Fractures of the spine

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Fractures of the spine are quite uncommon in dogs and cats. These fractures are usually caused by high impact trauma including road traffic accidents and running into objects including summersaulting. The typical areas involved are the cervical spine and the lumbar spine. Fractures of the second vertebra C2 or epistropheus involving the dens have the highest prevalence in the cervical spine. These fractures usually occur through a combination of bending, flexion and rotational forces. In the lumbar spine, fractures at the level of the last lumbar vertebra including L5-L7 are most common. These fractures typically occur through excessive bending of the lower back and can include physeal fractures of the vertebral endplates. Fractures in the cervical can result in severe damage of the spinal cord with a very guarded prognosis. As the cervical spinal canal is quite wide initial displacement of vertebrae can still be met with a favourable outcome if appropriate realignment and stabilisation is executed. The same is true for the lower lumbar region especially as the myelum ends at the level of L5-L6 and continues as the cauda equine which is much more resilient to trauma than the spinal cord itself. Stabilisation of vertebral fractures can be accomplished with a variety of techniques including poly-ethylene spinal sandwich or Lubra plates, pins or screws in combination with poly-methyl methacrylate PMMA or plate and screw systems (1-3). The technical challenge in treating spinal fractures is the limited amount of bone stock available for pin and screw purchase. An additional issue is the fact that the spine derives its stability from a ventral compartment including the vertebral bodies and intervertebral discs and a dorsal compartment including the zygapophyseal joints, dorsal lamina and spinous processes. In most cases stabilisation of vertebral fractures is accomplished through a ventral or a dorsal approach and in a limited number of cases by combining both. In the cervical area stabilisation is most commonly accomplished through a ventral approach while the approach is from dorsal in the lumbar spine. Additional damage to the spinal cord and spinal nerves should be prevented at all costs. This included meticulous surgical technique to accomplish decompression and implant positioning without entering the spinal canal. A thorough neurologic examination prior to surgical planning is essential. Diagnostic imaging combining MRI and CT is the best way to assess both soft tissues and bone, but costs can be a limiting factor. In dogs and cats even in the absence of deep pain sensation results can be favourable but a recovery up to six weeks should be anticipated.

References