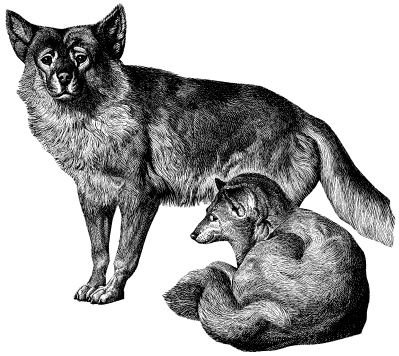
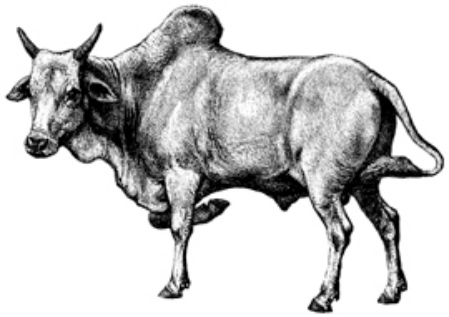
Radiographic lung patterns:
Four to remember






Steven I McLaughlin DVM, MPH, ACVPM

steve@zukureview.com
www.zukureview.com

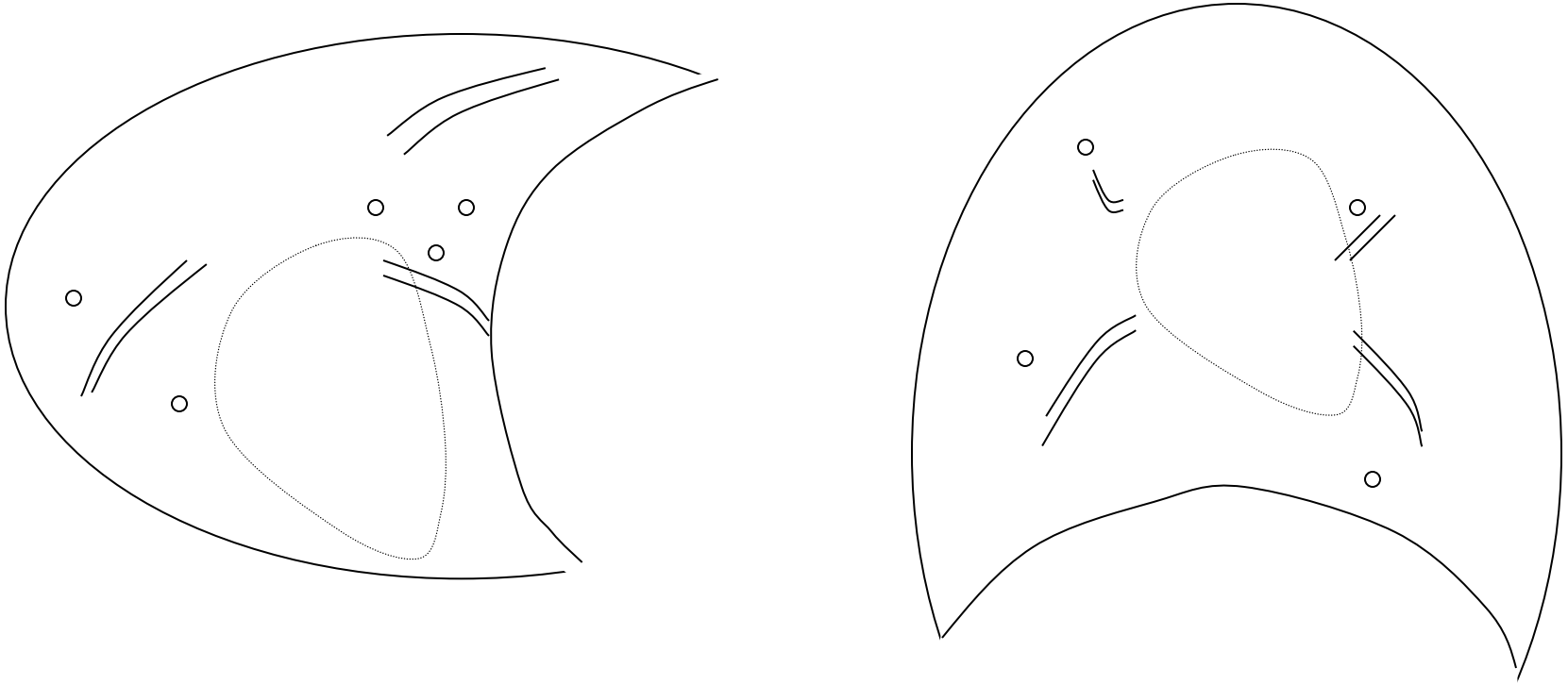
zukureview™

Radiographic lung patterns: Four to remember

- **Bronchiolar:** Thickened walls of bronchioles look like “donuts” end-on or “tram tracks” side-on.
- **Alveolar:** Tiny alveolar airspaces infiltrated with fluid, blood or neoplasia, highlighting dark “air-bronchograms”.
- **Interstitial:** Hallmark is decreased visualization of pulmonary vessels, cardiac and diaphragmatic silhouettes.
  Generally a less severe manifestation of alveolar pattern.
- **Vascular:** Hyper or hypo vascularity

Remember that lungs may demonstrate more than one pattern, depending on location and pathology.

Radiographic lung patterns: Bronchiolar



Bronchiolar pattern: Airway disease causing the thickened walls of bronchioles that look like “donuts” end-on or “tram tracks” side-on.
A clinical example would be feline bronchial asthma.
http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/121618.htm&word=asthma

For an excellent summary of bronchiolar pattern, see the Veterinary Radiology site :
http://www.veterinaryradiology.net/373/what-is-a-bronchial-pattern/

Adapted from: Pasquinis & Spurgeon, Anatomy of Domestic Animals, 11th ed. pp. **620**, 614-625

Radiographic lung patterns: End-on bronchioles

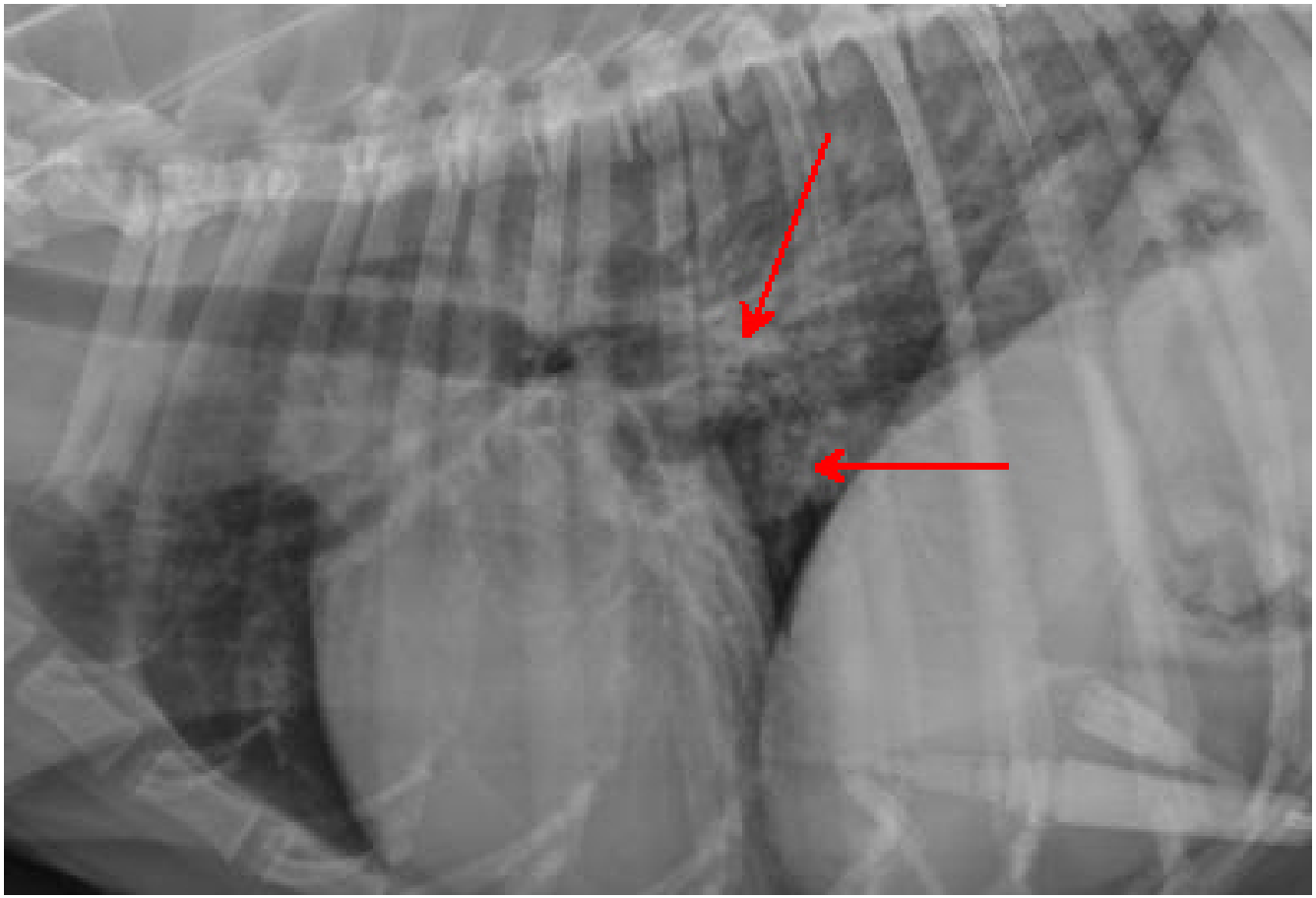
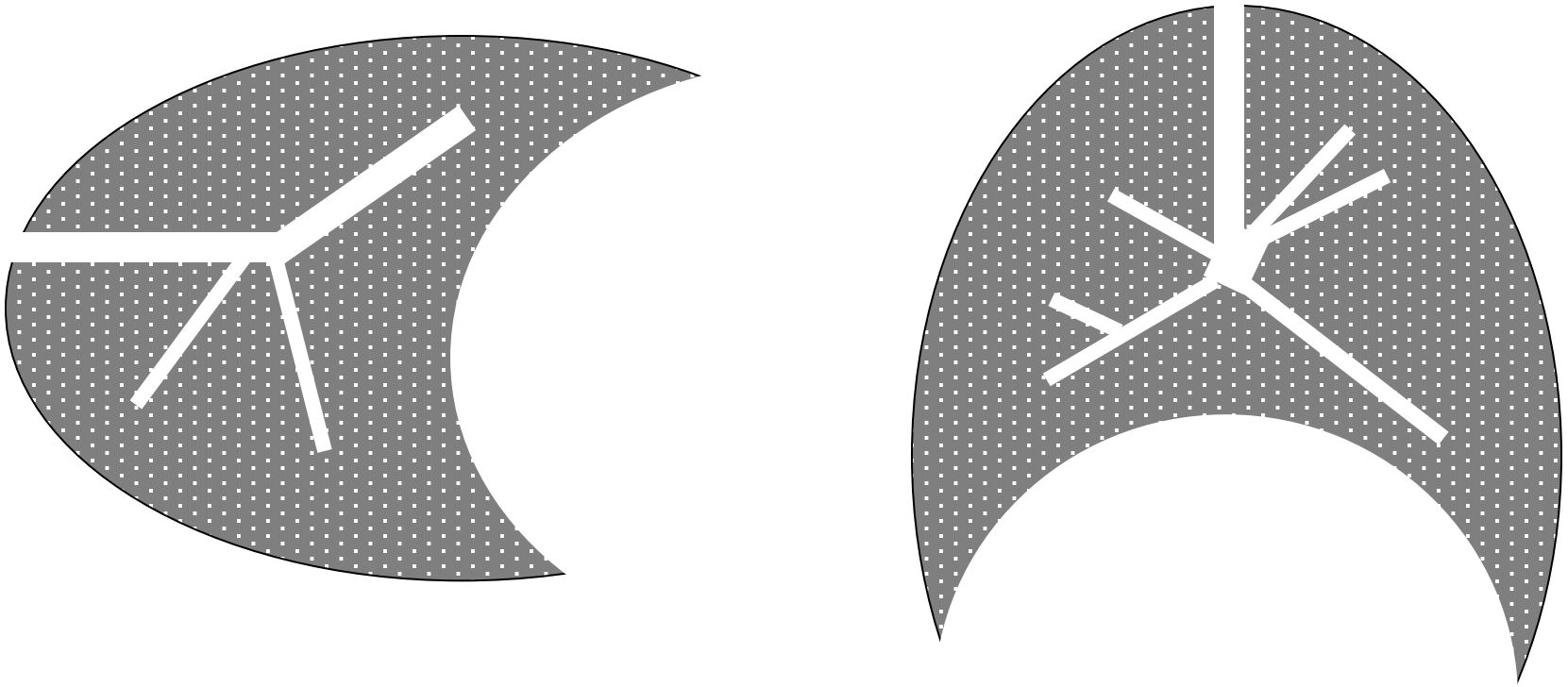


Image courtesy: Dr. Terri Defrancesco

The arrows point to two end-on bronchioles.

This is common in the hilar region and **not** a "bronchiolar pattern" per se, unless there is abnormal thickening of bronchiole walls.

Radiographic lung patterns: Alveolar

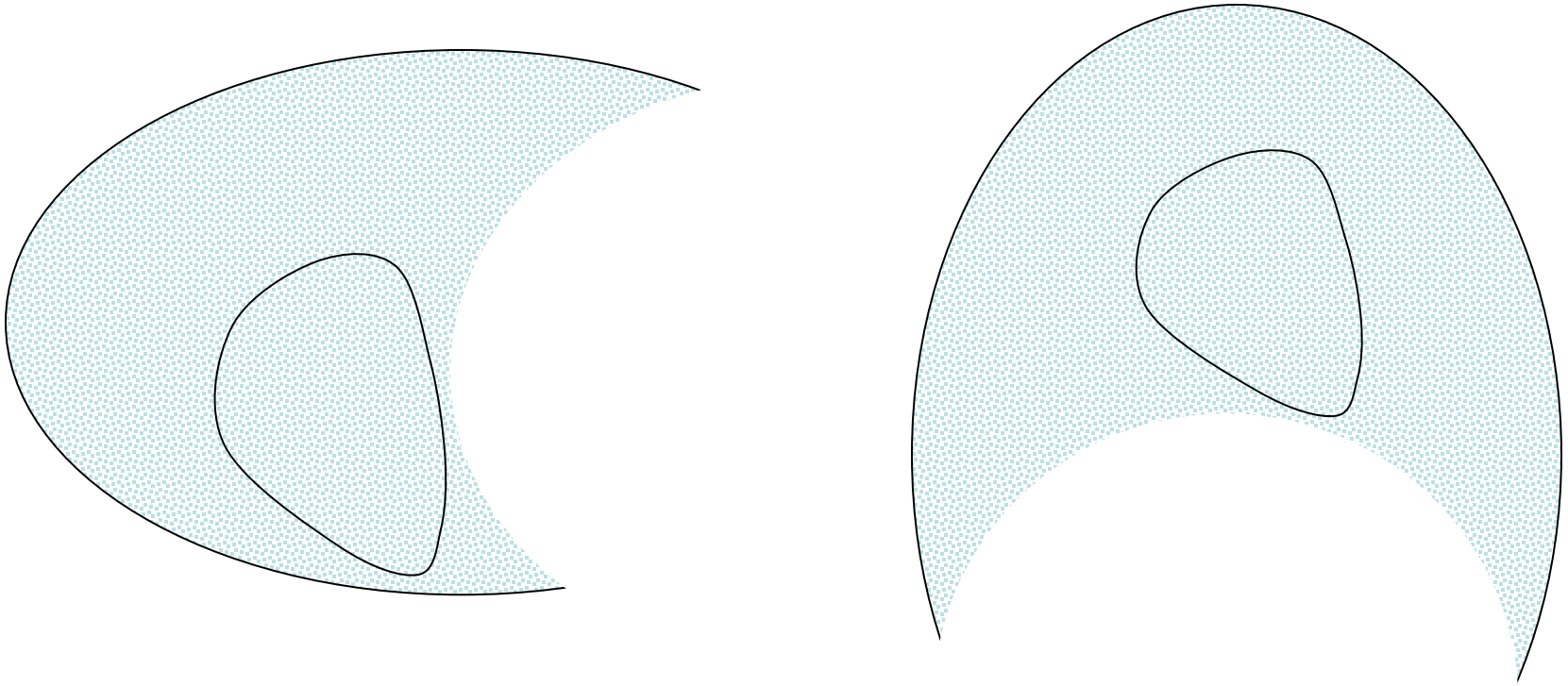


Alveolar pattern: When tiny alveolar airspaces are infiltrated with inflammatory fluid, hemorrhage or neoplasia, the soft-tissue opacity highlights the larger airways creating hallmark dark “air-bronchograms”

For excellent examples of alveolar patterns and more, see the VetGo discussion of thoracic rads:
http://www.vetgo.com/cardio/concepts/concsect.php?conceptkey=20292#

Adapted from: Pasquinis & Spurgeon, Anatomy of Domestic Animals, 11th ed. pp. **620**, 614-625

Radiographic lung patterns: Interstitial

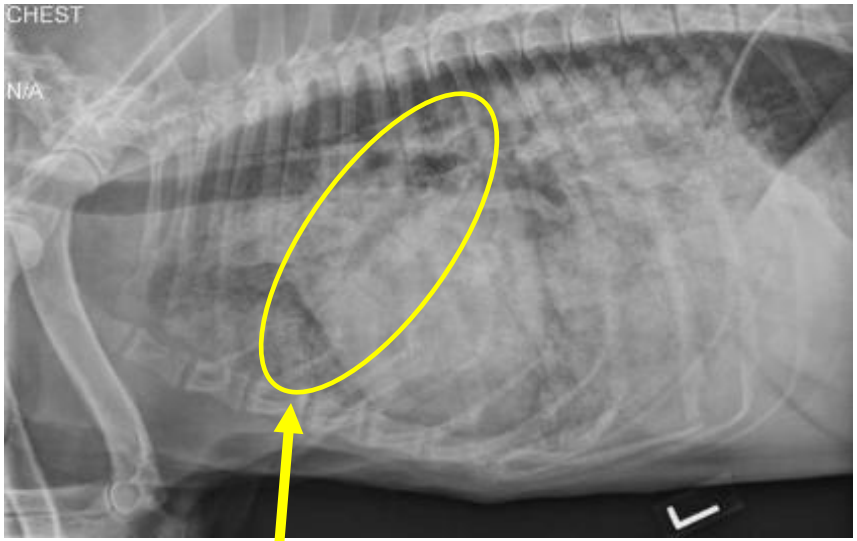


Interstitial pattern: Hallmark is decreased visualization of pulmonary vessels, cardiac and diaphragm silhouettes. Generally a less severe manifestation of alveolar pattern, also caused by infiltration of inflammatory fluid, hemorrhage or neoplasia into tiny alveolar spaces.

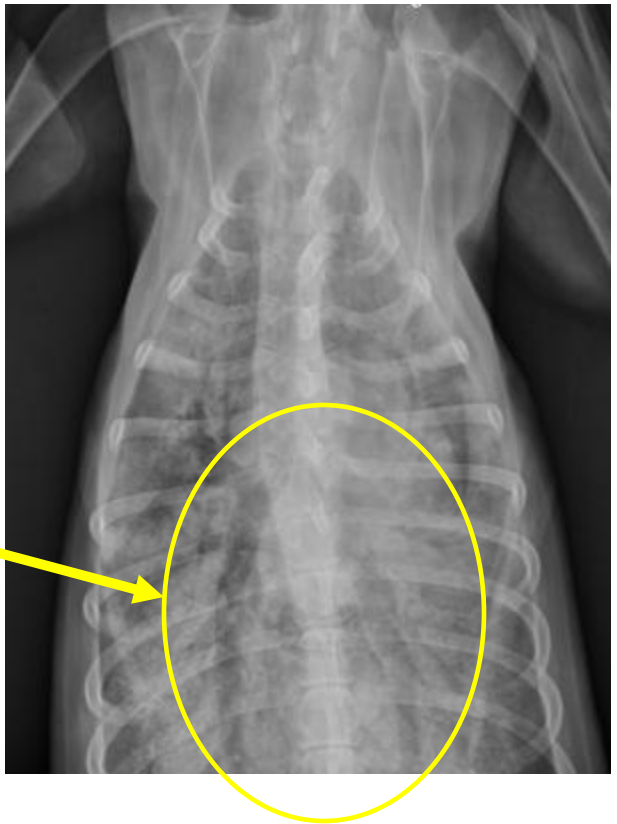
For an clear discussion of lung patterns, see Dr. Anne Bahr's summary:
http://www.petrays.com/pdf/VPN%20Diagnosis%20May08.pdf

Adapted from: Pasquinis & Spurgeon, Anatomy of Domestic Animals, 11th ed. pp. **620**, 614-625

Radiographic lung patterns:
Alveolar with air bronchograms and interstitial



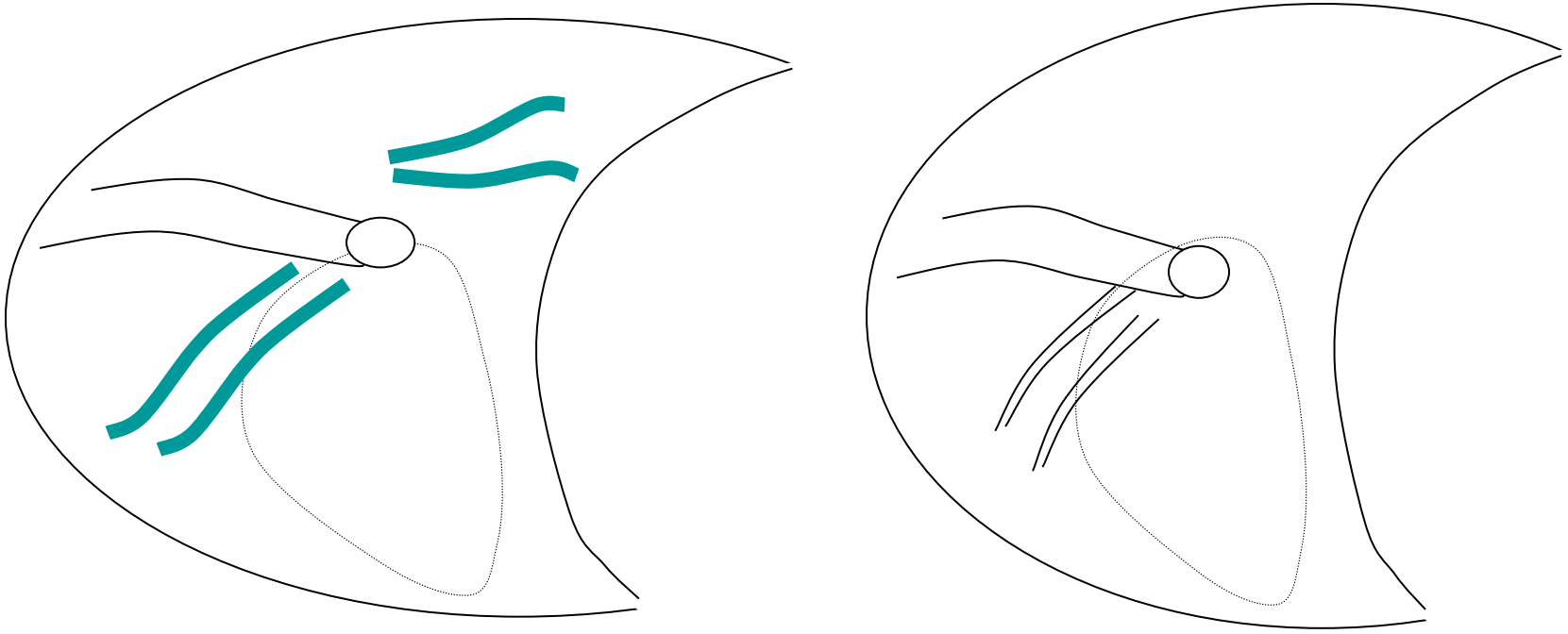
Alveolar pattern with characteristic air bronchograms



General interstitial pattern in caudal lung area obscures cardiac silhouette, diaphragm

Images courtesy: Dr. Terri Defrancesco

Radiographic lung patterns: Vascular



Vascular pattern: Enlarged (hypervascular) or diminished (hypovascular)

Radiographic example: of vascular pattern in a dog with severe heartworm disease:
http://www.merckvetmanual.com/mvm/htm/bc/cirhw07.htm

For a good summary on evaluating thoracic vasculature and cardiac anatomy, see
http://www.petrays.com/pdf/VPN%20Diagnosis%20July08.pdf