# Stereotactic brain biopsy in dog

The objective of a pilot study was to describe the application and first preliminary data of a novel MRI and CT compatible patient-specific facemask for stereotactic brain biopsy of intracranial lesions in dogs.

Five client-owned dogs presenting for neurological deficits consistent with forebrain disease were included in the study. All dogs had MRI findings consistent with an intracranial lesion. Using images obtained from either MRI or CT, a virtual three-dimensional model of each dog's face was generated. The contact surface of each dog's face was selected for facemask design and a target point for biopsy was chosen using specialised software and toolkits. A patient-specific facemask with an attached biopsy port with premeasured and preselected trajectory was then fabricated by a 3D printer. The facemasks were sterilised and used intraoperatively to obtain biopsy samples. Biopsy samples were submitted for both cytological and histopathological evaluation.

The diagnostic yield based on specific histological diagnosis was 80%. The one case in which a histological diagnosis could not be confirmed had a cytological interpretation consistent with meningioma. No major complications were observed during or immediately after brain biopsy and all dogs were discharged from the hospital within 72 hours postprocedure.

In conclusion, patient-specific facemasks appear to be a safe and effective method of brain biopsy in dogs, with minimal complications observed [1].

1)
James MD, Bova FJ, Rajon DA, Carrera-Justiz S, Clemmons RM. Novel MRI and CT compatible stereotactic brain biopsy system in dogs using patient-specific facemasks. J Small Anim Pract. 2017 Aug 26. doi: 10.1111/jsap.12705. [Epub ahead of print] PubMed PMID: 28843044.