

Ventrolateral temporal lobectomy in normal dogs
as a counterpart to human anterior temporal lobectomy:
a preliminary study on the surgical procedure and complications

Abstract of Doctoral Thesis

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Anterior temporal lobectomy (ATL) is a surgical procedure for drug-resistant mesial temporal lobe epilepsy that is commonly performed in human medicine. The purpose of this study was to determine whether ATL-like surgery, i.e., removal of the amygdala and hippocampal head, is possible in dogs, and to investigate its safety and postoperative complications. Eight healthy beagles underwent ATL-like surgery and were observed for 3 months postoperatively. Samples from the surgically resected tissues and postmortem brain were evaluated pathologically. The surgical survival rate was 62.5%. The major postoperative complications were visual impairment, temporal muscle atrophy on the operative side, and a postoperative acute symptomatic seizure. Due to the anatomical differences between dogs and humans, the surgically resected area to approach the medial temporal structures in dogs was the ventrolateral part of the temporal lobe. Therefore, the ATL-like surgery described in this study was named “ventrolateral temporal lobectomy” (VTL). This study is the first report of temporal lobectomy including amygdalohippocampectomy in veterinary medicine and demonstrates its feasibility. Although it requires some degree of skill, VTL could be a treatment option for canine drug-resistant epilepsy and lesions in the mesial temporal lobe.