

INTRA- AND INTER-OBSERVER AGREEMENT OF RADIOGRAPHIC STUDIES FOR CERVICAL FACET JOINT OSTEOARTHRITIS IN HORSES

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Abstract

Introduction/Purpose: The aim of this study was to determine the repeatability of radiography and computed tomography (CT) in the diagnosis of cervical facet osteoarthritis in the horse. It was hypothesised that intra-observer agreement would be better than inter-observer agreement and that agreement would be better for CT than for radiographs.

Methods: Radiographs and CT scans of 125 pairs of facet joints (from 28 equine cadaver necks) were evaluated by two observers on two occasions using a newly developed grading system. Intra- and inter-observer agreement was quantified using the kappa statistic.

Results: Moderate to substantial ($k=0.42$ – $k=0.78$) intra- and inter-observer agreement was found on radiographs and CT for deciding on the presence or absence of osteoarthritis of cervical facet joints. Agreement for deciding on the radiographic signs of osteoarthritic lesions present was similar on radiographs and CT (moderate to substantial; $k=0.42$ – 0.75). However, inter-observer agreement was slight on radiographs ($k=0.11$) and fair on CT ($k=0.40$).

Discussion/Conclusion: It has been demonstrated that laterolateral radiographs and CT have an acceptable repeatability for diagnosing osteoarthritis of the cervical facet joints, even if the agreement on specific radiographic signs is poor to moderate. Laterolateral radiographs and CT have similar precision for determining if osteoarthritis is present on cervical facet joints, suggesting that superimposition does not play major role in determining agreement. Further studies will evaluate the accuracy of radiography and CT by comparing it to post-mortem findings as gold standard.