

PATHOLOGY

☐ Sheet

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☐ Handout

Number

11

Subject

CNS TUMORS/3

Doctor

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Date: 00/00/2016

Price:

CNS pathology

Third year medical students

lecture 11 CNS tumors/ 3

Dr Heyam Awad

FRCPath

2017

meningioma

- Arise from arachnoid meningotheelial cells.
- Arise in adults
- Attached to the dura
- Can be seen at external surfaces of the brain or within the ventricular system

meningioma

- Majority: can be easily separated from brain, but some are infiltrative
- Behavior: benign but infiltrative lesions recur
- Outcome depends on: size, location, histological grade

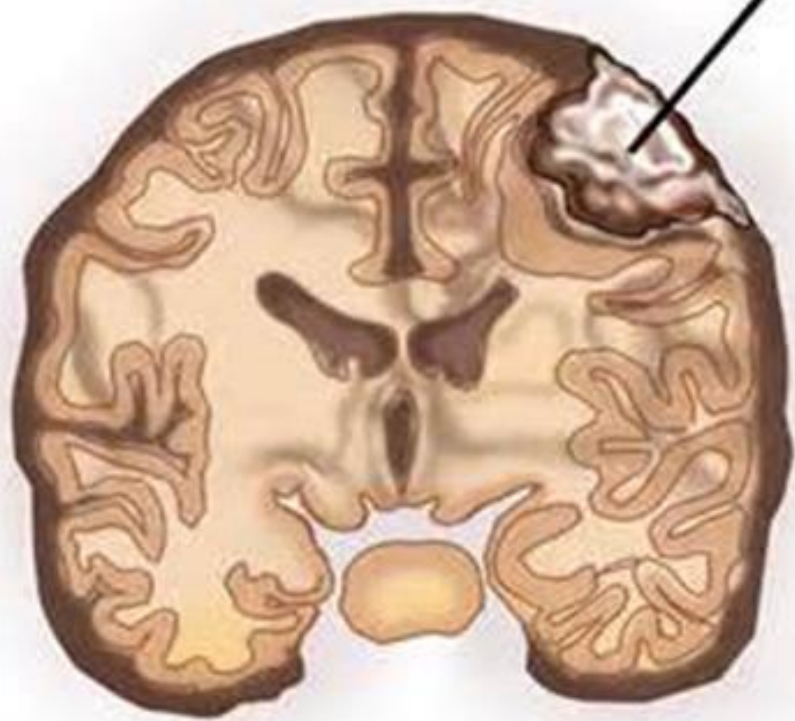
Histological grades

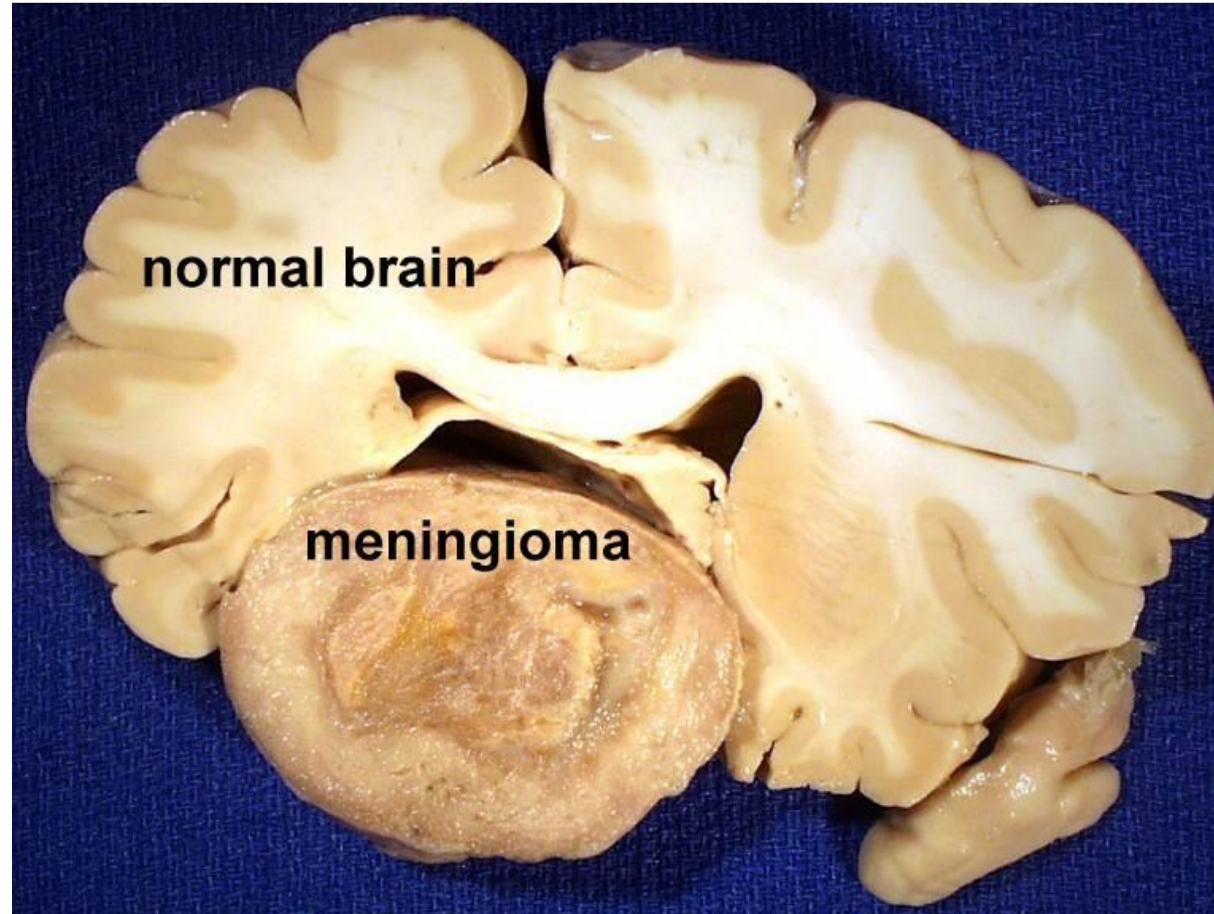
- WHO I: (well diff) meningioma
- WHO II: atypical meningioma
- WHO III: anaplastic (malignant) meningioma

Grade 1 meningiomas

- Well defined, dura based masses
- May compress but do not invade brain
- Can extend to overlying bone

Meningioma

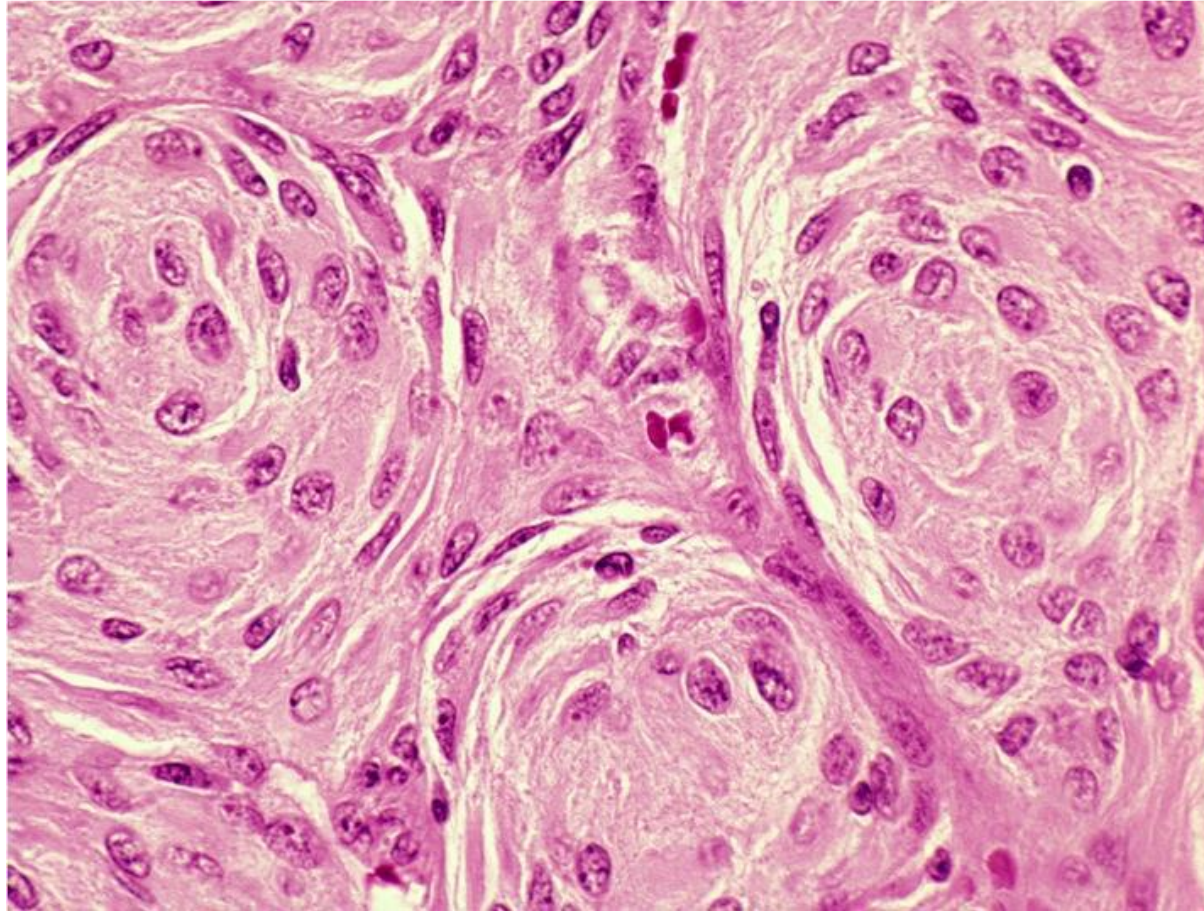




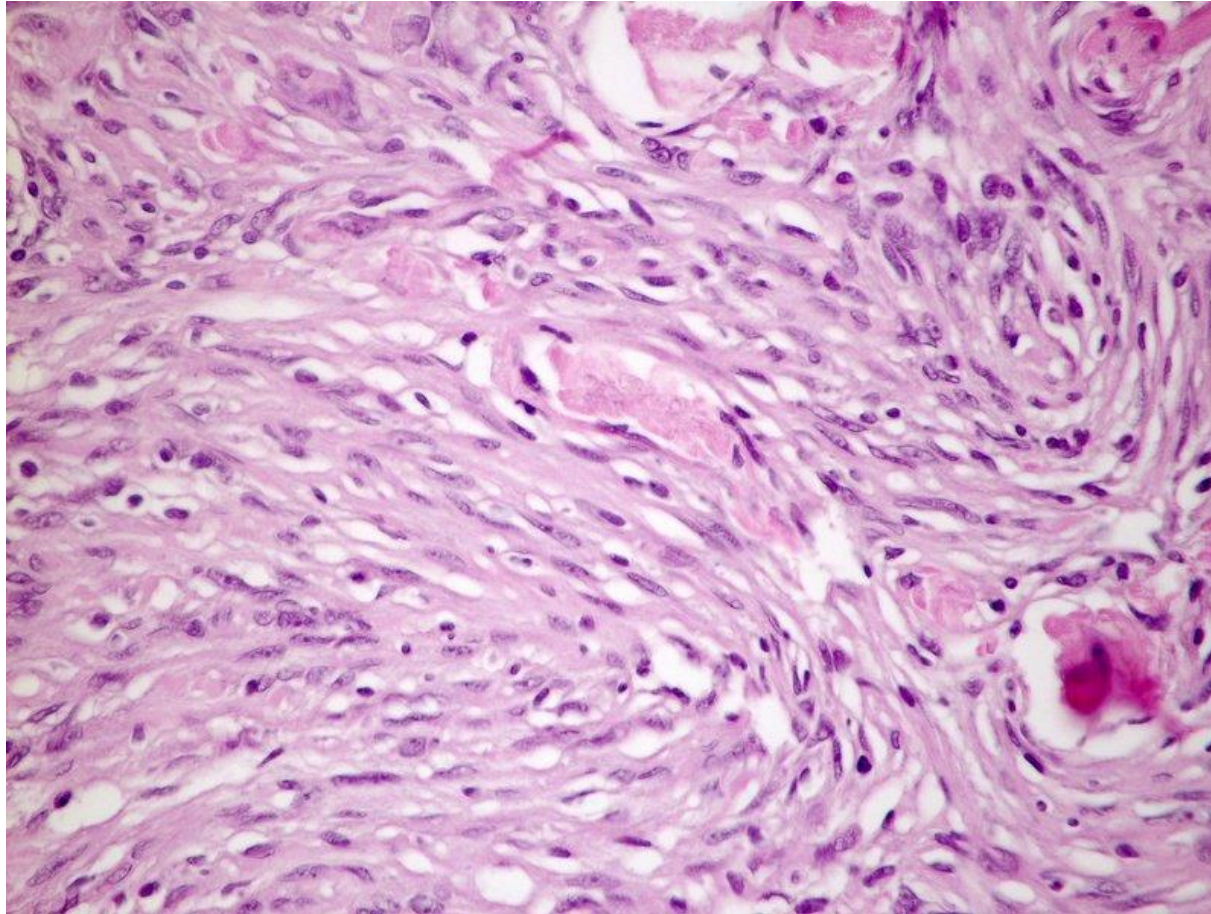
Grade 1 meningiomas/ histological types

- Syncytial: whorled clusters without visible cell membranes.
- Fibroblastic: elongated cells and abundant collagen
- Transitional: features of both, syncytial and fibroblastic
- Psammomatous: numerous psammoma bodies

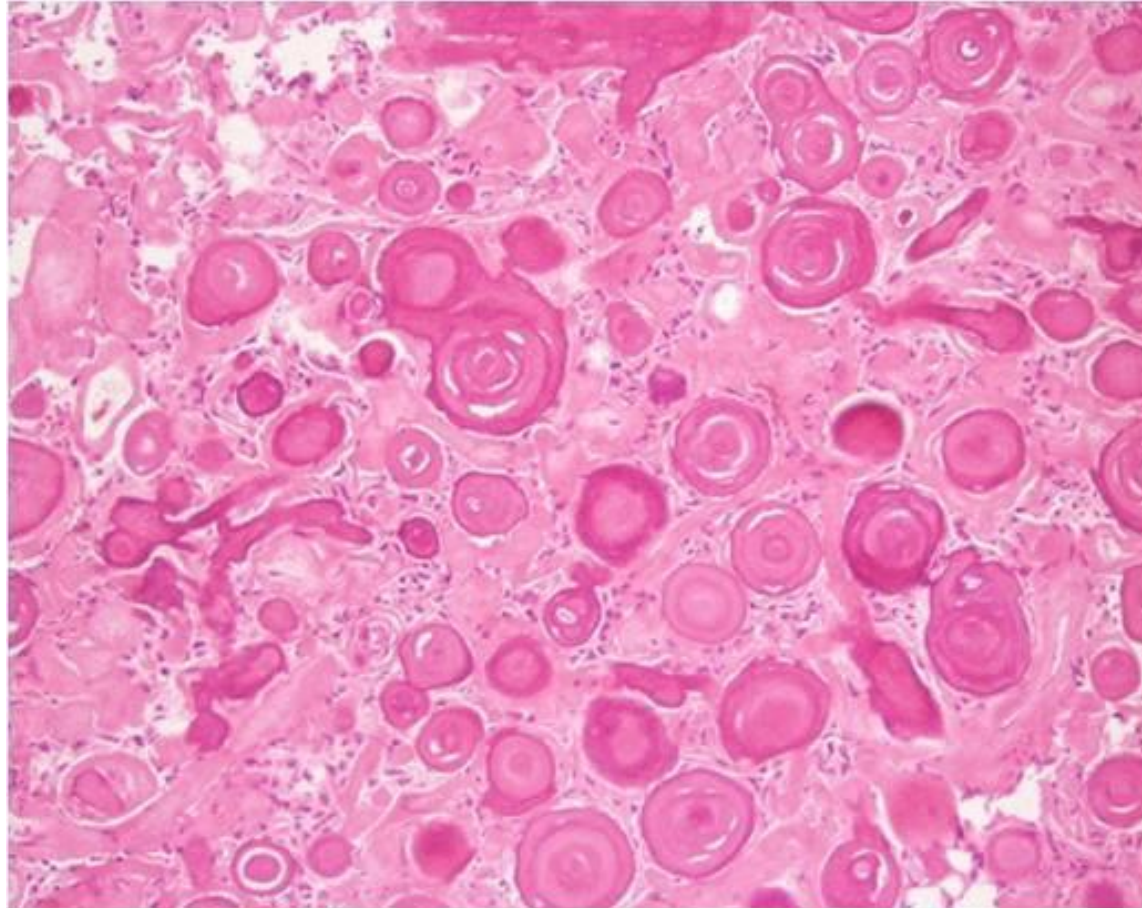
syncytial



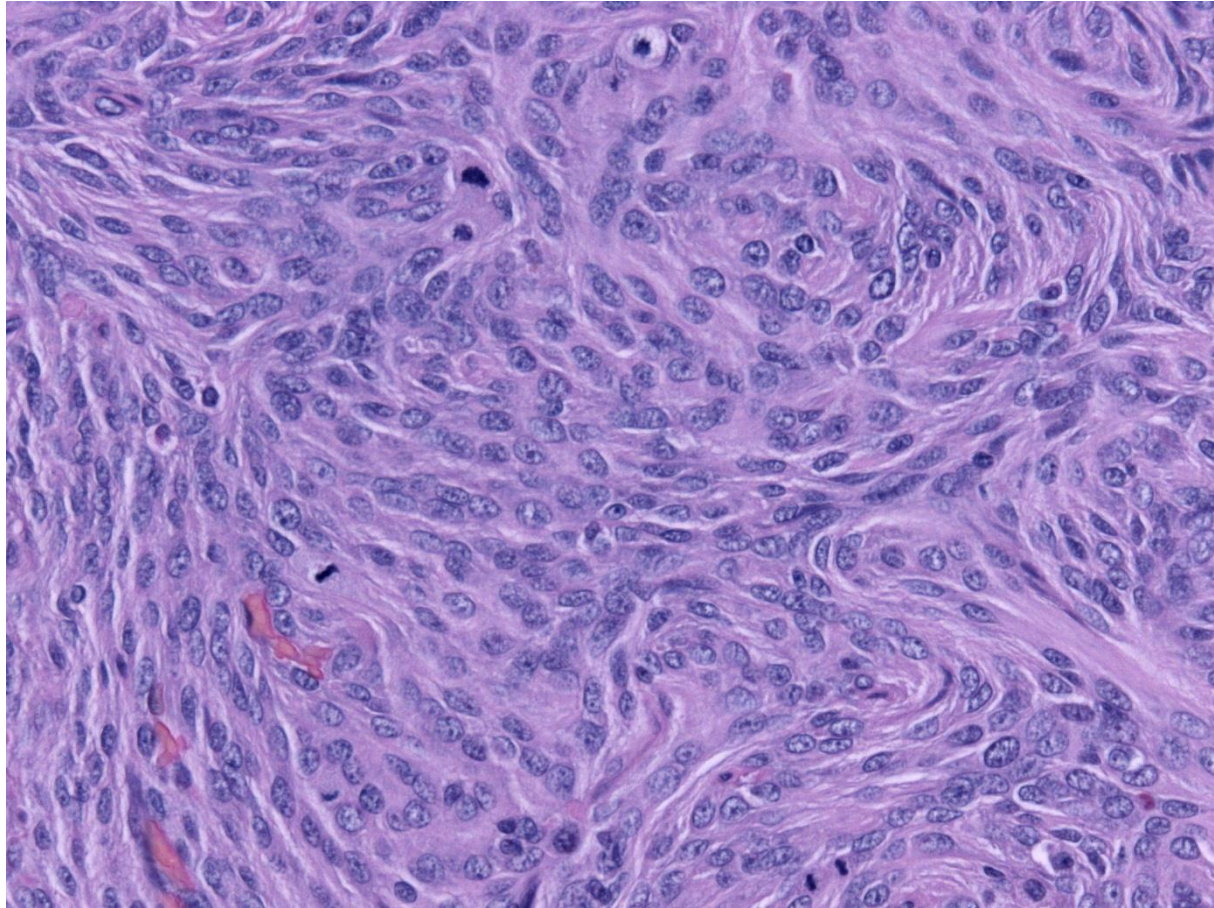
fibroblastic



pasammomatous



Atypical meningioma



Anaplastic meningioma

- Anaplastic meningioma WHO grade 3
- Highly aggressive
- Resemble sarcomas

Primary CNS lymphoma

- Mostly: diffuse large B cell lymphoma.
- 1% of intracranial tumors.
- Primary CNS lymphoma is the most common CNS neoplasm in the immunocompromised... in this situation they are almost always positive for EBV ((Epstein – Barr virus)

CNS lymphoma

- Aggressive disease with poor prognosis
- **Poor response to chemotherapy as compared to peripheral lymphomas**
- Usually **multiple** nodules within the brain parenchyma
- Spreading outside the brain happens rarely and at late stages
- Peripheral lymphoma rarely spreads to the brain, if it does there is usually associated meningeal and CNS involvement.

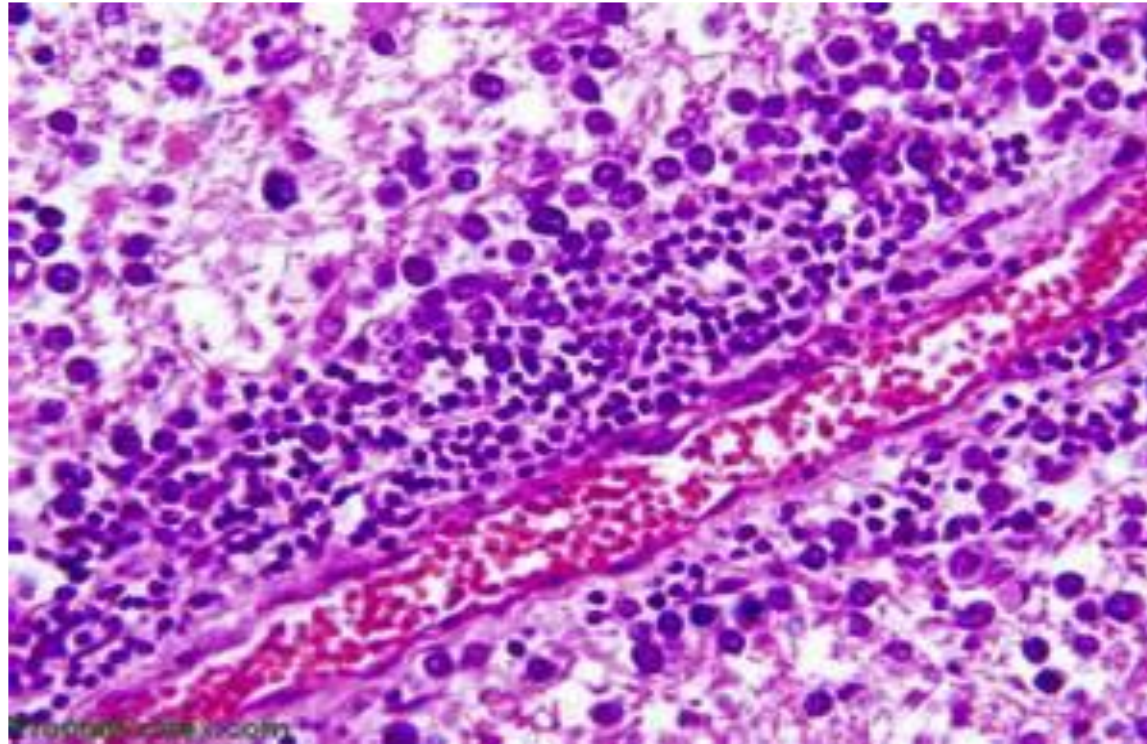
lymphoma

- Involves deep grey matter, white matter, cortex
- Periventricular spread is common
- Tumor nodules more defined than gliomas but less than metastases
- EBV positive tumors usually have extensive areas of necrosis
- Majority: diffuse large B cell lymphomas

lymphoma



Lymphoma/ note arrangement around blood vessels



Metastatic tumors

- Metastatic tumors
- $\frac{1}{4}$ to $\frac{1}{2}$ of intracranial tumors
- Most common primary sites: lung, breast, melanoma, kidney and GIT.
- Form discrete well defined masses, **can be multiple**

Paraneoplastic syndromes

- CNS and peripheral nerves can be affected in disseminated cancer as part of the paraneoplastic syndromes
- These include several manifestations including dementia, ataxia, sensory neuropathy and psychosis

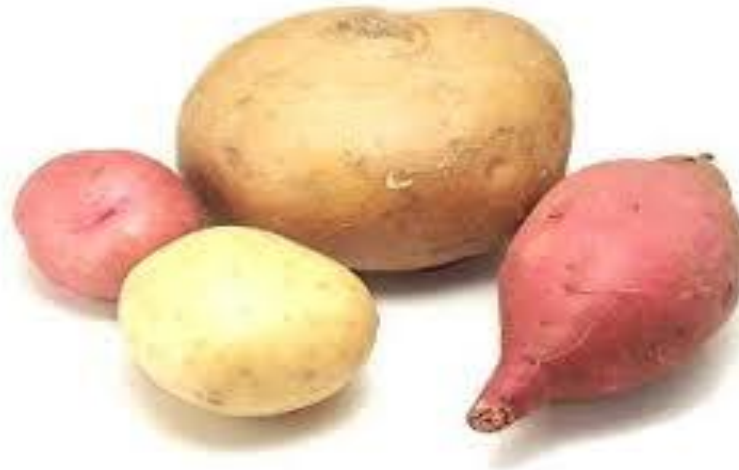
Familial tumor syndromes

- Inherited syndromes
- Mutations in several tumor suppressor genes
- Associated with increased risk of certain types of cancer
- 2 syndromes with CNS involvement: Tuberous sclerosis and von Hippel - Lindau

Tuberous sclerosis

- Autosomal dominant
- Hamartomas and benign neoplasms in brain and other sites
- CNS tumors: cortical tubers and subependymal hamartomas

- Cortical tubers: look like potatoes!!
- Tuber: thickened underground part of a stem



Cortical tubers

- = Hamartomas composed of haphazardly arranged large neurons.
- Mixture of glial and neuronal cells
- Cause seizures

Sub ependymal tubers

- Similar to cortical tubers
- Can cause hydrocephalus

Tuberous sclerosis/Extra-cerebral lesions:

- renal angiomyolipoma,
- retinal glial hamartomas,
- pulmonary lymphangiomatosis
- cardiac rhabdomyoma
- cysts in liver, kidney , pancreas.
- skin lesions: angiofibroma, hypo pigmented areas, thickened patches.

Von Hippel Lindau

- Autosomal dominant
- Mutation in VHL tumor suppressor gene.
- Hemangioblastomas mainly in cerebellar hemispheres, retina.
- Cysts in pancreas, liver kidney
- Increase risk of renal cell carcinoma

دَعُوهُمْ فِيهَا سُبْحَانَكَ اللَّهُمَّ وَنَجِّنَهُمْ فِيهَا سَلَامًا

وَأَخِرُ دَعْوَاهُمْ أَنْ الْحَمْدُ لِلَّهِ رَبِّ الْعَالَمِينَ ﴿١٠﴾