

Evaluation of a 14 gauge and 16 gauge side-cutting biopsy needle and four different negative aspiration pressures used for obtaining brain tissues for histopathology in dogs

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Currently, stereotactic brain biopsies in dogs are performed with a 14 gauge side-cutting needle; however, this procedure is associated with a significant level of morbidity and mortality. In an attempt to reduce the risks involved with this diagnostic technique, the authors wanted to evaluate a smaller gauge side-cutting needle. The purpose of our study was to evaluate the effectiveness of the 14 gauge and 16 gauge side-cutting biopsy needles at four different aspiration pressures for obtaining brain tissues for histopathology in dogs.

Twelve dog cadaver brains were used for sample collection. The cerebral cortex was randomly sampled using the combination of two different gauges of needles and four different aspiration pressures. These biopsies were evaluated grossly and with histopathology. The weight, surface area, architecture and degree of tissue artifact for each biopsy sample were evaluated.

A total of 96 biopsy samples were obtained (12 samples for each of the 8 combinations). Both the 14 and 16 gauge needles provided adequate tissue for histological interpretation (96-100%). There was a significant relationship between the amount of aspiration pressure and the amount of tissues obtained for both gauges ($p < 0.05$). However, the amount of aspiration pressure did not affect the degree of tissue artifact for both gauges ($P > 0.05$). Overall, we conclude the 16 gauge side-cutting biopsy needle is just as effective as the 14 gauge needle for obtaining brain tissues for histopathology in dogs. Based on Dunn's Multiple Comparison Test, the most effective aspiration pressure for both gauges was 2.0 mls.