SPINAL RADIOGRAPHS

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It is important to have a strategy to assess radiographs. Clinicians often think radiographs are not useful because cursory "looks" are frequently not diagnostic, thus the need for a strategy! Assuming that the radiographic technique is appropriate and two orthogonal views are ALWAYS available (radiographic studies with only lateral projections are not only inappropriate but could be considered even unethical), interpretation of radiographs should start by first counting the number of vertebrae in any given region (lumbar, cervical). Then attention should be given to the shape and density of each vertebral component – body, processes (articular, transverse, spinal), intervertebral spaces and foramina. The author finds useful to look for a linear pattern (follow the lines!) when interpreting the radiographs.

Survey spinal radiographs can provide very useful diagnostic information. Obvious osseous tumors, advanced discospondylitis, displaced fractures or luxations, and congenital vertebral anomalies (e.g. hemivertebrae), may be appreciated on survey spinal films in the unanesthetized patient. It is typically not practical to anesthetize dogs for radiographs, therefore sedation with analgesia is absolutely essential to assist in the patient positioning. Many spinal conditions are painful and might also be associated with muscle spasms, and in some case muscle relaxants may also be beneficial.

High-quality spinal radiographs may reveal a number of abnormalities. In patients with intervertebral disc disease, collapsed disc spaces, decreased size of the intervertebral foraminae, collapsing of the articular processes or mineralized disc material within the vertebral canal or intervertebral foraminae may be appreciated. These changes are easier to be appreciated in the thoracolumbar compared with the cervical vertebral region.

Subtle vertebral fractures or subluxations with minimal displacement may be more readily apparent on radiographs performed with the patient anesthetized versus radiographs procured when the patient is awake. It is important to be aware that the sensitivity of spinal radiographs for fractures and luxations is just about 75%, meaning that one out of four vertebral fractures of luxations can be missed on survey radiographs.

Other radiographic abnormalities that can be appreciated with careful examination of properly positioned radiographs include subtle bony lesions associated with neoplasia (e.g. mild bone lysis), abnormalities associated with articular facets (including small fractures), and subtle bony changes suggestive of early discospondylitis (e.g. small regions of vertebral end plate lysis). In general, survey radiography is less sensitive than CT for identifying subtle bone lysis and small fractures.

References

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