Giant intracranial calcification associated with new onset focal seizure

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DESCRIPTION

We present a case of a 10-year-old boy with a 2-week history of focal seizures involving the right side of his face. His medical history was remarkable for pulmonary tuberculosis at 5 years of age without central nervous system involvement. A CT of the head showed a large 2 cm subcortical calcification in the left frontal lobe with surrounding oedema (figure 1A–C). MRI revealed characteristics of a heavily calcified mass with associated oedema and cortical thinning (figure 1D–F). Lumbar puncture was normal. EEG demonstrated left frontocentral epileptiform discharges. Owing to the size of the mass and the associated oedema, the patient was taken to surgery where gross total resection demonstrated a giant area of heterotopic ossification (figure 2). The child tolerated the procedure well and was placed postoperatively on

levetiracetam and has been seizure-free at 12 months of follow-up.

The differential diagnosis of localised calcified brain nodules includes meningio-angiomatosis, psammomatous meningioma, primary or metastatic tumours, toxoplasmosis/tuberculosis and vascular malformations. Based on the child's medical history it was thought that the lesion could be consistent with a calcified parenchymal granulomata that can be seen in up to 20% of patients with a history of tuberculosis.¹ However, the histological evaluation revealed a heterotopic ossification most consistent with a calcified cavernous angioma. Cavernous angiomas that do not haemorrhage may have stippled calcifications in the vessel wall or in the parenchyma of brain.^{2–3} Our case highlights the differential diagnosis of heavily calcified focal brain lesions as a presenting feature of new onset seizures.

Figure 1 Neuroimaging features of giant intracranial calcification. (A–C) Axial, coronal and sagittal non-contrast head CT shows a large 2 cm cortical–subcortical hyperdensity in the left frontal lobe with surrounding oedema. (D–F) MRI reveals an area of susceptibility weighted artefact on SWI sequence (D) with similar appearance on T2 (E) and T1-weighted sequence (F) consistent with calcification.

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Figure 2 Gross and microscopic features of giant intracranial calcification (A). Gross specimen postoperatively reveals a hard nodule of tan to pink tissue measuring 2.2×1.5×0.8 cm. H&E section at ×40 (B) and ×100 (C) reveals an area of heterotopic calcification that is associated with areas of prominent vessels most consistent with ossification of a vascular malformation.

Learning points

- ▶ Patients with a new solitary intracranial calcification should be evaluated for infection, neoplasm, vascular malformation and systemic disease in order to help elucidate the aetiology of the mass.
- ▶ Complete surgical resection of calcified intraparenchymal lesions associated with partial complex seizures is safe and can be associated with excellent prognosis.
- ▶ A non-neurosurgical observation only approach in cases of newly diagnosed focal brain lesions associated with or without seizures may be appropriate depending on the history, examination and neuroradiographic features of the lesion.

Contributors All authors have contributed equally to the design and constructing of the manuscript. All authors have reviewed the manuscript prior to submission and have agreed to its content.

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