

BASIC INFORMATION

Description

Obstruction of the trachea (windpipe) is narrowing of the internal diameter of the trachea resulting from external or internal conditions. Obstruction of the trachea decreases the passage of air into and out of the lungs.

Causes

External conditions that can cause obstruction of the trachea include compression of the windpipe from a tumor, abscess, blood clot, or enlargement of a nearby structure (such as the esophagus). Tracheal narrowing can also result from blunt trauma, such as from a motor vehicle accident or fall.

Internal conditions include aspiration of foreign bodies or strictures (scarring) from a previous penetrating injury (dog bite, bullet wound, laceration), endotracheal intubation, or temporary tracheostomy. Internal obstruction can also be associated with tumors, abscesses, or scar tissue reaction to parasites. Rarely, dogs are born with narrowing of the trachea, which leads to subsequent obstruction.

Clinical Signs

Signs include exercise intolerance, noisy sounds while breathing, and panting. Difficulty breathing may induce restlessness, anxiety, and pawing at the face. Difficulty swallowing and halitosis (foul odor to the breath) may be noted in some cases. Coughing may occur, with or without the presence of blood. Cyanosis (blue gums from lack of oxygen), extreme respiratory distress, and collapse can occur in animals with near-total obstruction of the windpipe.

The signs may develop weeks after an injury or insult to the trachea if they are due to stricture and scar formation. Signs may be sudden in onset if they are associated with bleeding, foreign bodies, or certain forms of trauma.

Diagnostic Tests

Physical examination often reveals a sensitive trachea and high-pitched musical sounds as air moves within the trachea. If the obstruction is high in the neck, loud noises (stridor) may be heard during breathing. Other abnormalities may be detected in the neck.

In severely compromised animals, diagnostic tests may be delayed until the animal has been stabilized. X-rays of the neck and chest may show a foreign body within the trachea, a narrowed segment of the trachea, or a mass in or around the windpipe. Tracheoscopy (examination of the trachea through a fiberoptic viewing scope) is helpful in defining the cause of the problem and allows tissue or secretions to be obtained for microscopic analysis and bacterial culture. Chest x-rays and routine laboratory tests are useful in ruling out other causes of respiratory distress.

TREATMENT AND FOLLOW-UP

Treatment Options

Severely compromised animals require hospitalization and intensive care, with supplemental oxygen, fluid therapy, and treatment of shock. If conventional oxygen therapy (see handout on **Oxygen Therapy**) is inadequate, the animal may be anesthetized so that a temporary tracheostomy can be done (for obstructions high in the neck) or to allow passage of a small tube past the obstruction. Both procedures provide a way to deliver adequate oxygen to the lungs.

Once the animal is stable, specific therapy is instituted and may include the following:

- Tracheal foreign bodies are usually retrieved using a bronchoscope.
- Tracheal narrowing can be dilated in some instances with special balloon dilators, and occasionally the opening in the trachea can be made wider with laser therapy.
- In some cases of tracheal narrowing, the abnormal portion of the trachea is surgically removed, and the trachea is reconnected. As many as eight of the tracheal rings can be removed.
- When a tumor external to the trachea is suspected, further diagnostic studies, such as computed tomography (CT scan), may be indicated to better define the extent of the tumor and the feasibility of surgical removal of the mass.
- Tumors arising from inside the trachea may be partially removed with a bronchoscope. Further treatment, such as chemotherapy or surgery, is then pursued based on the tumor type.

Accompanying infections are treated with antibiotics. Other supportive care may include sedation, medications for pain, cough suppressants, and other measures.

Follow-up Care

Intensive monitoring is required both before and after bronchoscopy or surgery. Vital signs, such as respiratory rate, heart rate and rhythm, blood oxygen levels, and body temperature, are measured frequently. Following tracheal surgery, animals must be kept quiet and may remain on supplemental oxygen until swelling at the surgery site has subsided. Collars are replaced with a harness for a period of 3-4 weeks after surgery.

Prognosis

Many causes of tracheal obstruction are correctable and have a fair to good prognosis. Occasional coughing and gagging may persist because of chronic irritation of the trachea.