

Spinal radiology: an approach - by Chris Warman

Not every patient presented with obvious spinal cord disease needs spinal radiology. The decision on the necessity for spinal radiology needs to be made following complete clinical and neurological examinations. There is little value in imaging the cervical spine when the neurological findings are indicative of a lower motor neuron lesion involving the hindlimbs. Similarly, there is little value in radiography of an acutely paralysed Dachshund when the clinician is unwilling to perform either lumbar or cisternal myelography and where the practice does not have a clinician capable of performing decompressive surgery. The clinician in the above instance already knows with a high degree of certainty that the clinical signs are due to a Type I intervertebral disc protrusion and knows definitive treatment for this patient lies outside the skill set of the practice. Performing a survey study without progressing to contrast radiography and definitive treatment is likely to result in a significant delay in the commencement of an appropriate treatment plan should the patient be referred. Additionally, when the patient arrives at a referral institution, either heavily sedated or recovering from anesthesia, an accurate neurological examination is near impossible and valuable prognostic indicators can be masked by drug therapy.

A complete spinal series from the cervical through to the lumbosacral region is typically a time-consuming process and often unnecessary. The neurological examination should have allowed the lesion to be localized and this region becomes the focus of the radiographic study. There are two major advantages in restricting the number of radiographs in any survey series. One, the radiographer can concentrate on producing the appropriate quality images of the region of interest. Two, the clinician interpreting the radiographs can focus their attention on a small number of radiographs from which there is likely to be a higher diagnostic yield.

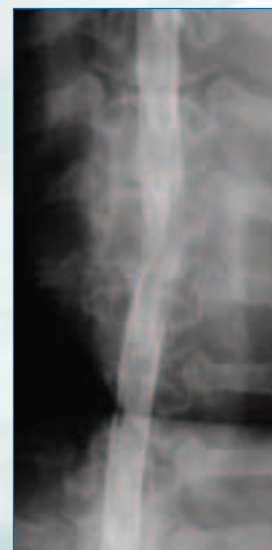
It is frequently stated in veterinary imaging texts that meticulous positioning is critical in imaging the spine. It is also critical that a meticulous examination is obtained to maximise the diagnostic value of the radiographs produced. It is important to sit down and get comfortable in order to read the radiographs. Review the radiographs on a light box. Orientate the radiographs correctly on the viewer and do this consistently. Have a hot light

available. A hot light is extremely advantageous when looking for subtle intervertebral disc calcification and dorsal protrusion of disc material into the spinal canal. Always reevaluate the radiographs, particularly if the radiographs were initially evaluated when wet. Subtle lesions often become apparent on dry radiographs that were not obvious when they were wet.

Evaluating spinal radiographs can be challenging. The complexity and number of spinal structures within the images requires a great deal of concentration from the reviewer and a thorough understanding of the radiographic anatomy. It is critical that the clinician is aware of anatomic variability that exists in the normal spine and having access to both a radiology atlas and an anatomy text is mandatory when evaluating spinal radiographs. When evaluating radiographs of the spine it is important to evaluate small segments at a time. I evaluate the spine in "segments of three", restricting comparison to the immediately adjacent comparable spinal structures.



Mineralised lumbar intervertebral disc



Hour glass compression of myelogram contrast column