

Marc Sarrà Rovira. June 2018

## 1. INTRODUCTION

Canine idiopathic epilepsy is a non well known disease. Its diagnosis is based on the exclusion of any other cause of epilepsy. In 2014 the International Veterinary Epilepsy Task Force (IVETF) was created to clarify the knowledge of canine epilepsy (Berendt et al. 2015). Another article including recommendations for systematic sampling and processing of brains has been also published to found epileptogenic lesions (Matiasek et al. 2015).

## 2. OBJECTIVES

1. Identify histopathological lesions in canine brains previously diagnosed of idiopathic epilepsy.
2. Use immunohistochemical markers to study histological changes.
3. Compare canine lesions with those described in human epilepsy.
4. Evaluate the effectivity of the sampling and processing system proposed by the IVETF.

## 3. MATERIALS AND METHODS



2/6 idiopathic  
epileptic dogs and  
1 control dog



Sampling  
Leica TP1020



HE

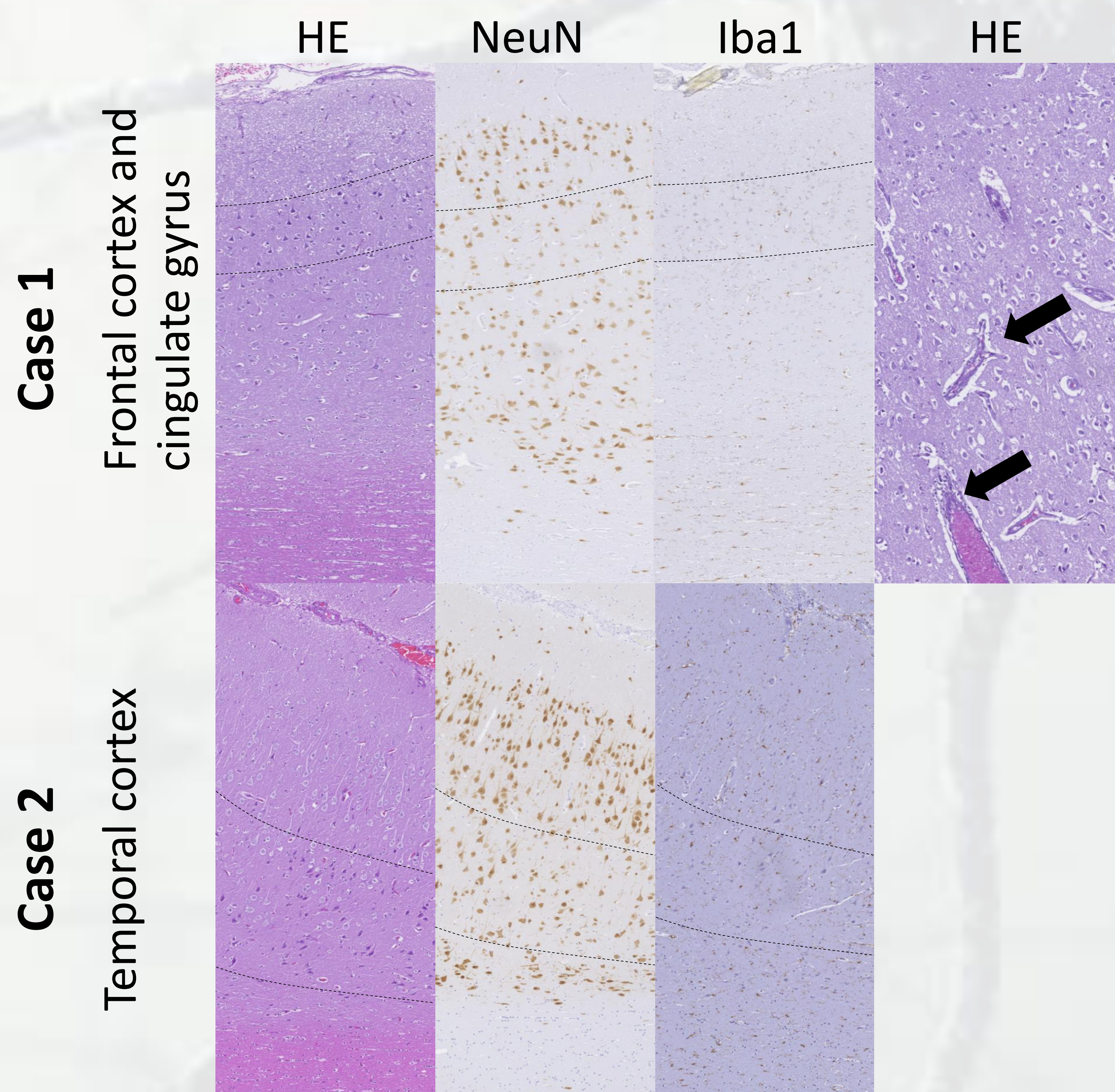


NeuN  
GFAP  
Iba1  
CD3

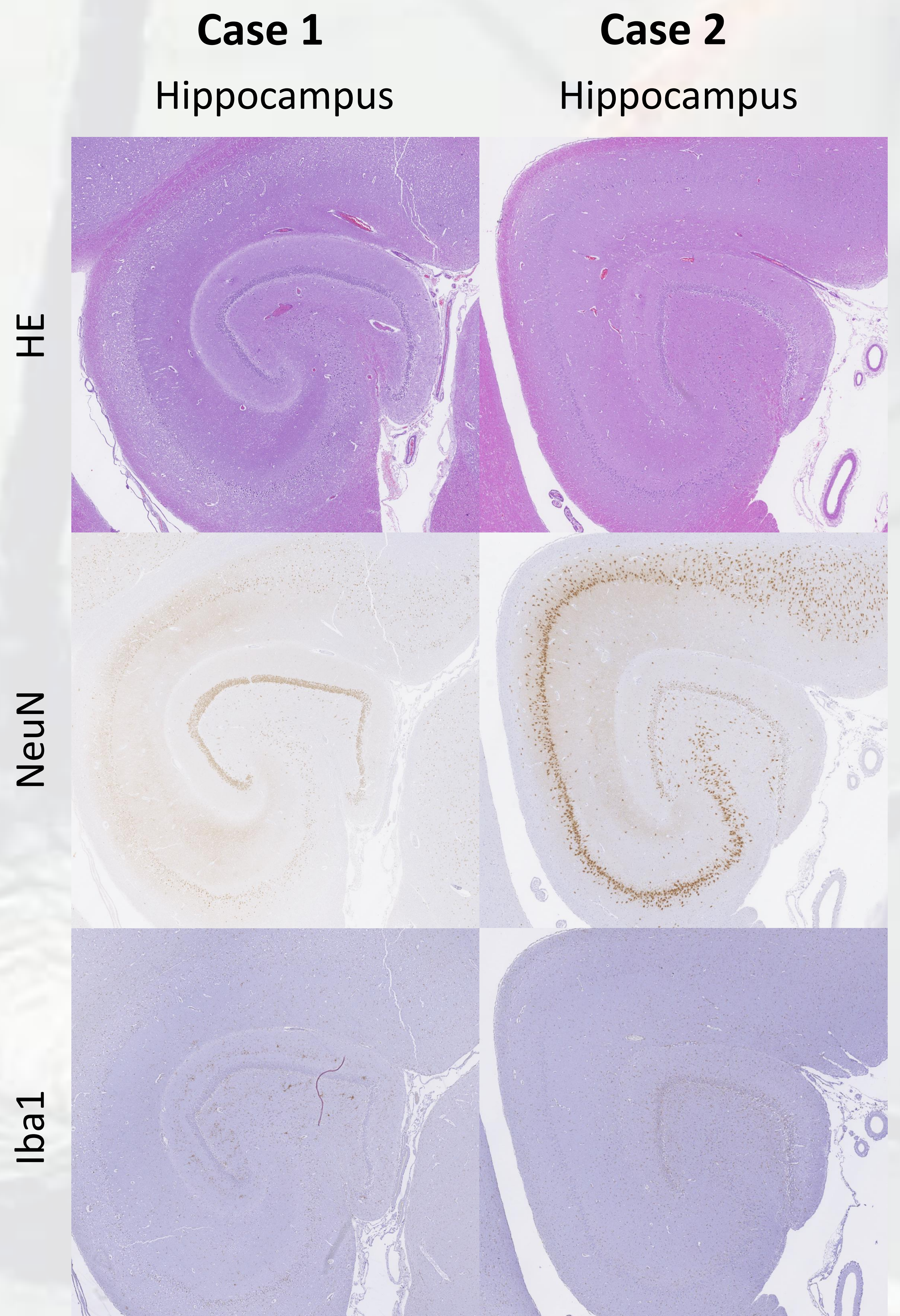


NanoZoomer  
NDP.view2

## 4. RESULTS



**Figure 1. Neuropathological findings in neocortex. Dotted lines marks layer II in case 1 and layer V in case 2. Arrows point perivascular cuffs in cingulate gyrus.**



**Figure 2. Neuropathological findings in hippocampus. Note loss of immunopositivity against NeuN in CA (case 1) and GD (case 2) and mild microgliosis in both cases**

## 5. CONCLUSIONS

1. Case 1 presents perivascular infiltrates, neuronal pyknosis and microgliosis in layer III in frontal cortex and cingulate gyrus. Moreover, presents hippocampal sclerosis (HS) type 3. Case 2 presents the same cortical lesions in layer V of temporal cortex and HS type 1.
2. Immunohistochemical techniques are useful to distinguish lesions not clearly observed in HE, especially NeuN and Iba1.
3. Lesional patterns presented by dogs with idiopathic epilepsy can be compared and classified according to histopathological parameters of human epilepsy:
  - a) First case is compatible with limbic encephalitis.
  - b) Second case is compatible with mesial temporal lobe epilepsy (mTLE) and HS.
4. The complete study of the brains proposed by the IVETF is necessary to describe all the injuries and to understand the disease better, despite the high cost of time and money.