STUDY ON EXEMPORARY CYTOLOGICAL EXAMINATION FROM IMAGING-GUIDED BIOPSY

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INTRODUCTION

Imaging-guided biopsies are essential in the diagnostic process of companion animals. The goals of this study are: to evaluate whether extemporaneous cytology can give information whether the sample taken is diagnostic or not, and to compare the cytological diagnosis with the histological one.

METHODS

Biopsy samples were collected using Tru-Cut (14-16 G) and Bone needle (8-10 G) (Fig. 1 and 2). The biopsy samples were rolled onto slides (Fig. 3), and then placed in 10% formalin for histological examination. The cytological examination was performed immediately and if cellular the procedure was suspended, otherwise other biopsies were performed.

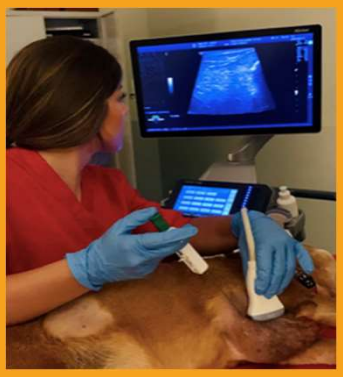

Fig. 1 An operator is performing an ultrasound-guided Tru-Cut 14G biopsy on a dog with a subcutaneous mass in the right axillary region.

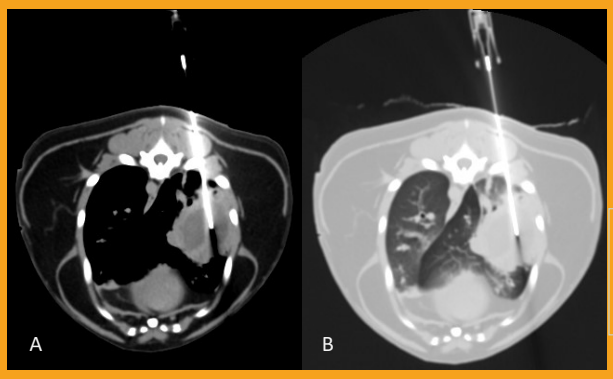

Fig. 2 CT-guided biopsy of a lung mass in a DSH cat. Soft tissue (A) and lung (B) windows show the semi-automatic Tru-Cut needle inserted within the mass lesion.

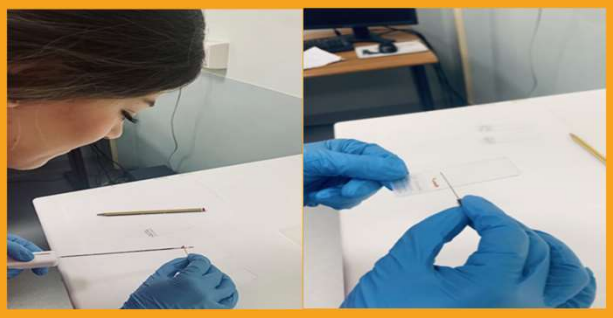

Fig. 3- Rolling of the specimen obtained using a semi-automatic 14 G spring-loaded Tru-Cut, on previously identified slides, using a sterile hypodermic needle.

RESULTS

Imaging-guided biopsies were performed in 70 patients (65 dogs and 5 cats), 55/70 US-guided and 15/70 CT-guided. Histology was diagnostic in 69/70 cases (98.6%). The cytological examination was accurate for the presence of cells of the correct type in 54 cases out of 70 (77.1%), in 1 case in particular cytologically non-diagnostic also the histology was non-diagnostic. General accuracy for cytological diagnosis was 75.7% (53 cases out of 70). Among non-diagnostic, lesions more represented were carcinomas 3/16 (18.8%), followed by fibrosarcoma and hemangiosarcoma 2/16 each (12.5%).

CONCLUSION

The results of the present study demonstrates that the impromptu cytological examination can be useful in verifying the presence of cells and therefore to evaluate whether a biopsy is diagnostic or not. This is especially useful if the tissue to be biopsed is in a difficult position, or at high risk for the patient. The cytological diagnosis, although less precise, is still relatively high with the advantage that it is immediate and it is not necessary to wait for the outcome of the histopathology.

REFERENCES

1. Finn-Bodner, S.T.; Hathcock, J.T. Image-Guided Percutaneous Needle Biopsy: Ultrasound, Computed Tomography, and Magnetic Resonance Imaging. Semin. Vet. Med. Surg. Small Anim. **1993**, 8, 258–278.
2. Henninger,W. Use of Computed Tomography in the Diseased Feline Thorax. J. Small Anim. Pract. **2003**, 44, 56–64.
3. Vignoli, M.; Saunders, J.H. Image-Guided Interventional Procedures in the Dog and Cat. Vet. J. **2011**, 187, 297–303.
4. Massimo Vignoli, Roberto Tamburro, Andrea Felici, Francesca Del Signore, Annalisa Dettori, Morena Di Tommaso, Angela Ghiraldelli, Rossella Terragni, Francesco Simeoni, Ilaria Falerno and Arianna Miglio. Clinical Value of CT-Guided Fine Needle Aspiration and Tissue-Core Biopsy of Thoracic Masses in the Dog and Cat. Animals, **2021**, 11, 883.