

BASIC INFORMATION

Description

The mediastinum is an enclosed space in the center of the chest between the lung lobes. The anterior or cranial mediastinum is the space in front of the heart. The cranial mediastinum contains a number of important structures, such as blood vessels, the trachea, lymph nodes, the esophagus, and the thymus. A mass within the mediastinum can arise from any tissue occupying that space and can include tumors, cysts, blood clots, and granulomas (inflammatory nodules or masses).

Causes

Tumors can originate from any tissue within the mediastinum; they can arise from surrounding tissue such as the lungs; or occasionally they may spread to the mediastinum from tumors in a distant organ outside the chest. Examples of tumors include the following:

- Lymphosarcoma is more commonly seen in cats. Rarely (3%), it involves only the anterior mediastinum, but more often it is part of a generalized disease. Young Siamese cats appear to be predisposed to mediastinal lymphoma.
- The most common tumor of the thymus is the thymoma. Thymomas may be well defined and benign or invasive and malignant. The German shepherd dog is predisposed to thymomas.
- Other tumors include a heart base tumor (chemodectoma), tumors of misplaced thyroid and parathyroid tissue, histiocytic tumors, and others.

Benign cysts can arise from embryonic tissue in the mediastinum. Noncancerous lymph node enlargement can occur with bacterial or fungal infections or inflammation. Esophageal tumors and granulomas may also occur in the mediastinum.

Clinical Signs

Many clinical signs are associated with the underlying disease or are vague (lack of appetite, lethargy, weight loss). Small masses cause no signs. Respiratory signs (coughing, difficulty breathing, panting, noisy breathing) or gastrointestinal signs (difficulty swallowing, excessive salivation, regurgitation) may be present, depending on which tissue is involved. Swelling of the head, the neck, or the front of the chest can occur if the mass puts pressure on the great blood vessels.

Thymomas may be associated with myasthenia gravis and may cause signs of megaesophagus (regurgitation, aspiration pneumonia) or muscle weakness. Increased drinking and urinating may occur if the mass has secondary effects on the kidneys or on blood calcium levels.

Diagnostic Tests

X-rays of the chest are helpful to delineate masses in the mediastinum, as well as the effects these masses have on surrounding organs, such as elevation of the trachea, displacement of the lungs or heart, or collapse of a lung lobe. Other potential findings on x-rays include fluid within the mediastinum or chest, enlargement of the lymph nodes, and megaesophagus.

Contrast x-ray studies may be recommended if esophageal disease is suspected. Ultrasonography can help to define the size of the mass and whether it invades other tissues; it can also guide the collection of tissue or fluid samples for analysis. Additional laboratory tests, x-rays, and advanced imaging techniques may also be recommended to better define the cause and search for tumors elsewhere in the body.

TREATMENT AND FOLLOW-UP

Treatment Options

Treatment depends on the type of mass present and its tissue of origin. Lymphoma is best treated with chemotherapy. Surgical removal may be tried for benign tumors of the thymus and other structures of the mediastinum. Some cystic structures can be drained to alleviate the clinical signs, but if the cyst recurs, then surgical removal may be the best option. Radiation therapy may be considered for tumors that cannot be removed with surgery.

Additional measures may be needed for the secondary effects that some tumors cause, such as elevated calcium levels and myasthenia gravis. (See also the handouts on **Cancer-Associated Hypercalcemia** and **Myasthenia Gravis**.)

Follow-up Care

Following open-chest surgery, the animal is usually hospitalized for several days. Hemorrhage is a major concern postoperatively, because surgery in the mediastinum is done near numerous large blood vessels. A chest tube is inserted at the end of surgery and is used to monitor for air or fluid in the chest. Dogs with esophageal problems are closely monitored for regurgitation and subsequent aspiration pneumonia. Follow-up chest x-rays of the mediastinum are indicated in some instances.

Prognosis

Thymomas that are completely excised, unless there are concurrent esophageal problems, have a good long-term prognosis. Prognosis for other tumors treated with surgery is dependent on the type of tumor and whether it is invading surrounding tissue. Prognosis for tumors treated with chemotherapy varies. Benign processes such as cysts, abscesses, and foreign bodies within the mediastinum generally carry a good prognosis.