

What is the diagnosis?

History

A 13-year-old female cat was presented that had suffered weakness in her hind limbs for 4 months. Her general condition had deteriorated and she had recently shown signs of possible seizures. Corticosteroid treatment had provided temporary relief.

Clinical/neurologic examination

The cat showed compulsive behaviour, including circling to the right. She also showed signs of vestibular strabismus and any eyelid reflexes were absent, even when threatened. The panniculus reflex was negative. A neoplastic lesion in the large brain area and/or the brain stem was suspected because of the cat's age, the failure of multiple cranial nerves and her abnormal behaviour. She was referred for a magnetic resonance imaging (MRI) examination of the brain.

MRI examination

The cat was given general anaesthesia and positioned in dorsal recumbency inside a knee coil. Scout views (in dorsal, sagittal and transverse planes) were made to determine the correct position and area to be scanned. Different MR sequences (T1-weighted, T2-weighted and FLAIR) in different planes (dorsal, sagittal and transverse) were performed. Intravenous contrast medium was applied to highlight possible lesions. Figures 1, 2, 3 and 4 show the findings.

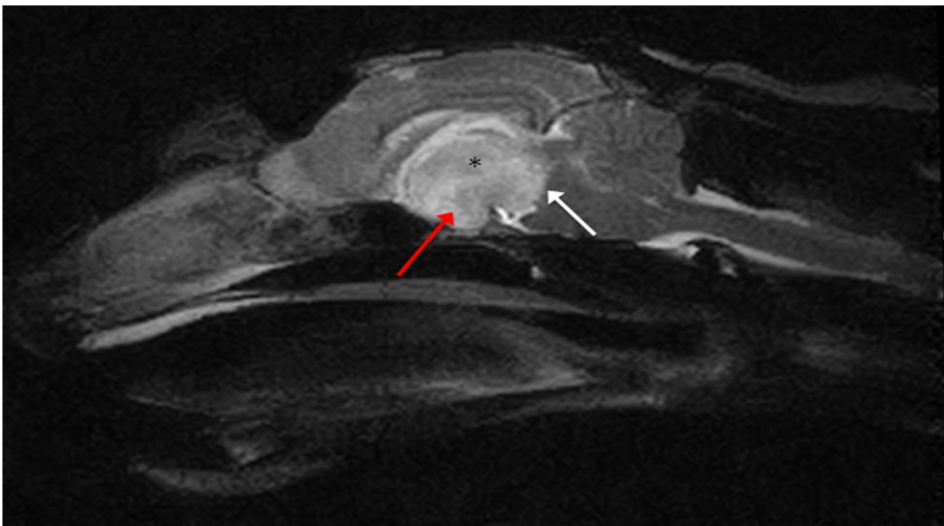


Figure 1: Mid-sagittal T2-weighted image of the brain. A hyperintense round mass (*) that extends ventrally in the pituitary (red arrow) area and caudally compressing the brain stem (white arrow) is visible in the thalamic region.

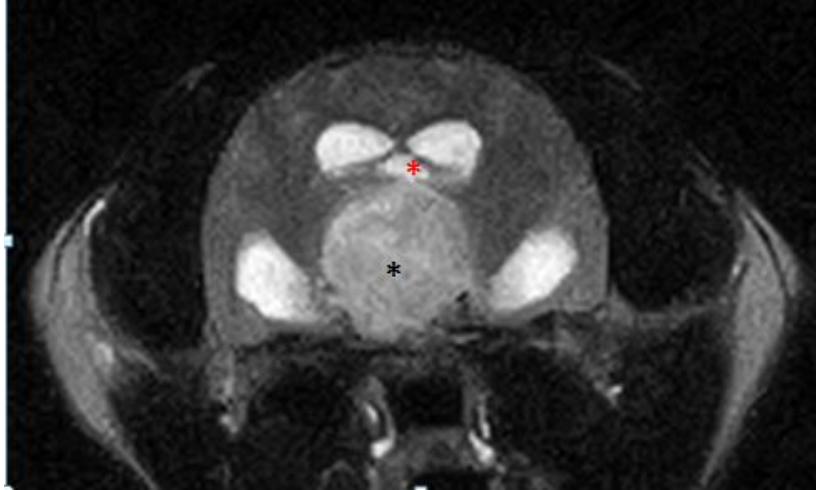


Figure 2: Transverse T2-weighted image of the thalamus showing a hyperintense round, nicely delineated mass (*) that is producing an obvious mass effect and compressing the third ventricle (*).

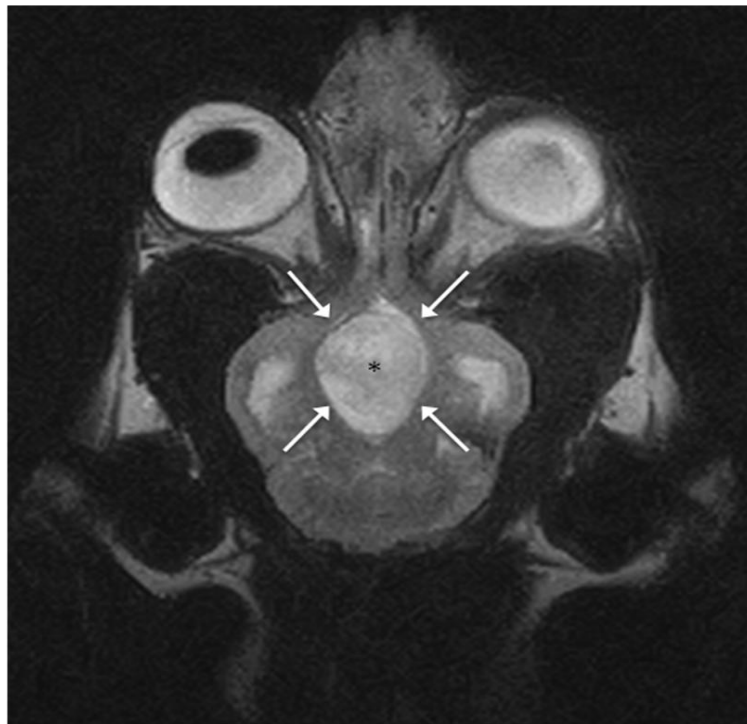


Figure 3: Dorsal T2-weighted image of the brain. A hyperintense oval mass (*) causing a deviation of the normal brain parenchyma (white arrows) is visible in the centre.

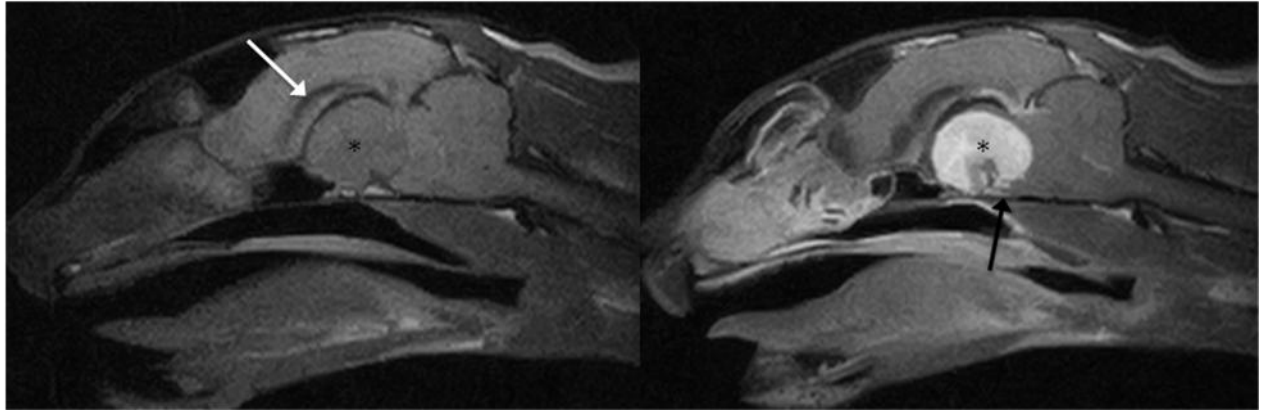


Figure 4: Mid-sagittal T1-weighted pre-contrast (left) and post-contrast (right) images of the brain. A mild, hypointense rounded mass (*) compressing the lateral ventricles (white arrow) is visible. An intense homogenous contrast enhancement is visible within this mass (*). Enhancement of the meninges (=dural tail) can also be seen (black arrow).

Diagnosis

A mass lesion was detected in the large brain. The location of the lesion and the various MRI features (the dural tail, homogenous contrast enhancement, round /oval shape, sharp delineation, region, etc.) of the images suggested a meningioma, and this diagnosis was confirmed on histopathologic examination.

Discussion

MRI, like computed tomography (CT), is an imaging technique that makes axial slices through a defined region of an animal and avoids superimposition of the different structures. MRI makes use of a magnet and radio waves and creates an image from the patient's water molecules. Most pathologic processes contain more water than normal tissue, which can be seen with an MRI study. The advantages of MRI compared with CT are that no radiation is required and images in different planes can be obtained without any reconstructions being produced. CT is indicated for bony lesions, whereas MRI is more strongly indicated for soft-tissue lesions such as neoplastic or inflammatory lesions of the brain and spinal cord.

Meningiomas are the most common brain tumours in cats and make up 30 to 50% of brain tumours in dogs. This type of neoplasia is usually benign and can be surgically removed when surgically accessible. CT and/or MRI are valuable in these cases not only for making the diagnosis but also for planning surgery and evaluating the response to follow-up treatment.