Rosette forming glioneuronal tumor (RGNTs)

- Rare, usually midline, tumors that involve the fourth ventricle and/or aqueduct of Sylvius.
- Younger adult patients with a mean age of 30 years
- Although relatively well-circumscribed on MRI and clinically indolent, they often invade surrounding tissues, involving the cerebellum, pons and even the pineal region.
- Often cystic components and they
- Tend to have heterogeneous enhancement.
- They are considered WHO grade 1 tumors in the current (2021) WHO classification of CNS tumors.
- Main differential diagnosis is pilocytic astrocytoma

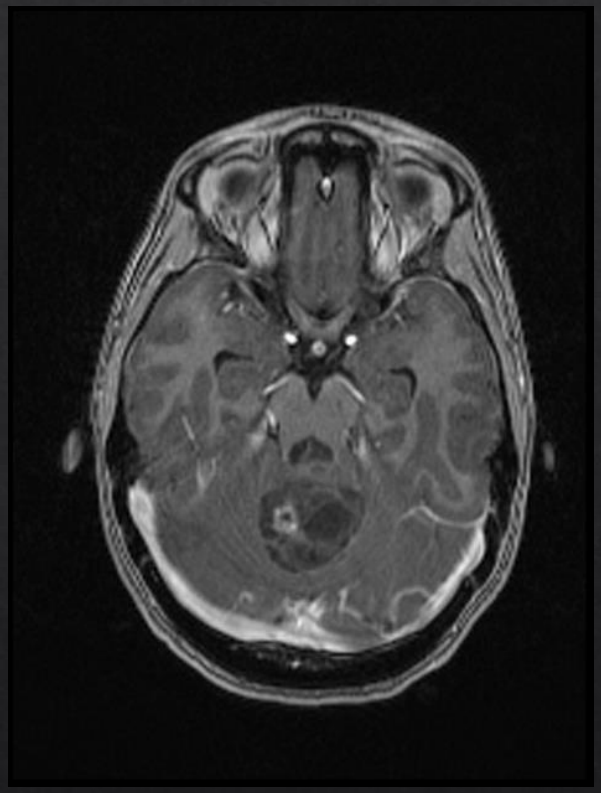
DDx:

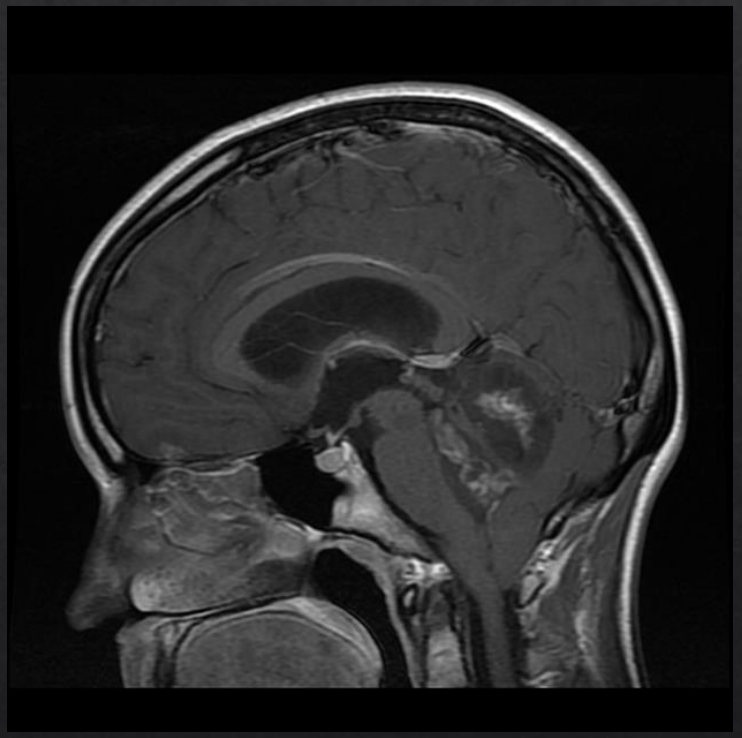
- Pilocytic astrocytoma (PA)
  - Prevalent in children, it is mostly a cystic tumor with wall nodules.
  - Similar presentation to RGNT on a plain scan, but wall nodules, not the cyst wall, are significantly strengthened.
- Dysembrioplastic neuroepithelial tumor (DNET)
  - Frequently occurs in children and adolescents, most of whom have a long history of drug-refractory epilepsy. The
  - most common site of onset is the temporal lobe, followed by the frontal lobe. The
  - Imaging similar to RGNT, and most of them do not have significant enhancement on enhanced scans. It is often associated with cortical dysplasia. Mainly, there is no typical rosette structure of DNET.
- Ependymoma
  - Originates from the intraventricular ventricular epithelium. It is
  - Frequently seen in children under 5 years of age, and the fourth ventricle is considered the most common site.
  - Often seen as a necrotic cystic lesion, and MRI often shows mixed signals with moderate enhancement on enhanced scans.
  - May grow along the ventricular canal towards the Luschka or Magendie foramen of the fourth ventricle, forming a “cast” structure of the ventricle.

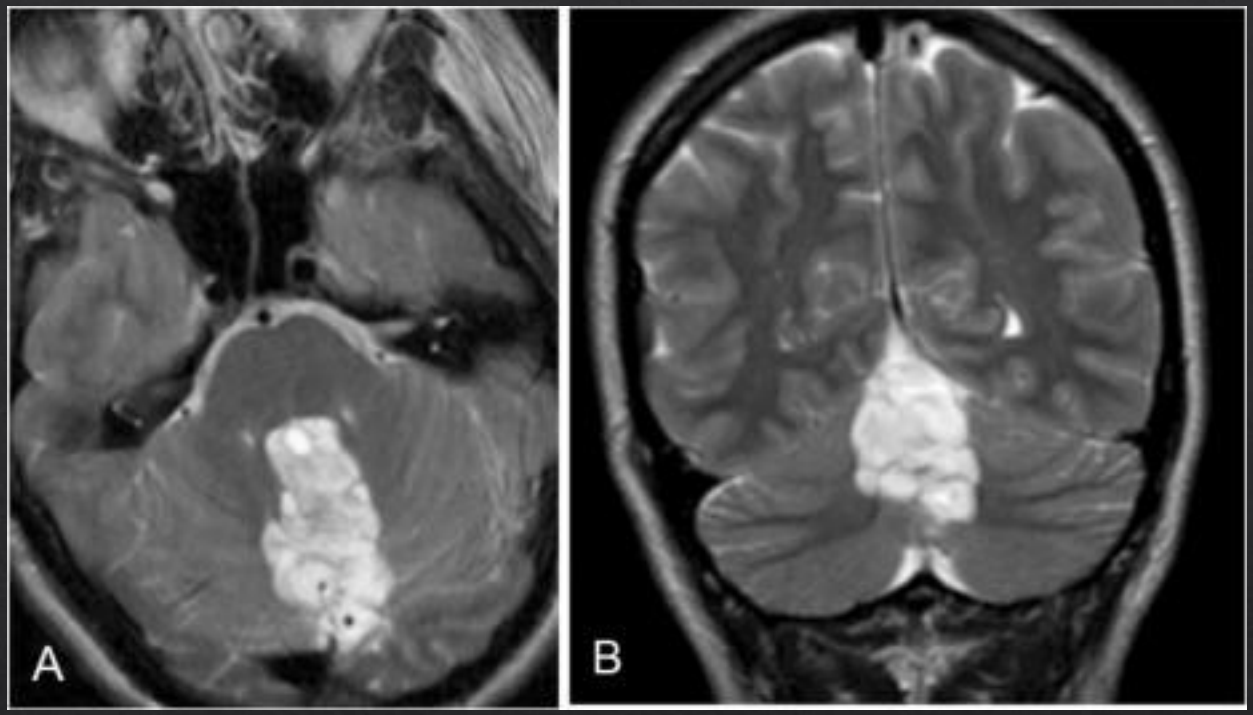
DDX

- Central neurocytoma
  - Usually located near the Monro foramen in the lateral ventricle.
  - Cystic portion is uncommon. Calcification and flow-through are characteristic of this tumor.
- Medulloblastoma
  - Highly malignant and has a high incidence in the age group of 4 to 8 years. The tumor
  - Mostly occurs in the cerebellar vermis and easily protrudes into the fourth ventricle
  - DWI shows significantly limited diffusion, and the enhanced scan often shows more homogenous enhancement, so it is easy to distinguish from RGNT.
- Diffuse midline glioma
  - As the most specific type of molecular typing in the 2016 version of WHO CNS tumors,
  - Prevalent at midline sites
  - High degree of malignancy (WHO IV)
  - On imaging, it is generally challenging to distinguish RGNT from RGNT.

RGNT



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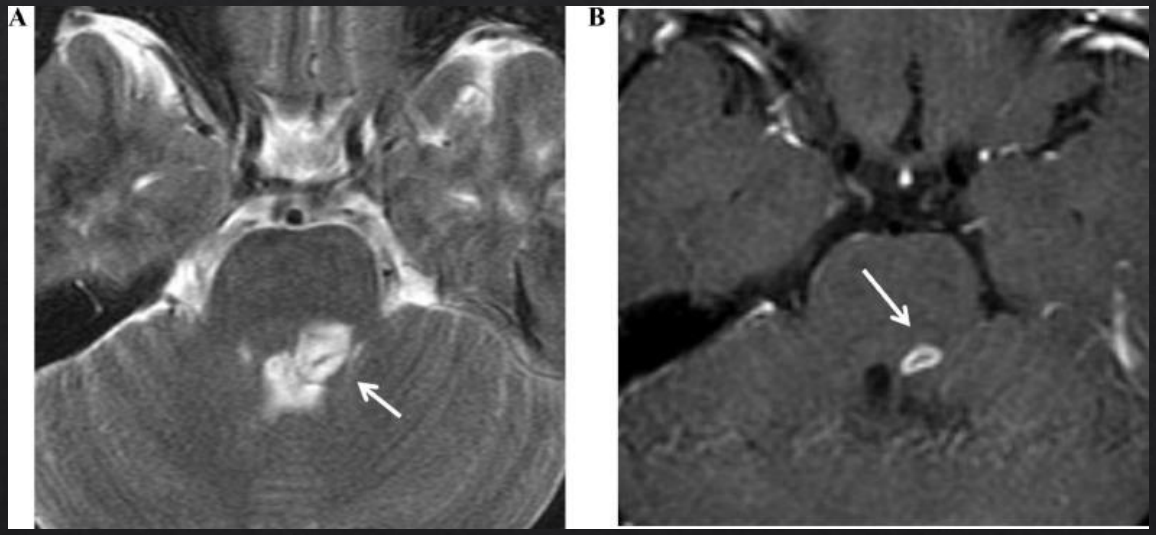
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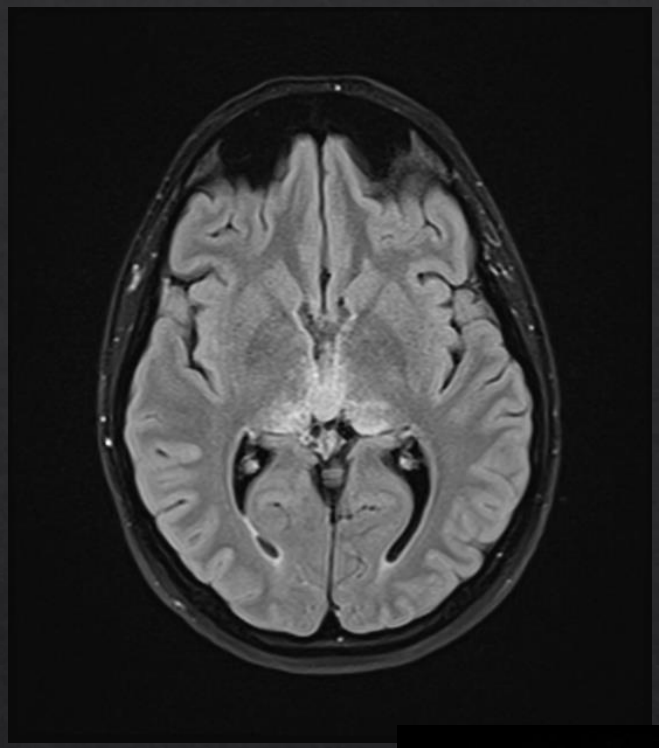

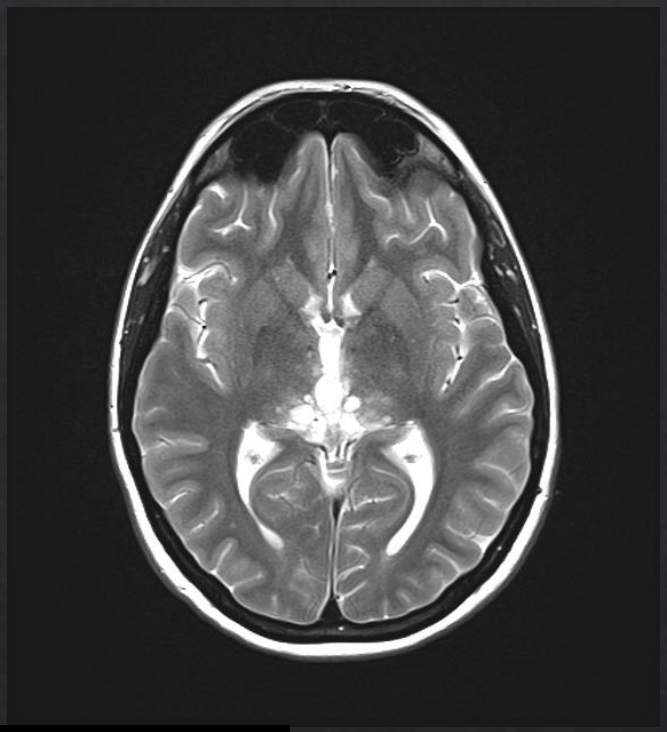

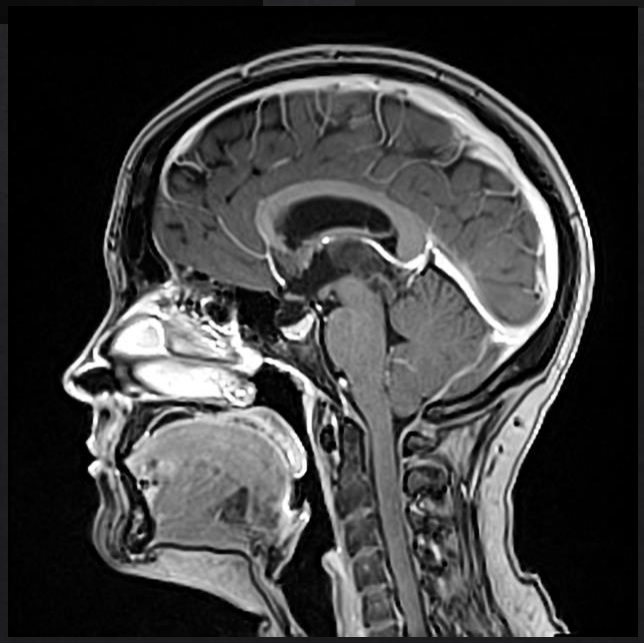

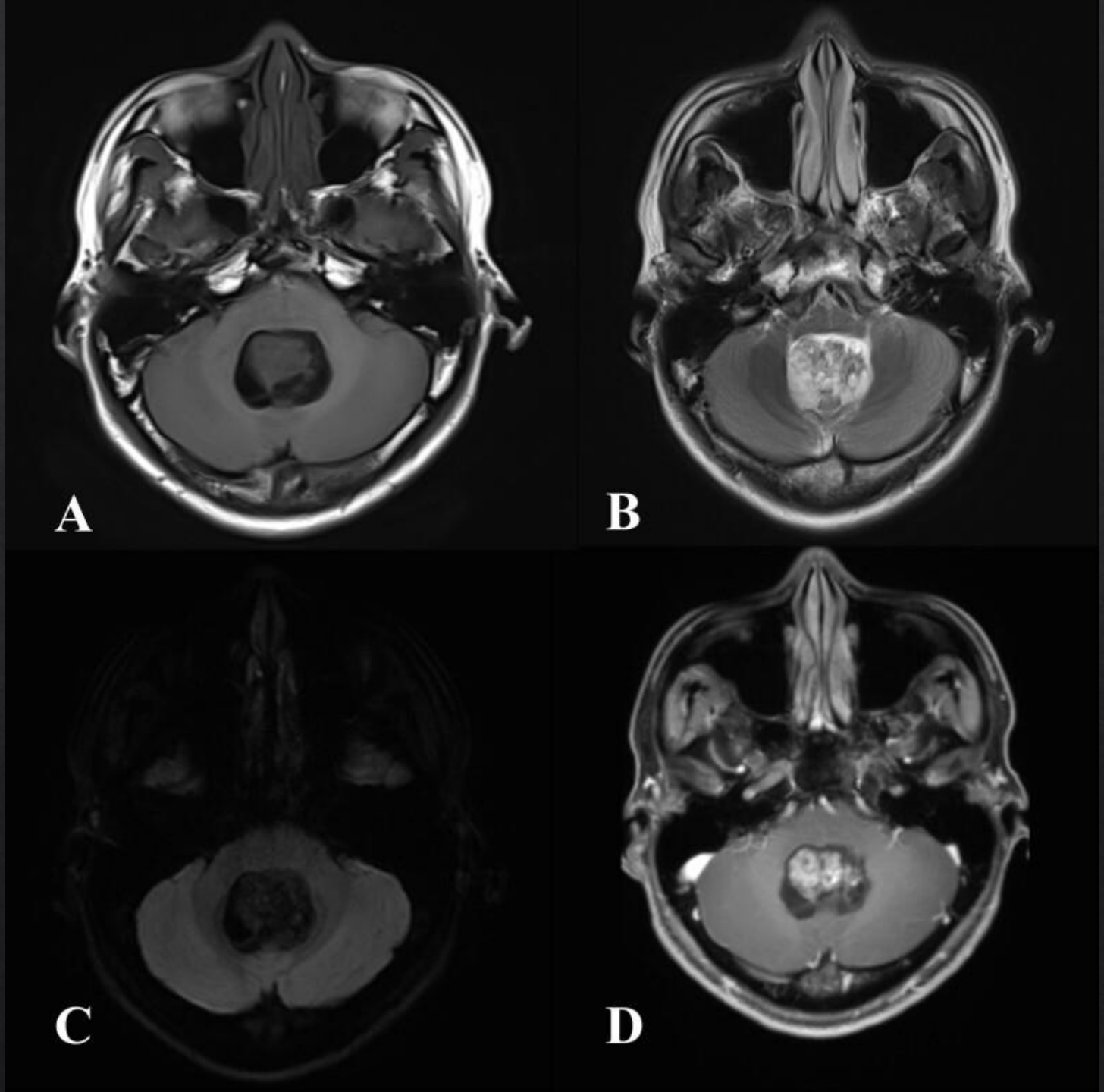
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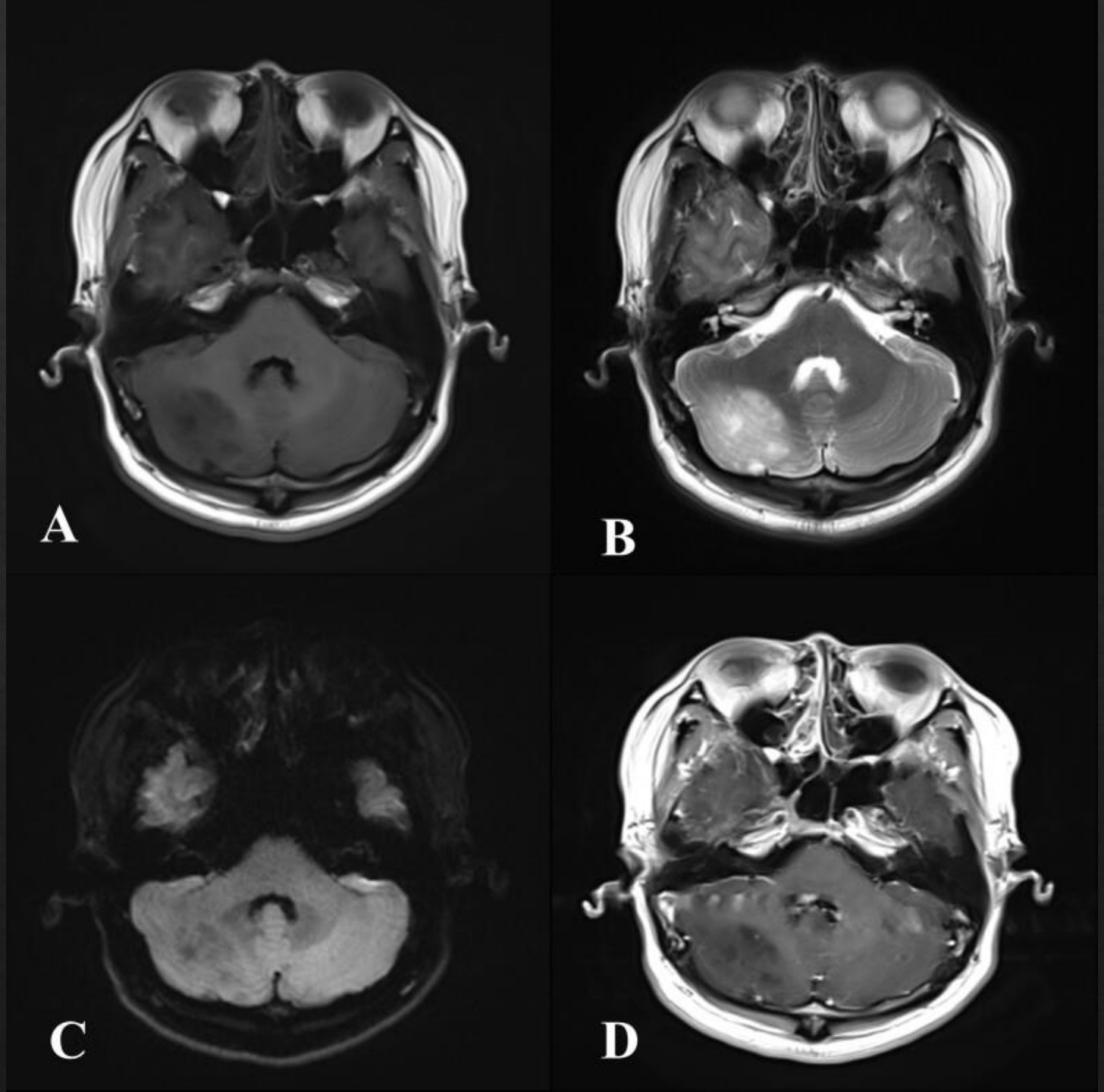
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