

# Neuroimaging Highlight

Editors: Richard Farb, David Pelz

## Skull Base Chondrosarcoma Presenting with Hemorrhage

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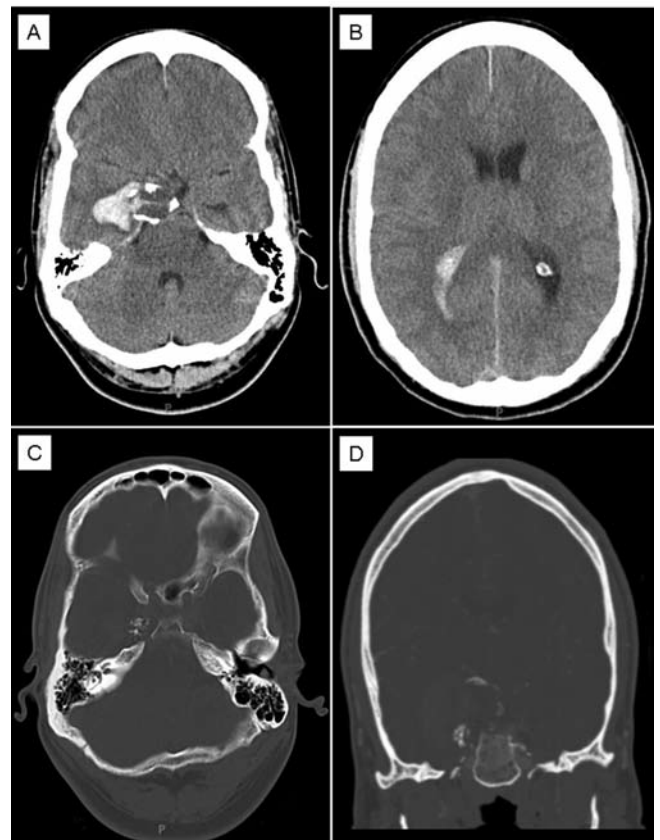
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A 34-year-old white man with a six month history of a feeling of déjà vu presented with an acute onset of headache and blurred vision associated with nausea and vomiting. Neurological examination was significant for a right third cranial nerve palsy. Computerized tomography (CT) demonstrated a 2.0 cm rim calcified right paracavernous mass with intratumoral hemorrhage and an adjacent 2.6 cm by 2.0 cm right temporal lobe hematoma. Intraventricular hemorrhage (IVH) was present in both lateral ventricles, right more than left (Figure 1). Diagnostic cerebral angiography demonstrated no evidence of aneurysm. Brain magnetic resonance (MR) imaging revealed a 2 cm mass in the right paracavernous region extending into the suprasellar region with heterogeneous signal intensity on T1- and T2-weighted images and heterogeneous enhancement after gadolinium administration. Adjacent to the lesion was a right temporal lobe hematoma; intraventricular hemorrhage was also observed in the right lateral ventricle (Figure 2). The patient underwent a right pterional craniotomy for gross total resection of the tumour. Histopathological examination of the tumour demonstrated a low grade hyaline chondrosarcoma. The patient subsequently underwent proton beam radiotherapy and is currently 82 months out from surgery with no evidence of recurrence.

Cranial chondrosarcomas are uncommon tumours which typically present with headache and visual disturbances<sup>1</sup>. The mean duration of symptoms at presentation ranges from 23 to 26 months<sup>1</sup>. These slow growing cartilaginous neoplasms generally become symptomatic secondary to local invasion and are only rarely associated with intratumoral or peritumoral hemorrhage<sup>2-9</sup>. The present case highlights a patient with a skull base chondrosarcoma who presented acutely secondary to intratumoral, intraparenchymal and intraventricular hemorrhage.

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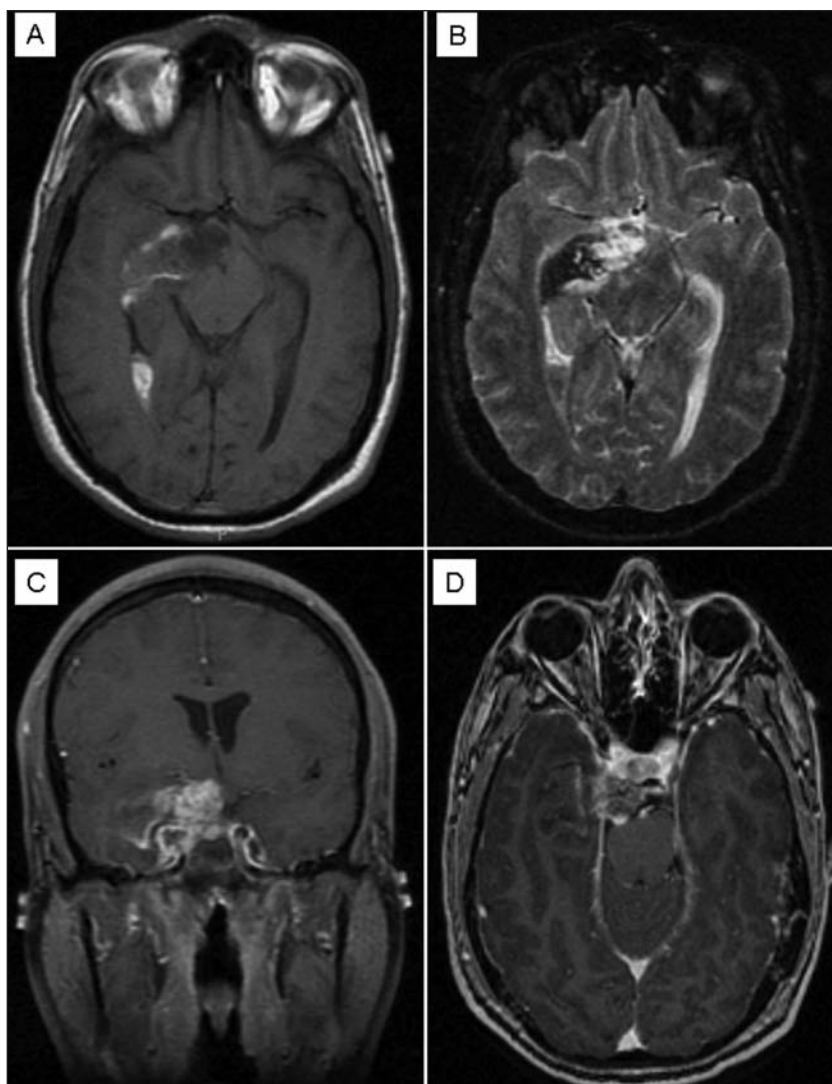


**Figure 1:** Axial CT scans demonstrating a right paracavernous mass with rim calcification and intratumoral hemorrhage associated with a right temporal lobe hematoma and intraventricular hemorrhage in the right lateral ventricle (A-B). Axial bone window shows the internal chondroid matrix (C) and coronal bone window shows the origin of the lesion (D). The CT images were obtained on a Toshiba Aquillion machine (kVp: 120; mAs: 440 for the 4 mm slices, 300 for the 6 mm slices, slice thickness: 4 mm through the skull base, 6 mm through the rest of the head; overlap: none; reconstruction algorithm: fc 23 for soft tissue windows and fc 30 for bone windows).

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**Figure 2:** Axial T1-weighted (A) and axial T2-weighted (B) MR images demonstrating a right paracavernous mass, right temporal lobe hematoma and hemorrhage in the right lateral ventricle. Coronal (C) and axial (D) T1-weighted post-contrast MR images demonstrate the relationship of the lesion to the cavernous sinus. The MRI scans were performed on a GE Sigma 1.5T machine (for axial T1-weighted images, TE: 8, TR: 600, ETL: 0, Nex: 1, FOV: 256 cm by 192 cm, and matrix: 256x160; for axial T2-weighted images, TE: 103.103996, TR: 4000, ETL: 0, Nex: 1, FOV: 24 cm by 24 cm, and matrix: 256x19; for coronal T1-weighted images, TE: 8, TR: 650, ETL: 0, Nex: 1, FOV: 24 cm by 24 cm, and matrix: 256x160).

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