RESULTS

A total of 119 dogs were recruited (65 Non-Asp and 54 Asp), with a median age of 9.9 years (interquartile range 7.2–11.3 years). Overall, 88.2% (95% confidence intervals 82.4–94.0) of the samples were diagnostic. There was a significant difference ($P=0.037$) in the prevalence of diagnostic samples between the Asp (81.5%; 95%CI 71.1–91.8) and Non-Asp groups (93.9%; 95%CI 88.0–99.7). Non-diagnostic samples were significantly associated with lower cellularity, poorer cell preservation and

more severe haemodilution ($P<0.001$ for all). However, no significant difference in the prevalence of these specific variables was found between the Asp and Non-Asp groups.

CONCLUSIONS

For fine needle sampling of the liver a non-aspiration technique is considered superior to aspiration, resulting in a greater proportion of diagnostic samples.

Can CT measurements of femoral varus be performed reliably, even between reconstructions?

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Excessive femoral varus has been implicated in the aetiology of canine medial patellar luxation. Several reports have demonstrated that malpositioning for radiography in terms of either femoral elevation or rotation can have marked effects on the measured varus angle. Three-dimensional reconstruction of CT images offers the clinician the possibility to eliminate these positional confounders. Although one recent study reported good repeatability for measurements made from a single reconstruction, we are not aware of previous reports of reproducibility of varus measurements between reconstructions, a situation with more real-life applicability. Inter-reconstruction reliability can be considered a proxy for scan-rescan reliability, for which little information is available in either the veterinary or human literature.

CT scans of 20 canine femora underwent 3D reconstruc-

tion by 3 independent observers. Reconstruction spin and tilt data were used to assess reconstruction variability. Two observers of differing experience levels made 3 independent readings of femoral varus using their own reconstructions, and measurement reliability was assessed using the repeatability coefficient. The repeatability coefficient represents the interval within which two measurements on the same patient are expected to fall in 95% of cases. Coordinate data from one set of reconstructions and the spin and tilt data obtained above were used to specify a model to predict the effect of reconstruction variability on varus measurements.

Intra-observer repeatability coefficients were 2.4° and 2.6°, and the interobserver repeatability coefficient was 3.5°. Reconstruction variability yielded a spin-tilt ellipse area of 0.59 deg², and spin and tilt variation were considerably lower than that which has been reported for human femoral scans. Surprisingly, reconstruction variability produced minimal effects on simulated varus measurements in contrast to previous experimental reports. Possible explanations include changing landmark appearance which cannot be modelled and different magnitudes of femoral subtense (procurvatum) in our specimens compared to previous reports.

CT varus measurements can be performed with clinically relevant levels of precision both within and between reconstructions, regardless of experience level. Provided strict reconstruction criteria are followed, reconstruction variability will be low and likely to have little influence on the values obtained.