



**Veterinary Emergency
+ Referral Center**
of Hawaii

**Ettinger: Textbook of
Veterinary Internal Medicine, 7th Edition
Tracheal Wash and Bronchoscopy
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What are the reasons for doing a tracheal wash and bronchoscopy?

Diseases associated with cough, shortness of breath, loud breathing sounds, or difficulty breathing can be caused by infectious, inflammatory, or neoplastic diseases of the airways. To determine the most likely cause for respiratory difficulty, collection of samples from the lung can be extremely informative. Such samples can be used to identify bacterial, fungal, or protozoal organisms and to determine the type of cells present. In some instances, lung cancer can be diagnosed from fluid samples taken out of the lung.

Collection of airway fluid is most easily achieved by performing a tracheal wash or bronchoscopy. Sedation or anesthesia is required to perform either technique safely and effectively. The benefit of the test must always be weighed against the possible risk of the procedure.

What is a tracheal wash and how is it performed?

A tracheal wash is performed by passing a tiny plastic tube (catheter) into the airways. Through this tube a small amount of fluid can be "washed" into and out of the lung. This technique is performed commonly in private practices.

There are two different methods that can be used to perform a tracheal wash:

- A **transoral tracheal wash** through the mouth is appropriate for use in large and small dogs or in cats. This technique requires a short period of sedation. The animal is lightly anesthetized and a sterile, relatively large tube is inserted into the trachea (windpipe). A small volume (4 to 6 mL) of sterile fluid is instilled into the airways and then aspirated (sucked back) for analysis. A small amount of fluid will remain within the lung; however, this is rapidly absorbed by the tissue and does not typically cause worsening of the animal's respiratory condition. It is common for a dog or cat to cough after having an endotracheal tube inserted and a wash performed, but this is a transient side effect.
- A **transtracheal wash** through the throat is generally performed in larger dogs. The under side of the neck is clipped and scrubbed with antiseptic solution. Local anesthesia (lidocaine) is used to deaden the skin before insertion of the needle. A needle is passed through the skin of the neck, between the cartilage rings of the trachea, and then a catheter is passed through the needle into the airways of the animal. Sterile fluid (4 to 6 mL) is instilled and then aspirated for analysis. Rarely, an animal may have leakage from the site where the needle entered the trachea, and air will accumulate under the skin. This "subcutaneous emphysema" causes a crackling sound when petting the animal or may create a soft bulge in the neck region. Generally, subcutaneous emphysema does not cause respiratory distress and resolves within several hours to days. If air accumulation is

excessive, persistent, or interferes with normal breathing, your pet should be re-examined by your veterinarian. It is common for dogs to cough after a transtracheal wash, but severe coughing or bleeding from the site is unusual and cause for concern. Although it is possible for a tracheal wash to result in a tracheal laceration it is extremely uncommon.

What is bronchoscopy and how is it performed?

Bronchoscopy is a more sophisticated procedure that uses a long fiber optic tube attached to a light source and camera to visualize the inside of the airways. A smaller tube within the bronchoscope allows collection of fluid from the airway. This procedure is more commonly performed in university or specialty practices.

Specific indications for bronchoscopy include the following:

- Chronic cough
- Coughing up blood
- Non-responsive respiratory conditions
- Unexplained pulmonary infiltrates

General anesthesia is required to perform bronchoscopy to suppress coughing and airway spasm, to allow examination of the airways without inducing trauma, and to protect the endoscope.

The bronchoscope can be guided into each lung lobe and will go a variable distance into the lung, depending on the size of the animal and the size of the bronchoscope. If a foreign object (stick, tooth, stone, etc.) is seen, forceps can be passed through the channel of the scope in an attempt to remove the item. After all the airways are examined, bronchoalveolar lavage (BAL) is performed by instilling a volume of fluid (10 to 20 mL) through the tube and retrieving it with aspiration for bacterial culture and cellular analysis. These results may help determine the therapy that should be provided. Any fluid that remains in the lung is gradually resorbed over 24 hours. Irregular areas on the surface of the airway or mass lesions can be evaluated by a biopsy or brush procedure. Occasionally, this can result in coughing up small amounts of blood, but typically dogs and cats do not cough excessively after recovering from the procedure.

Because bronchoscopy requires full anesthesia, not all animals are good candidates for the procedure. However, in most animals, it is a safe procedure that provides a substantial amount of information about the lung condition.