A 7.5 year old female neutered Labrador retriever presented for evaluation of chronic, progressive obtundation, circling to the left, absent menace response on the right and reduced proprioception of all four limbs. Neuroanatomical localisation was the left forebrain.

MRI of the brain revealed a large, focal, extra-axial mass compressing the left temporal and parietal lobes. The lesion was heterogeneously hypointense on T2W, T1W and FLAIR sequences compared to normal brain tissue with signal void on gradient echo sequence. With exception of the central part of the lesion, there was marked homogenous contrast enhancement, marked mass effect, caudal transtentorial and caudal herniation of the cerebellum. Although the mass effaced the inner cortex of the skull, it did not have an appreciable extracranial component. CT revealed the mass to be intracranial, irregularly marginated, heterogeneously hyperattenuating and contrast enhancing. The adjacent skull, although mildly thickened, was intact. Post mortem confirmed an intact skull and a histopathological diagnosis of multilobular osteochondrosarcoma (MLO) (Figure 1).

MLO is an uncommon tumour that typically affects the skull in older dogs of medium or large breeds. They are typically slow growing, well defined but locally invasive and osteolytic. They most commonly arise from the dorsal or caudal aspects of the cranium and exhibit a multilobular pattern of mineralization and frequently invade into the cranial vault itself.

Given the aggressive nature and local invasiveness of these tumours, invasion of bony margins and a large extra cranial component would be expected. This is an unusual presentation of an MLO with a purely intracranial component without marked extracranial expansion. This case highlights the challenges of obtaining a definitive diagnosis of rare brain tumours from advanced imaging alone and illustrates that a diagnosis of MLO should not be excluded in dogs with an intact skull and lack of an obvious extracranial component.