Computed tomography is superior to radiography for detection of feline elbow osteoarthritis

Measurement of osteophytic spurs on the anconeal process increases sensitivity

CONCLUSION

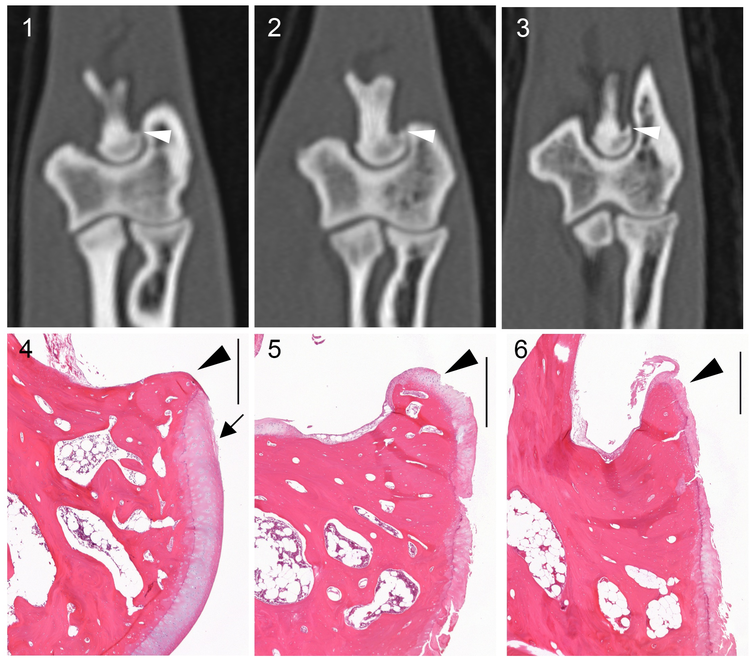
CT of the feline elbow including measurement of osteophytes on the anconeal process lateral margin is superior to radiography for OA detection and should be considered for OA diagnosis, particularly when mild OA changes are of interest.

STUDY OBJECTIVES

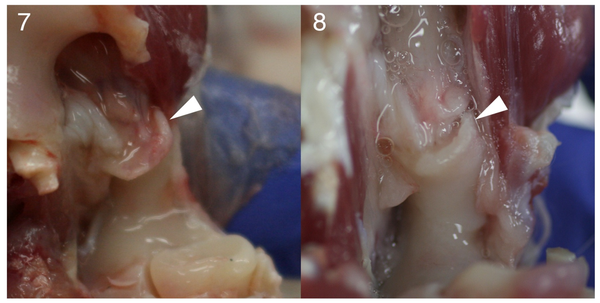
- Compare radiography and CT to histologic elbow OA,
- Investigate the stage of elbow OA that radiography and CT detect,
- Search for specific changes in CT images strongly predictive for feline elbow OA.

METHODS

Elbows from 29 cats were evaluated by radiography and CT, and articular cartilage lesions graded histologically and macroscopically. Three further joints were sampled to specifically evaluate the morphology of the anconeal process.



CT images and histology sections showing the anconeal process lateral margin (arrowheads) in the same region in 3 elbows. **Figs 1 and 4.** No osteophytic spur and apart from very mild superficial fibrillaton (arrow) the cartilage is normal, CT measurement was 0.33 mm. **Figs 2 and 5.** Mild osteophytic spur, cartilage shows moderate degenerative changes, CT measurement was 0.82 mm. **Figs 3 and 6.** Moderate osteophytic spur, cartilage shows severe degenerative changes, CT measurement was 1.29 mm.



Macroscopy photos showing the anconeal process osteophytic spur (arrowheads). **Fig. 7**. The osteophytic spur from the elbow shown in Figs. 2 and 5. **Fig 8**. The osteophytic spur from the elbow shown in Figs. 3 and 6.

RESULTS

Osteophytic spurs on the lateral margin of the anconeal process that were ≥ 0.5 mm in CT images had high sensitivity for moderate/severe histologic OA, moderate sensitivity for mild histologic OA and high specificity for all stages of OA.

In moderate/severe histologic OA both radiography and CT subjective OA diagnosis had moderate sensitivity. However, in mild histologic OA CT grading had low sensitivity and radiography did not detect OA.

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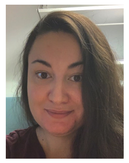

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