

CHEST RADIOGRAPH (X-RAY)

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WHAT IS A THORACIC RADIOGRAPH?

A thoracic (chest) radiograph (X-ray) is a procedure that allows your veterinarian to visualize tissues, organs and bones that lie beneath the skin of the chest cavity. Thoracic radiographs are recommended for any pet with difficulty breathing or with suspicion of heart disease or lung disease. They are also indicated in geriatric patients, and in patients that may have cancer, to evaluate for metastasis (spread). X-rays of the chest should be taken of every animal that has been hit by a car or suffered other types of major trauma because they can reveal many types of injuries to the chest wall, lungs and heart, or other injuries like diaphragmatic hernia. X-rays are also often repeated to monitor progress after treatment or after removing fluid for better visualization of structures. There is no real contraindication to performing this test. Even normal results help determine health or exclude certain diseases.

WHAT DOES A CHEST X-RAY REVEAL?

Chest X-rays provide an image of the bones and outlines of the heart and lungs. This test can be extremely useful for detecting changes in the shape, size or position of organs. Unfortunately, important structures can sometimes blend together on X-rays, so this test does have limitations. For example, a tumor may blend into the background of normal organs because they have the same "opacity," or shade of gray, as the normal tissues. Abnormal fluid accumulations can obscure the ability to see other structures. Thus, chest X-rays are an excellent "screening test," but they do not detect all internal problems. In some cases, additional procedures such as an echocardiogram (ultrasound), bronchoscopy, trans-tracheal wash or thoracocentesis may be needed to diagnose a problem.

Chest X-rays in normal pets should demonstrate healthy anatomy. This includes normal heart, lungs, blood vessels and bones. Evidence of heart enlargement, fluid in the lungs (pulmonary edema), fluid in the pleural cavity (pleural effusion), air in the chest cavity (pneumothorax), tumor and/or fractures are all abnormalities.

How Is a Chest X-ray Done?

Specialized, expensive equipment is required to expose and develop the X-ray film. The pet's chest is measured with a special ruler and the exposure time of the X-ray machine is set. The pet is then placed gently on his side to obtain the "lateral" view. Invisible X-rays then pass from the tube of the radiograph machine, through the animal and onto the X-ray film underneath the pet. Depending on the density of the tissues and organs and the ability of the X-rays to pass through these tissues, different shades of gray will show up on the developed X-ray. This process is then repeated with the animal on his back to obtain the "ventrodorsal" view. Taking two views of the chest will give your veterinarian a more complete study and allow a more thorough interpretation of the chest.

The film is then developed. Radiographs usually take about 5 to 20 minutes to obtain, plus the development time needed for the film (5 to 30 minutes). In some situations, your veterinarian may request the assistance of a radiologist or specialist in evaluating and interpreting the radiographs.

IS A CHEST X-RAY PAINFUL?

No pain is involved. The procedure is noninvasive.

IS SEDATION OR ANESTHESIA NEEDED FOR A CHEST X-RAY?

Neither sedation nor anesthesia is needed in most patients; however, some pets resent positioning for an X-ray and may need tranquilization or ultrashort anesthesia. In a few states there is a legal requirement for sedation so that personnel are not exposed to any X-rays while holding an animal patient. However, in most cases, the unsedated pet is attended by assistants who wear appropriate lead-shields to minimize their exposure to X-rays.