Mixed Germ Cell Tumor - Pineal Gland
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History
9 year old male with headache.

Diagnosis
Mixed Germ Cell Tumor-Pineal Gland

Additional Clinical
CSF Special Chemistry: Alphafetoprotein 567.9ng/mL, beta hCG 26 mIU/mL.

Discussion
Germ cell tumors arise from residual primordial ectoderm, mesoderm, or endoderm, and account for greater than half of the pineal region neoplasms. The WHO classifies them into germinomas and nongerminomatous germ cell tumors; nongerminomatous tumors include teratomas, embryonal carcinoma, yolk sac tumor, choriocarcinoma, and the mixed germ cell tumors. Intracranial germ cell tumors are most prevalent between 10 and 30 years of age. Pineal tumors are three time more common in males.

Intracranial germ cell tumors may arise secondary to aberrant migration of germ cells from the yolk sac to their normal location in the ovaries or testes, coming to rest predominantly in midline sites that include the third ventricle, mediastinum, and sacrococcygeal region. Another theory is the mismigration of pluripotent embryonic cell to the region.

Central nervous system GCTs are most commonly located in the pineal and suprasellar regions. These lesions result in increased serum and CSF levels of tumor-produced oncoproteins (alpha-fetoprotein, beta-hCG, placental alkaline phosphatase). It is interesting that intracranial germ cell tumors are about 10 times more common in Asian compared to western populations.

Findings
CT-Pineal region mass with few coarse calcifications and mild hydrocephalus.
MR-Well circumscribed T1 hypointense, predominantly T2 hyperintense and uniformly enhancing pineal mass. Note the transependymal edema from hydrocephalus.

Reference
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