

CASE REPORT

MRI findings in a donkey with a diffuse astrocytoma

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Signalment & history:

- 23-year-old donkey gelding.
- Two-months history of ataxy, apathy and behavioural changes.
- Acute deterioration of the clinical signs following discontinuation of initial treatment with corticosteroids.

Clinical and neurological examination:

- General physical examination and blood analysis within normal limits.
- Apathy, vestibular ataxia, hypermetria and ambulatory tetraparesis with over-knuckling of the thoracic limbs.
- Left-sided facial nerve paralysis, bilaterally decreased menace response, decreased tone of the tongue and positional horizontal nystagmus.

Neurolocalisation: left brainstem.

Magnetic Resonance Imaging (3T Siemens):

- Poorly defined patchy T2w/FLAIR hyperintense areas (blue arrows) within the left internal capsule (A.1), left reticular nucleus of the thalamus, left thalamus (B.1), left hippocampus (C) and left caudal colliculus (D), which are iso to hypointense in T1w images (A.2) and do not contrast enhance (B.2).
- Diffuse and ill-defined T2w/FLAIR hyperintensity of the white matter and lesser extent grey matter, bilaterally, greatly affecting the left hemisphere (orange arrows).

Radiographic diagnosis:

- Bilateral asymmetrical encephalopathy affecting forebrain and brainstem.

Differential diagnosis:

- Inflammatory vs. infectious encephalopathy with/without leukoaraiosis.
- Diffuse infiltrative neoplasia (round cell neoplasia or diffuse glioma).

Follow up and outcome:

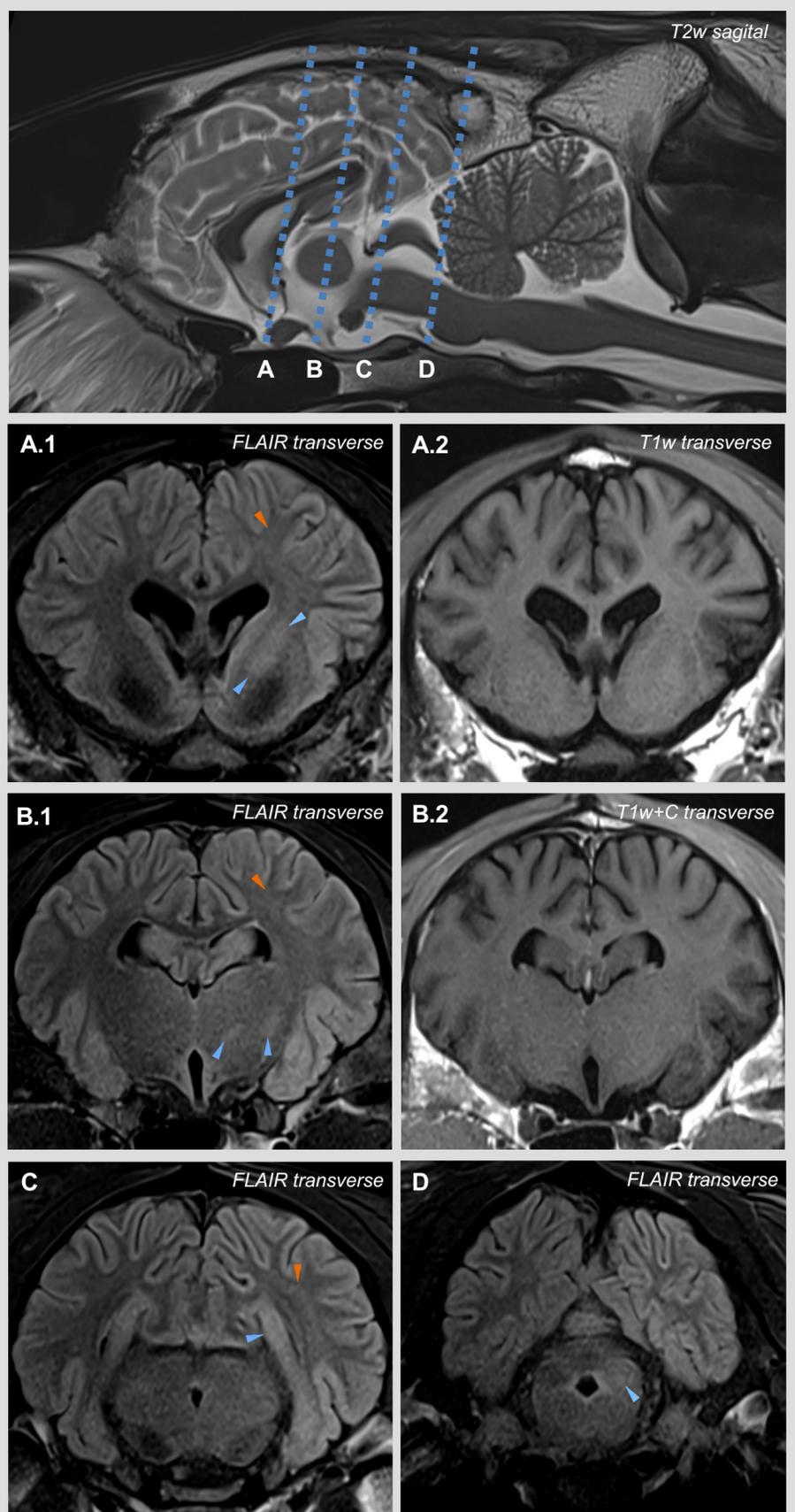
- CSF analysis within normal limits.
- Lack of improvement after reinitiation of corticosteroids 1 month after the MRI exam.
- Owner elected euthanasia.

Histopathological findings:

- Poorly demarcated astrocyte cells infiltration with oval to irregular nuclei, fibrillar cytoplasm, anisocaryosis and anisocytosis.
- Diffuse infiltration through grey and white matter without significant disruption of the architecture, affecting the medulla oblongata, midbrain, thalamus, basal nuclei and questionably also parts of the corona radiata. Multifocal growth around neurons and vessels, as well as infiltration in the subarachnoid space.

Histopathological diagnosis:

- Diffuse astrocytoma, grade III



Discussion/ Conclusion:

- First report describing MRI features of a diffuse glioma in an equid.
- Findings resemble those described for canine diffuse glioma or gliomatosis cerebri.^{1,2}

1. Schweizer-Gorgas D, Henke D, Oevermann A, Lang J, Vandeveld M, Steffen F. Magnetic resonance imaging features of canine gliomatosis cerebri. *Vet Radiol Ultrasound*. 2018;59:180–187.
2. Bentley RT, Burcham GN, Heng HG, Levine JM, Longshore R, Carrera-Justiz S, Cameron S, Kopf K, Miller MA. A comparison of clinical, magnetic resonance imaging and pathological findings in dogs with gliomatosis cerebri, focusing on cases with minimal magnetic resonance imaging changes. *Vet Comp Oncol*. 2014;14(3):318-330.