put together by Alex Yartsev: Sorry if i used your images or data and forgot to reference you. Tell me who you are. aleksei.igorevich@gmail.com

BRAIN TUMORS

INCIDENCE: about 15 in 100,000

ONLY KNOWN RISK FACTOR is cranial irradiation

Proposed risk factors include mobile phone radiation, high tension wires and head trauma

Clinical presentation of brain tumours

Usually the result of **increased intracranial pressure:** Normally 0 to 15 mm Hg; over 30 requires treatment

- 6ths and 4th cranial nerve problems
- **diffuse headache**, worse in the morning
- **PAIN CAN BE THROBBING AND UNILATERAL, LIKE A MIGRAINE!! BEWARE !!**

TYPICAL PRESENTATION:

- Focal symptoms (eg. dysphasia, hemiparesis)
- Rate of progression = indication of degree of malignancy
- Usually: **SUBACUTE ONSET, months to weeks**
- Seizures are present in 15 to 95% of tumours (depending on subtype)

DEATH FROM A BRAIN TUMOUR is usually due to TONSILLAR HERNEATION from increased ICP
Thus, coma and death from respiratory failure

Diagnosis of a Brain Tumour

- **MRI is gold standard;** no MRI findings = no lesion.
- Contrast agents get through broken blood-brain barrier
- **CT can MISS some tumours!**
- **PET can distinguish high- from low-grade**

PROGNOSIS OF A BRAIN TUMOUR

- **Tumour Grade is ALL-IMPORTANT! Single most valuable prognostic factor**
- **Age (younger = better)**
- **Clinical status (i.e comorbidities, etc)**
- **THESE influence the outcome MORE THAN TREATMENT**

Types of brain tumours

GLIAL: oligodendroma and astrocytoma

ASTROCYTOMA:

- A terrible beast which spreadeth yonder aong the white matter tracts, thus rendering itself **INOPERABLE**
- **Young adults most stricken**
- **First symptom OFTEN A SEIZURE**
- Looks like **a non-enhancing mass on MRI**
- **PET will show high-activity regions: try to biopsy THESE**
  (normally, biopsies are not representative as different regions will have different histology, so you want to hit the most active high-grade areas with the biopsy needle)
- **These tumours will eventually become high grade.**
  SURVIVAL about 5 years
- **TREATED WITH RESECTION (when you can) and RADIATION**

ASTROCYTOMA FROM HELL: GLIOBLASTOMA MULTIFORME

- **Commonest and worst**
- **50-70 age group**
- **irregular ring-like lesion on MRI findings;** +edema and mass effect
- necrotic, with pseudopalisading of cells; lots of vascular proliferation
  SURVIVAL about 1 year.
- p53 and epidermal growth factor receptor mutations are the culprit here.
- **TREATED with radiotherapy and surgery** whenever possible

OLIGODENDROMA: given a choice, this is the tumour you would want.

- 20% of glial tumours
- looks like an astrocytoma on MRI
- "fried-egg" appearance under the microscope
- delicately vascular, prone to hemorrhage
- **THE ONLY BRAIN TUMOUR THAT CALCIFIES!**

Thus, you might actually see it on a plain skull X-ray (!)

SURVIVAL: usually about 16 years; most eventually progress in malignancy

TREATED with chemo radio and surgically.

MENINGIOMA

- Arises from arachnoid cells
- About 20% of all brain tumours
- Majority are asymptomatic and are found en route to another diagnosis
- Whorls of cells on microscopy: identical to normal arachnoid cells
- Slowly growing
- Genetic abnormality: absence of chromosome 22
- **WHEN OVER HEMISPHERES it produces hemiparesis and seizures**
- **In the base of skull, it will cause cranial nerve palsies**
- MRI shows a tethered tumour with a "dural tail"
- Treated with resection only. 20% will recur in 10 years.

SCHWANNOMA

- Peripheral nerve sheath cells gone bad: most often sensory nerves
- 10% of brain and 30% of spine tumours
- **Angle of cerebellum and pons is a favourite:**

here, they are called ACOUSTIC NEUROMA