INTRODUCTION

Neurological examination allows clinicians to localize lesions within the nervous system (NS), determine its severity and establish a differential diagnosis. In thalamic lesions, the clinical signs observed during the initial neurologic examination might lead the clinician to mislocalize the lesion. The aim of this study is twofold. In the first instance, a thorough understanding of the thalamus anatomy and identification of the main pathologies. Secondly, it is aimed to establish links between the symptomatology derived from thalamic lesions and the affected nuclei.

THE THALAMUS OF THE DOG

The thalamus is a bilateral and symmetric structure formed by the right and the left thalami. These two thalami come together at the midline forming the interthalamic adhesion. The thalamus is composed by several nuclei divided into four groups regarding their location to the external and internal medullary lamina. The thalamus is often described as a relay station. This is because all the sensory pathways (except olfaction related) travel through the thalamus to the cerebral cortex. Each nucleus possesses functional specializations for dealing with particular types of data and afterwards send it to the appropriate area in the cortex.

THALAMIC PATHOLOGY

SYMPTOMATOLOGY

Clinical signs that might be seen and thalamic related nuclei affected according to de Lahunta and Glass:

- Ventral caudal nucleus → Reduced proprioception and hypalgasia of the neck, the trunk and contralateral limbs
- Postero medial nuclei (medial portion od the VC) → Contralateral hypalgasia of the head
- Ventral lateral nuclei → Hipermetria and ataxia
- Ventral rostral nucleus → Reduced postural reactions
- Reticular nucleus → Consciousness
- Dorsomedial and paraventricular nuclei → Behavioral abnormalities
- Lateral geniculate body → Contralateral hemianopia
- Medial geniculate body → Vestibular ataxia

NEOPLASIA

The incidence of intracranial neoplasia in the dog is 14.5/100,000. Intracranial tumors can affect dogs of any sex and age, although they occur more frequently in dogs older than 5 years.

DIAGNOSIS – MAGNETIC RESONANCE (MR)

MRI is the method of choice for brain examination as it demonstrates superior soft tissue contrast than CT scans.

CASE 1 – THALAMIC INFARCTION

Clinical signs: Mild right head tilt and difficulty to initiate gait more marked in the left forelimb.

MR findings: Hyperintense signal on T2 sequence of a lacunar infarction in the right thalamus.

CONCLUSIONS

- The most common clinical signs found in dogs with thalamic lesion are similar to those included in the so-called vestibular syndrome (ipsilateral head tilt, head turn and circling). Thus, thalamus must be considered as a potential affected area when a dog exhibits vestibular signs.
- The localization of thalamic lesions is a major challenge due to the great number of connections between the thalamus and related structures. Furthermore, the incidence of isolated thalamic lesions and the diagnostic capability are too low to establish reliable links.
- Further studies based on MRI findings together with the whole clinical story of the patient are needed to be able to establish specific clinical patterns of thalamic dysfunctions.

REFERENCES


Alexandra Rodríguez Tosi
Gerente de 2018