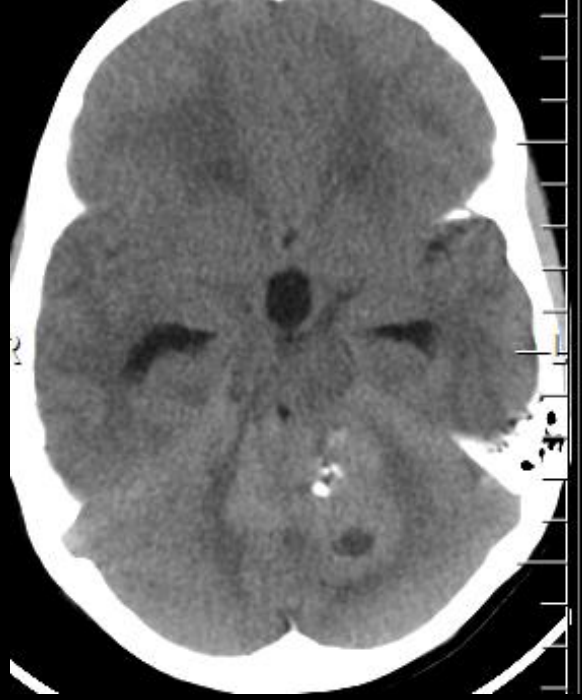
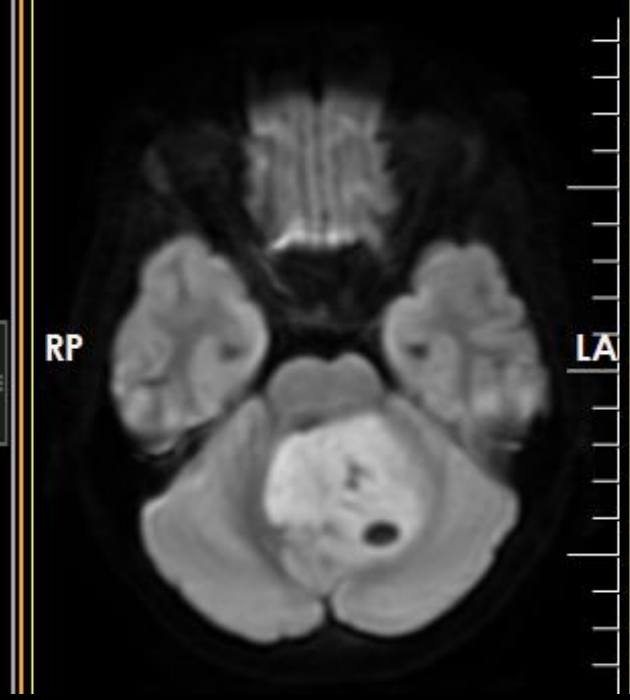
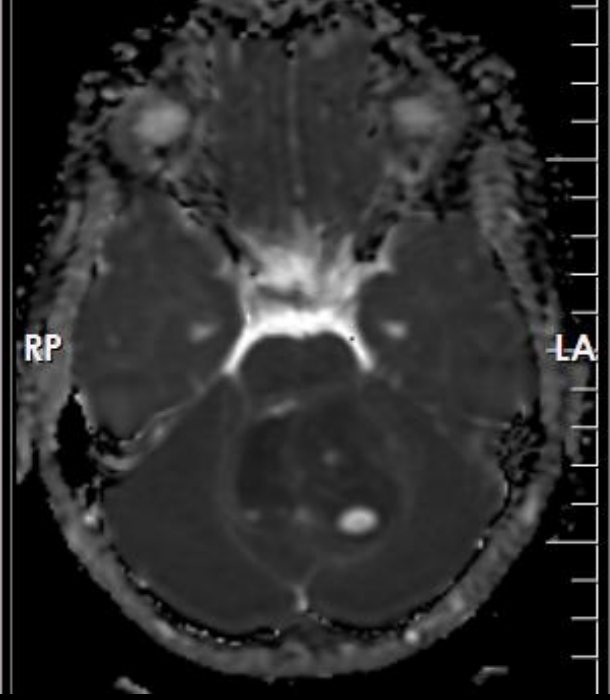
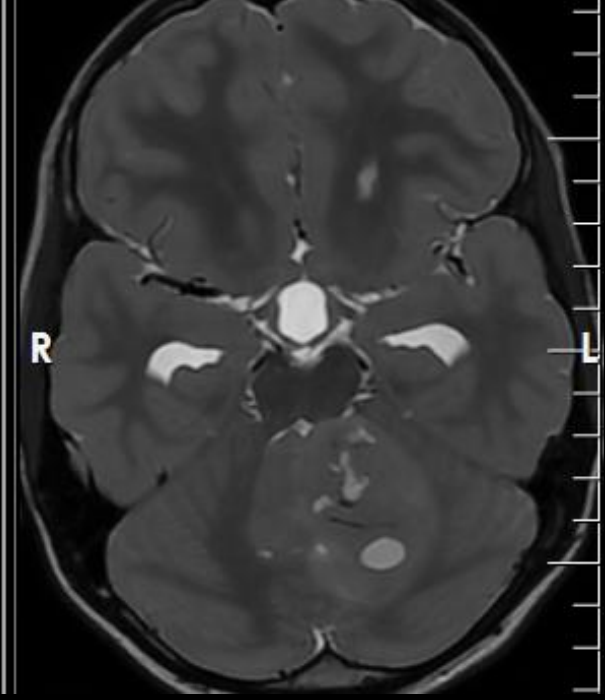
SJMCH, Bengaluru

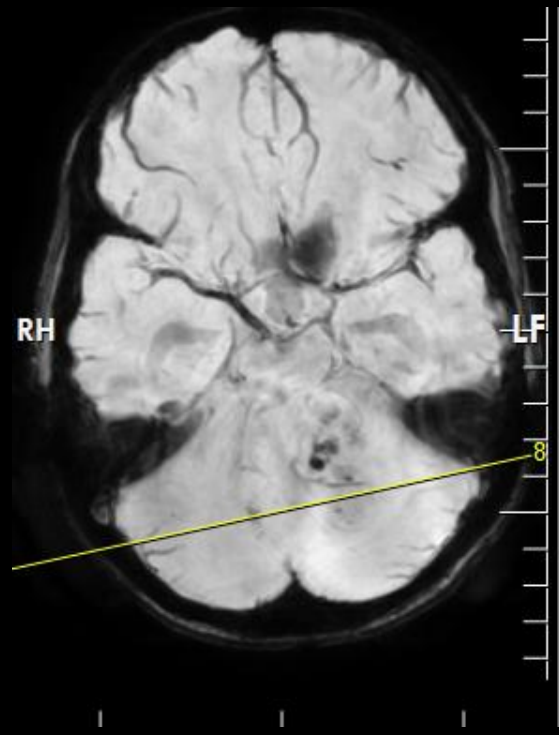
Contributor of the Series

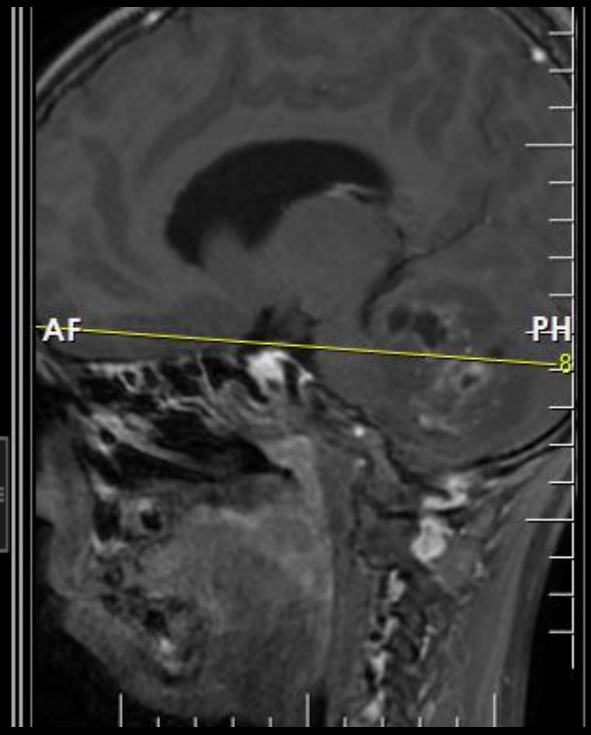




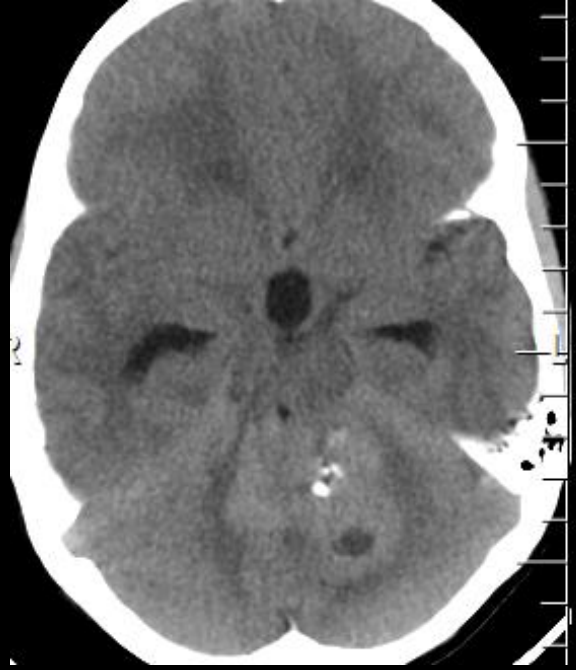


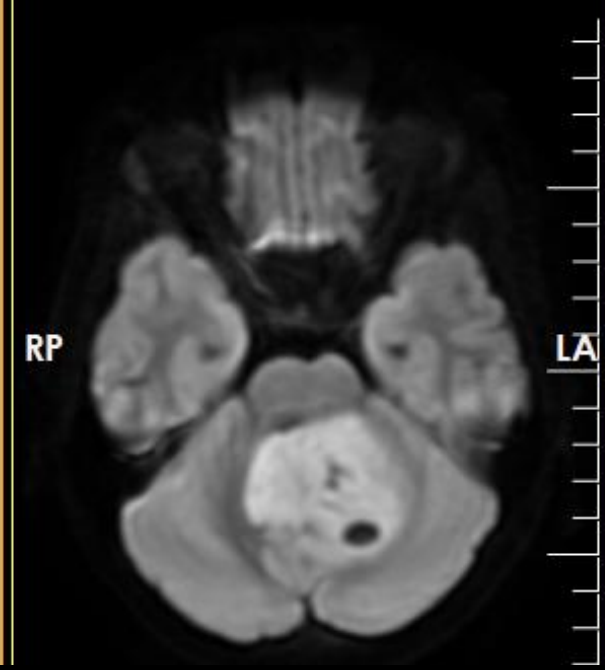


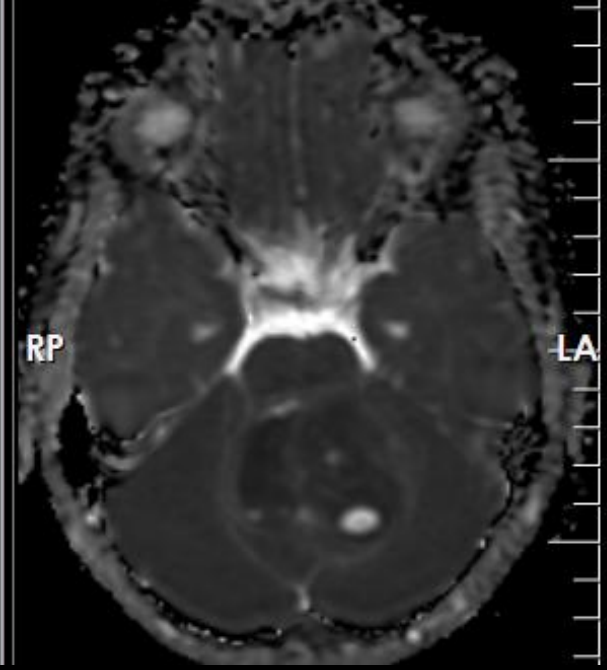


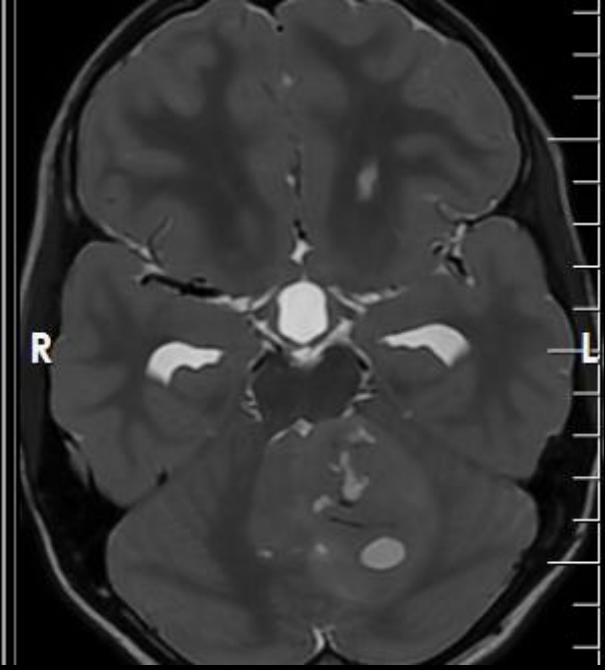


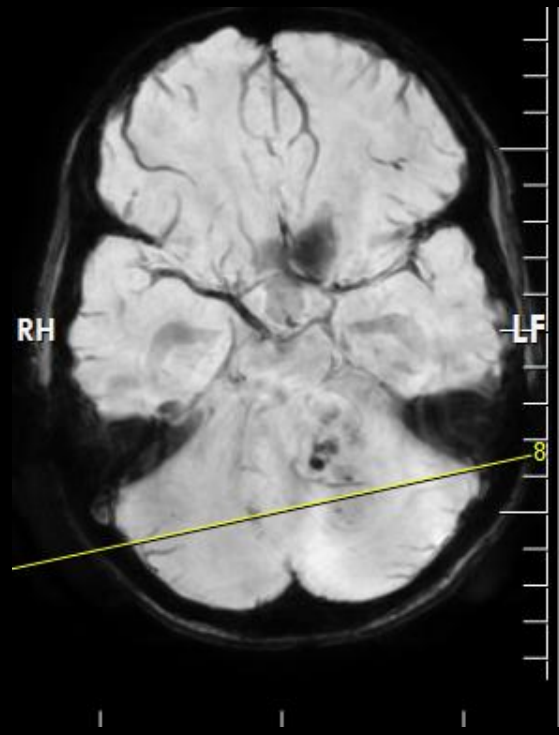
10 year female
Diagnosis?

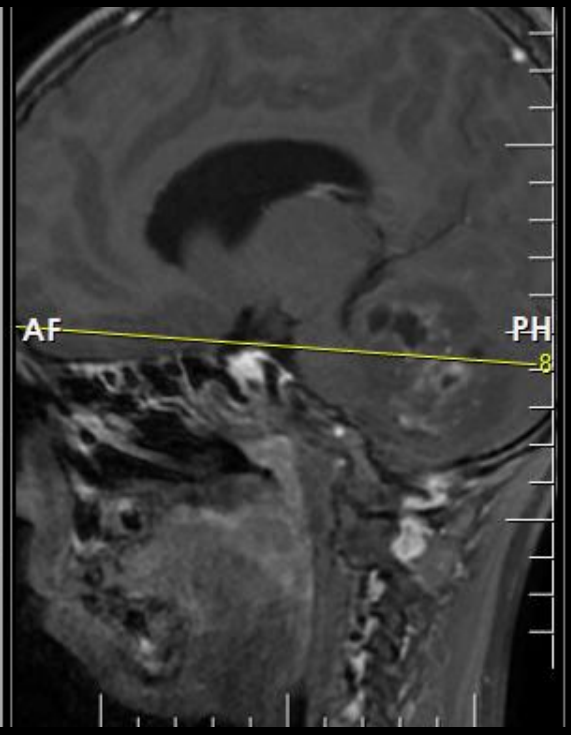












Large mass in posterior fossa in the central aspect more so towards the floor showing T2 intermediate signal solid component with few cystic spaces showing marked diffusion restriction with heterogeneous enhancement. Few foci of hypointense blooming are noted. Corresponding CT shows a subtle hyperdense attenuation with calcifications. Spine screening was negative for mets (not shown)

Findings are typical for medulloblastoma (group 4 or 3). DD – ependymoma.

Medulloblastoma – Roof. Ependymoma - Floor.

Medulloblastoma

- Medulloblastomas are the most common malignant brain tumours in children, typically arising in the posterior fossa, often located in the roof of the 4th ventricle. They represent about 12–25 % of pediatric CNS tumours and 30–40 % of pediatric posterior fossa tumours.
- Clinically, patients present with symptoms of raised intracranial pressure (headache, vomiting) and cerebellar signs (ataxia, gait disturbance) due to obstruction of CSF pathways.
- Imaging: often a midline (vermal) posterior fossa mass, iso- to hypointense on T1, hyperintense on T2, with heterogeneous contrast enhancement, often showing diffusion restriction (due to high cellularity).
- WHO Grade IV, highly aggressive, and tend to spread via cerebrospinal fluid pathways (leptomeningeal dissemination).
- Histological variants include classic, desmoplastic-nodular, large cell / anaplastic, and extensive nodularity.
- Molecular classification per WHO 2021 divides them into subgroups such as WNT-activated, SHH-activated, and non-WNT/non-SHH (Groups 3 & 4), which have distinct prognoses and features.
- WNT-activated medulloblastomas are the least common but have the best prognosis.
- Group 3 tumors often have the worst prognosis and are prone to metastasis.
- Treatment is maximal safe surgical resection, followed by craniospinal radiotherapy + chemotherapy.
- Prognosis depends heavily on extent of resection, presence of metastases at diagnosis, and molecular subtype.

Contributor

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