

# Digital Download

Information and insights into radiography using your IDEXX Digital Imaging System

## Commonly Misdiagnosed Radiographs

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Having a high-quality radiograph doesn't automatically mean you have a clear answer. Below are six examples of how a final diagnosis can differ from what you initially see. Lift the flap to see the final diagnosis for each radiograph.

Volume 1 No. 4

Misdiagnosed Radiographs

### Initial Diagnosis

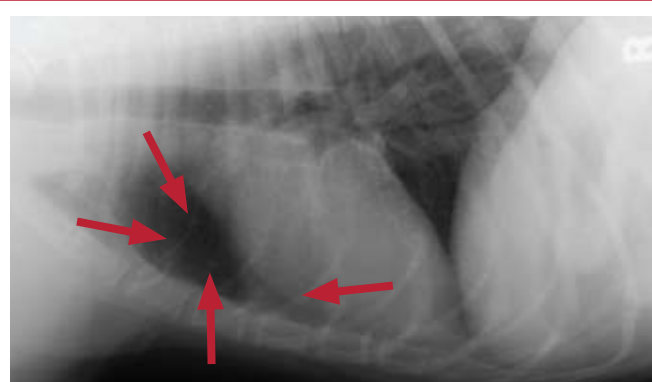
### Final Diagnosis

**1** **Mediastinal mass displacing the trachea dorsally.** This is a common misdiagnosis made in the evaluation of a workup of coughing or other respiratory disorders. In an effort to identify a cause for cough, veterinarians misinterpret the elevation of the trachea in the cranial thoracic spine as a mediastinal mass.



**The trachea in this patient is within normal limits.** Careful examination of the radiograph reveals that there is no opacity displacing the trachea dorsally. As such, a mediastinal mass is not present. The trachea is elevated because of the positioning of the head and cervical spine. If the cervical spine is flexed (nose pointed toward the paws) this "folds" the trachea in the thorax, creating the "mediastinal bump" in these images. If the head is fully extended during image capture, the trachea assumes the normal, straight course through the mediastinum.

**2** **Pulmonary metastatic disease.** Although nodular change is noted throughout the lungs of this patient, the key to interpretation in this case is that the nodules are not soft-tissue opaque. If these nodules are not identified as being of mineral opacity, it can lead to an incorrect interpretation.



**Pulmonary osteomatosis.** The small opacities in the lungs of this patient represent pulmonary nodular disease, but these nodules should be identified as benign, mineralized, pulmonary nodules. The keys to interpretation in this case are the size and opacity of the nodules. The smallest soft-tissue opaque nodules that could represent pulmonary metastatic disease and that can be identified radiographically are approximately 4 mm in size, and are faint and not very opaque. These nodules are approximately 1–2 mm and are quite opaque for their size. Therefore, they must represent mineralized pulmonary lesions. Focal mineralized pulmonary lesions should be interpreted as benign and incidental findings.

**3** **Mineralized hepatic mass.** Identifying an abnormal mineral opacity is important in this case. However, the location of the opacity is the key to interpretation. This lesion arises from the region of the gall bladder, which should prompt the observer to include disorders of the gall bladder on the rule-out list.



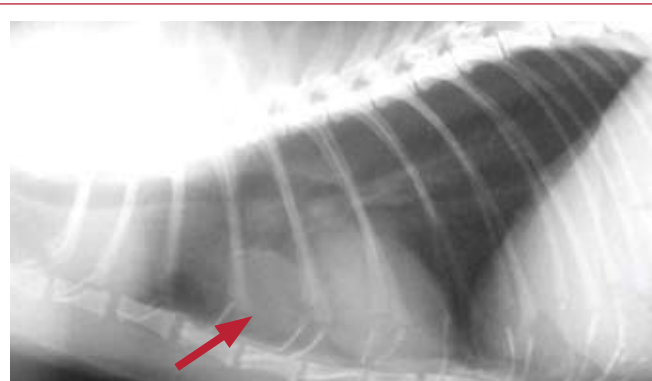
**Incidental mineralized biliary contents or biliary calculi.** Mineralization identified in the liver in the region of the gall bladder is often misinterpreted as a significant mineralized liver mass. In most cases, however, mineralization associated with the gall bladder is an incidental finding. In most cases of biliary mineralization or biliary calculi, no further evaluation or therapy is recommended. Although biliary calculi are identified as seemingly incidental findings on survey radiographs, their appearance should be noted. Dogs and cats will not become symptomatic for these calculi, but in rare cases small biliary calculi can result in a biliary obstruction that will require surgical intervention.

**4** **Mineralized neoplastic abdominal mass.** Generally, the lesion is correctly identified as a mineral opacity. Although dystrophic mineralization may be identified in abdominal masses, it generally has an irregular appearance. The mineralization in this lesion is smooth and has a benign appearance. This diagnosis correctly identified mineralization but was incorrectly interpreted as being an aggressive lesion.



**Nodular fat necrosis.** The ovoid mineral opacity in these images represents incidental, benign, nodular fat necrosis. These lesions are also known as "Bates bodies" or "Bates floaters." Nodular fat necrosis appears as an oval, mineralized, soft-tissue mass in the abdominal fat. These lesions are most commonly seen in older cats. Lesions with this appearance are most likely incidental findings and should not be confused with neoplastic abdominal masses.

**5** **Neoplastic mediastinal mass lesion.** The lesion is correctly identified as being a mass lesion, however, many veterinarians do not consider that there are mass lesions other than neoplastic mass lesions. Other rule-outs for any mass lesion are a benign cyst, a granuloma or an abscess.



**Incidental feline cranial mediastinal cyst.** Although ultrasound is necessary to definitively differentiate a benign cyst from a significant mass, veterinarians should be aware that many cranial mediastinal mass lesions with this appearance are actually benign cysts that carry an excellent prognosis. The vast majority of mediastinal cystic lesions in the feline have a benign course and do not require treatment. Feline mediastinal cystic lesions are developmental anomalies of branchial, parathyroid, thyroglossal duct and pleural origin.

**6** **Cranial cruciate ligament avulsion fracture or stifle joint neoplasia.** In this case, there is mineralization associated with the stifle joint. A key to interpretation is that there is no soft-tissue swelling associated with the joint (although that is difficult to determine in this image). There is also no evidence of lysis or a "fracture bed" in the proximal tibia. Another key to interpretation is that this is a bilateral change.



**Meniscal mineralization and arthritic change.** Meniscal mineralization and degenerative joint disease are often seen in older cats as a manifestation of degenerative change. There is generally no clear relationship with clinical lameness. The benign appearance and bilateral presence of disease should prompt the observer to consider that a tumor or traumatic lesion is unlikely, because tumor and trauma are generally not bilaterally symmetric. It may also be interesting to note that in one study meniscal mineralization is also encountered in lions, tigers, leopards, jaguars and cougars, but not in bobcats.

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