good to excellent results. Today, your pet had the following procedures performed:

- The stenotic nares were widened, so that air can flow easily into the nasal cavity.
- The elongated soft palate was trimmed to an appropriate length so that it will no longer interfere with normal air flow into the trachea.
- Everted laryngeal saccules were removed, thus clearing the main airway.

Although each of these surgical procedures is relatively brief, they can cause swelling in the airway, so it is important to restrict your pet and avoid stress/excitement.

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Dogs with BAOS typically have very swollen, narrow airway structures. Surgical manipulation of these structures can worsen the swelling, making breathing difficult in the immediate post-operative period. Steroids may be given to help reduce inflammation, and oxygen support should be available if needed.

What is the prognosis?
Although the prognosis is optimistic if affected dogs have surgical treatment while still young (preferably less than 4 years of age), the outcome becomes more guarded in older dogs. Keeping dogs at a good body weight and avoiding stressful situations may help. Since dogs respond well to early surgical intervention, owners of brachycephalic breeds should have their dogs examined by a veterinary surgeon as soon as possible if noisy breathing or other respiratory abnormalities are noticed.

Medications
- Anti-inflammatory: ____________
  Has been given.
- Analgesic patch (fentanyl). This will be removed at the 4 day recheck.
- Tramadol tablets - Label instructions on the packet should be followed.

Post-operative exercise
Strict rest (no free exercise allowed) for the next 2 weeks is necessary to allow healing of the surgery site and minimise respiratory effort. If it is hot, then please keep your dog in an air-conditioned area and keep excitement to a minimum.