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Category: Canine, Feline

Bronchoscopy

Bronchoscopy, airway scoping

Affected Animals:

Animals with respiratory tract diseases that cannot be diagnosed with x-rays or ultrasound, or those that do not respond to symptomatic treatment for their problems, are potential candidates for bronchoscopy.

Overview:

Bronchoscopy is a diagnostic procedure for patients with respiratory tract disease. It can be used to identify structural abnormalities, abnormal airway secretions, foreign bodies, and mass lesions including certain tumors. Additional procedures combined with bronchoscopy can allow for identification of inflammation or infection in the respiratory tract. Specialized equipment and expertise is required for performing bronchoscopy and for monitoring the patients during the procedure.

Bronchoscopy does not always identify the cause of an individual animal's problem, but at least it can rule out many potential explanations for it.

Description:

Very heavy sedation or general anesthesia is necessary for bronchoscopy in small animal patients. Injectable anesthetic drugs are used so that it is not necessary to use an endotracheal tube for the inhalation of gas anesthesia during the procedure. Without such a tube, there is more room for the bronchoscope to be inserted into the trachea and the bronchi. Oxygen can be delivered during the procedure through a small catheter inserted down into the trachea or through the bronchoscope itself. In larger patients, gas anesthesia may be used, as the bronchoscope can pass through larger endotracheal tubes while still allowing for the delivery of oxygen and gas anesthetic agents to the patient. Patients are monitored with an electrocardiogram and with pulse oximetry during the procedure.

Once the patient is anesthetized, the bronchoscope is passed into the trachea from the oral cavity. In most cases, bronchoscopy is done with flexible fiberoptic endoscopes. Many times, these are attached to a small camera that can record findings during the procedure. Rigid bronchoscopes are also available, but they are not commonly used in small animal patients.

Bronchoscopy is used to visually inspect the airway for any evidence of collapse, compression, or dilation. Mass lesions can be seen if present within the lining of the trachea or bronchi. Abnormal discharges such as excessive mucus, blood, or pus may

also be seen. If a foreign object has been inhaled, it may be seen if the scope can reach the point where it is lodged.

The procedure is useful not only for visualization of abnormalities, but also for obtaining samples. With bronchoscopy, biopsies can be taken if lesions requiring biopsy are seen, and samples of abnormal discharges can be collected and submitted for microscopic analysis and culture. Flushing sterile saline through the endoscope often facilitates sample collection. Special brushes may be passed through the endoscope for collecting samples as well. If airway foreign bodies are seen, special grasping forceps may allow for their removal without surgical intervention.

Prognosis:

The prognosis depends primarily on the diagnosis and on the presence of other factors affecting the patient. Since complications due to the procedure are rare, the prognosis for an animal undergoing bronchoscopy is usually good with respect to the procedure itself.

Potential problems that can arise during the procedure include anesthesia-related complications, including death. Heart arrhythmia and bleeding may occur. Oxygen levels may drop temporarily but can usually be corrected quickly by supplying additional oxygen. Fever, infection, and abnormalities in the lungs that can be seen on chest x-rays can develop, but these complications occur infrequently.

Pre-procedure Care:

Prior to bronchoscopy, animals need to be prohibited from eating because the procedure is performed under anesthesia. In emergency situations this may not be possible, particularly when bronchoscopy is needed to attempt removal of an airway foreign body. Since it is not usually a first-line diagnostic tool, prior evaluation almost always includes chest x-rays.

Post-procedure Care:

Following bronchoscopy, animals are usually given oxygen to breathe until they are awake. Because the procedure is usually short in duration, and since the injectable or gas anesthetic agents also tend to be short acting, most patients that are stable at the time the procedure is performed can be released the same day. For those that are seriously ill, hospitalization is usually required for ongoing treatment of their illness, not because of the procedure itself.

Prevention:

Many complications can be avoided by careful patient selection. Critically ill patients with serious heart disease or metabolic conditions that need to be stabilized first are not good candidates for anesthesia; bronchoscopy is therefore not recommended for them. Animals in severe respiratory distress are not good candidates; however bronchoscopy may be indicated in these patients when an airway foreign body or some other type of structural airway disease is suspected that absolutely requires bronchoscopy for an accurate diagnosis or prompt therapeutic intervention. Patients with severe bleeding disorders, or with very low oxygen levels in their blood that do not respond to oxygen supplementation, should not undergo bronchoscopy.