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CERVICAL DISTRACTION-FIXATION IN DOGS WITH CAUDAL CERVICAL SPONDYLOMYELOPATHY

Introduction

Disc-associated caudal cervical spondylomyelopathy (CSM) occurs in large breed dogs and is treated by spinal fusion employing an intervertebral cage and instrumentation^(1,2). The present study determined in a retrospective manner the long term outcome of patients with CSM in which the aim was spinal fusion.

Materials and methods

Ten large breed dogs underwent surgery for disc-associated CSM (2013 – 2016). The surgical technique consisted of distraction using a Syncage® (n=9) or a TTA cage (n=1) and fixation with two Unilock® plates. Follow-up included Helsinki pain score questionnaire, neurological grading (Griffith scale), radiography, and computed tomography (CT). Two dogs died of unrelated causes and with the owners' consent the cervical bone specimens were subjected to post mortem micro (μ)-CT and histology.

Results

Follow-up time after surgery was 9 to 47 months. Overall, the Helsinki pain scores improved significantly ($p < 0.01$), as did the neurological Griffith score ($p < 0.01$). On CT the mean \pm SD volume for bone in the cage (figure 1) was $79.5\% \pm 14.3\%$ (control 48.5%) and for compact bone $53.0\% \pm 23.4\%$ (control 10.9%). Implant failure was evident in 4 dogs and plates were removed in 1 dog. No cage removal was needed. Two dogs were euthanized at 22 and 40 months after surgery because of histiocytic sarcoma and chronic prostate disease. These spine specimens underwent μ -CT (figure 2) and spinal fusion through the cage was demonstrated. Histology on undecalcified sections is ongoing.

Discussion and Conclusion

Clinical outcome in dogs with disc-associated CSM treated by distraction-fixation using an intervertebral titanium cage and plates was good. There is direct evidence of interbody spinal fusion on (μ)-CT. Assessment of bone fusion through the cage on CT is hampered by titanium scattering and precise identification of the bone volume in the cage requires correction for the titanium scattering.

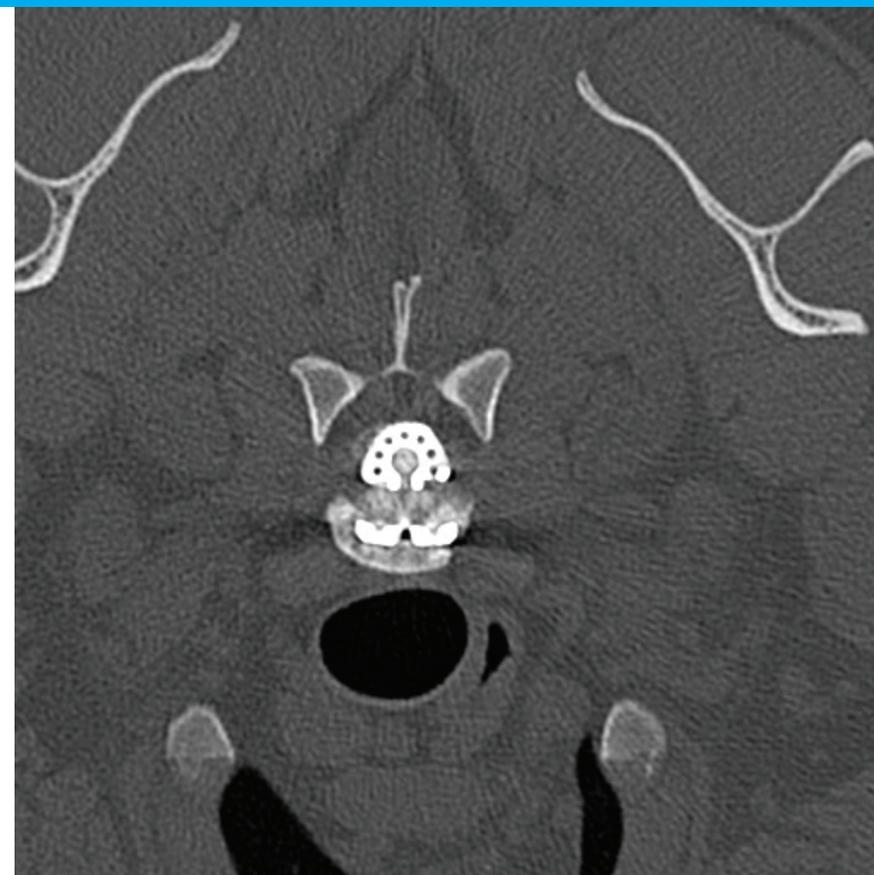


Figure 1. Transverse computed tomography of the cervical spine in a 7 year-old Bernese Mountain dog with caudal cervical spondylomyelopathy that underwent spinal fusion using a Syncage® and fixation with Unilock® plating. CT was performed 16 months postoperatively and the centre of the cage is filled with bone.

References

- (1) da Costa RC. Cervical spondylomyelopathy (wobbler syndrome) in dogs. *Vet Clin N Am : Small Anim Pract* 2010;40(5):881-913.
- (2) Bakhsheshian J, Mehta VA, Liu JC. Current Diagnosis and Management of Cervical Spondylotic Myelopathy. *Global Spine Journal* 2017;2192568217699208.

COMPANION ANIMAL

CLINICAL CASES AWARD & RESEARCH AWARD

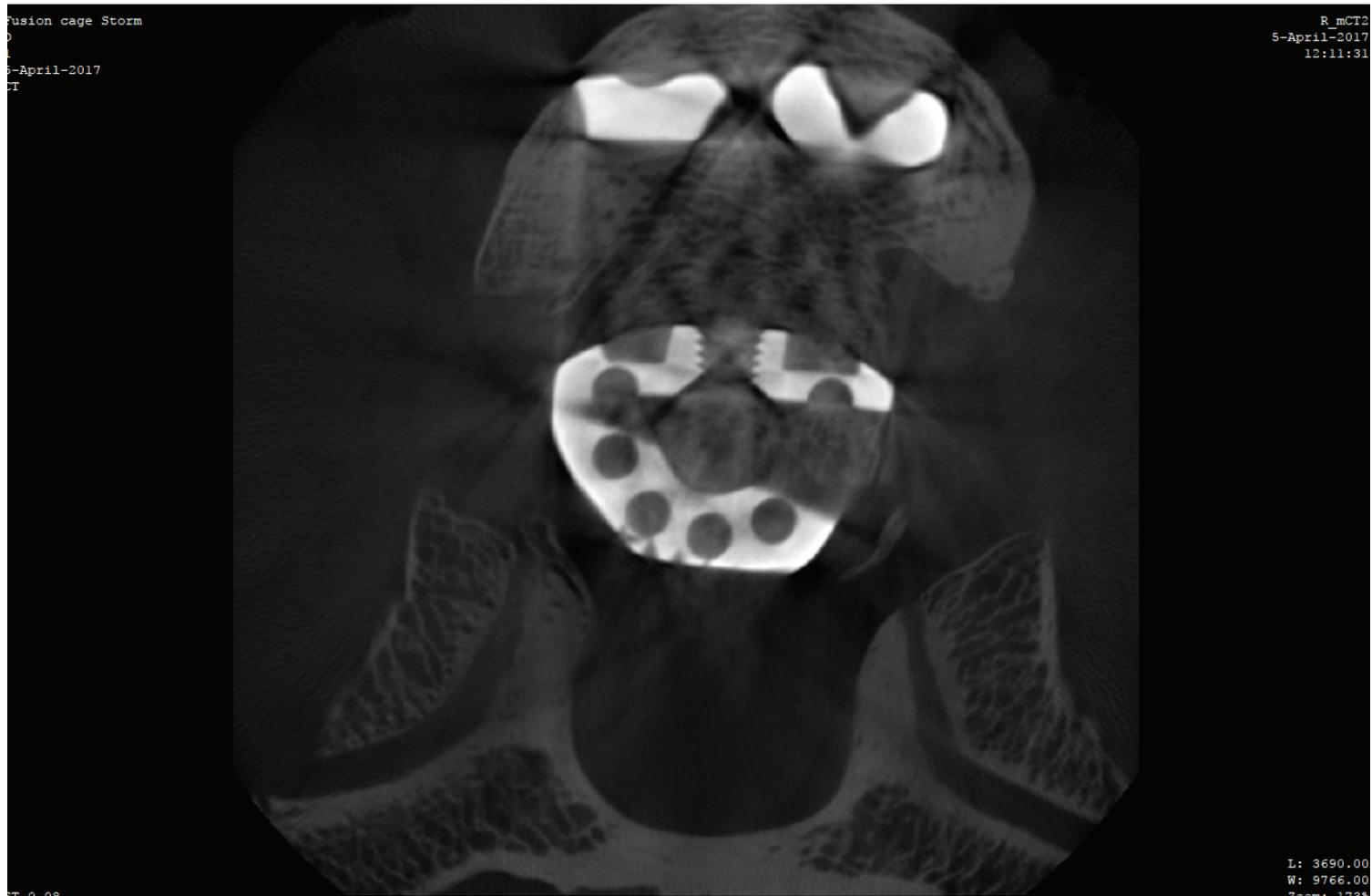


Figure 2. Same patient as figure 1. On micro CT, performed 22 months postoperatively, bone ingrowth is seen in more detail through the Syncage®.