



CNS cases

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Case 1

81-year-old gentleman has a single episode of grand mal seizure. physical examination is unremarkable except for 1.5-cm, darkly pigmented skin lesion on the chest. Brain MRI shows four solid, 1- to 3-cm lesions located at the gray-white junction in the right and left frontal, and temporal lobes. What is your top differential diagnosis of the followings?

- A. Primary CNS lymphoma
- B. Glioblastoma, IDH-wild type
- C. Pilocytic astrocytoma
- D. Meningioma
- E. Metastatic melanoma

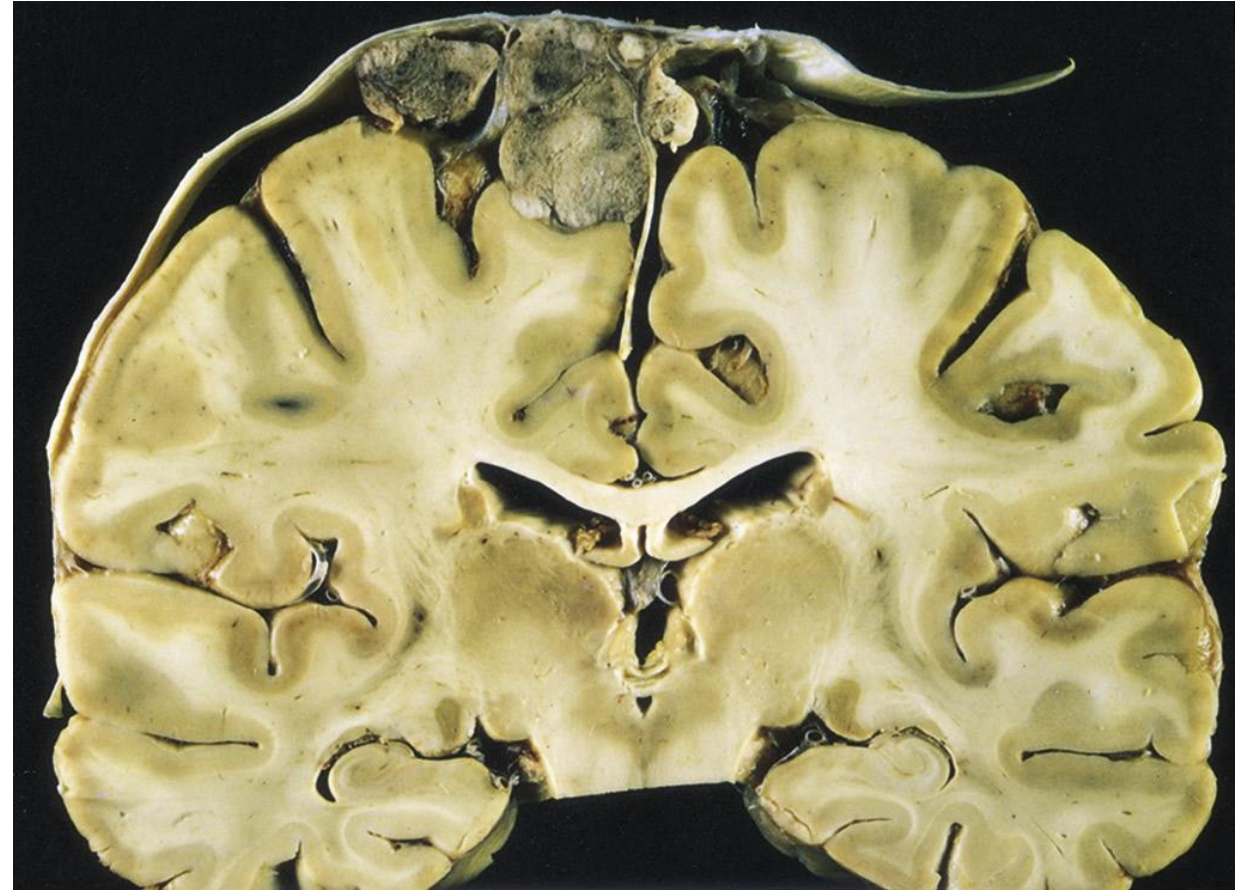
A 47-year-old gentleman has been experiencing headaches for the past 6 months. He had seizures twice. Brain MRI shows a solitary, 3.5-cm mass in the right parietal centrum semiovale. The mass has small cysts, calcification and hemorrhage. Neurosurgery is performed, and the mass is removed.

Microscopically, the mass consists of sheets of cells with round nuclei, finely granular chromatin & moderate amount of clear cytoplasm. The tumor cells show IDH-1 and GFAP expression. The patient receives adjuvant radiation and chemotherapy, and there is no recurrence. Which of the following molecular markers is most likely to be found in the cells of this mass?

- A. BRAF mutation
- B. 1p and 19q co-deletions
- C. ATRX mutation
- D. c-MYC amplification
- E. Wnt activation

40-year-old lady presented with headache for the past 3 months. Physical examination is unremarkable. The representative gross appearance of the lesion seen on CT scan of the head is shown in the figure. The mass is surgically removed, and microscopic examination shows epithelioid cells with pale, oblong nuclei and pink cytoplasm with occasional psammoma bodies. Cytogenetic analysis shows 22q-. What is the most likely diagnosis?

- A. Meningioma
- B. Pilocytic astrocytoma
- C. Ependymoma
- D. Metastasis
- E. lymphoma



• An 11-year-old girl has had increasing headaches upon awakening for the past month. On examination, papilledema is present bilaterally. An MRI of her brain reveals a 3-cm solid circumscribed mass within the fourth ventricle. There is third and lateral cerebral ventricular dilation. The mass is excised and microscopically shows perivascular pseudorosettes with round, regular tumor cells arranged around vessels. Which of the following neoplasms is she most likely to have?

- a. Astrocytoma
- b. Ependymoma
- c. Glioblastoma
- d. Medulloblastoma
- e. Schwannoma

• A 20-year-old woman with learning difficulties had flank pain for 1 week. Physical examination showed right costovertebral angle tenderness. Patches of leathery-appearing (shagreen patches) and hypopigmented (ash-leaf patches) skin were scattered over her body. There was a subungual nodule on her right index finger. Abdominal CT scan showed bilateral renal cysts and tumor masses. MRI of the brain showed subependymal nodules and 1- to 4-cm cortical foci with loss of the gray-white distinction. CT scan of the chest showed a 3-cm mass involving the interventricular septum. Two years later, she now has sudden, severe headache. MRI now shows a nodule obstructing the cerebral aqueduct. Neurosurgery is performed, and a subependymal giant cell astrocytoma is removed. What is the most likely diagnosis?

- a. Down syndrome
- b. Krabbe disease
- c. Neurofibromatosis type 1
- d. Tuberous sclerosis
- e. Von Hippel–Lindau disease

Answers:

- Case 1: E
- Case 2: B
- Case 3: A
- Case 4: B
- Case 5: D

THANK YOU
