

BRAIN TUMORS

- Most common : Secondary >> primary/ benign >>> primary / malignant

➔ **Risk factors:** Radiation, viruses (EBV, CMV), Trauma, immunosuppression, Racial, Genetic

Hippel-Lindau disease (hemangioblastoma)/ Li- Fraumeni syndrome (gliomas) / tuberous sclerosis (subependymal astrocytoma). Optic nerve gliomas in NF1 / multiple meningioma in NF2

➔ **Clinical Manifestations** ... According to .. Site /size / grade/ hormones

1. **Increased ICP >>** From the mass itself or obstruction
2. **NDs >>** It depends on the site of the mass >> frontal lobe syndrome/ parietal lobe syndrome
3. **CSF Obstruction... hydrocephalus**
4. **Seizures >>** More from low grade & superficial tumors
5. **Hormonal symptoms & Headache (dull & constant .. am)**

➔ **Investigations :**

1. **X-ray :** limited help... widened sutures in children, calcifications, osteolytic lesions of the skull .
2. **CT :** It used to detect hemorrhage in them / if MRI is contraindicated
3. **MRI :** 🔥 T1 with C / T2/ FLAIR/MRA/ MRS -> to determine the chemical composition of the brain
4. **PET:** combined with 2 or 3 ... to show the result of Tx >> to differentiate between recurrent tumor and radionecrosis after radiotherapy.
5. **Cerebral Angiography:** to know which vessel supplies the tumor.

with calcifications:
1. meningiomas
2. Craniopharyngioma
3. oligodendrogliomas

A. Metastasis

- From lung, breast, colon & kidney.
 - After 45 yrs ... supratentorial (85%), cerebellum (15%)
 - According to it's site ... headache, seizures,
 - CT / MRI -> well enhance with C. -> with Vasogenic edema
 - Tx : Steroids & anti-epileptic ... **Remove or Debulk**
- & take a **biopsy** to know it's primary origin +/- Chemotherapy/ Radiotherapy.

B. THE Gliomas 50%

- Arise from the neuroectoderm/ glial cells.
- Difficult in removal & Tx... 1 yr survival of pt
- Mostly in 50-70 yrs

1. Astrocytomas: MC.

- Arising from astrocytes.

1. **Grade 1 : Pilocytic** ▶ Benign , Children
Cystic lesion in Cerebellum, in adult .. at brainstem
2. **Grade 2 : Diffuse Fibrillary** ▶ Benign , Children & Adult, slowly growing
In Cerebellum , Optic nerve , Hypothalamus -> with no margins/ capsule
3. **Grade 3 : Anaplastic** ▶ Rapid growth , infiltrative.
Highly vascular with areas of necrosis & high mitotic
4. **Grade 4 : Glioblastoma** ▶ Malignant, Rapid growth , solid & cystic
With necrotic & hemorrhagic areas , new vs ... in cerebral hemispheres.

>> MRI, CT , Special dyes >> to localize it
>> Remove or Debulk it >> reduce the symptoms,
& radiotherapy dose
>> Steroids & Antiepileptic

2. Oligodendrogliomas

- ~ From oligodendrocytes, Younger
- Superficial areas -> **Seizures**
- Well differentiated, Calcification -> on CT, MRI
- Surgery: totally **Restricted + chemo/ radio**

3. Ependymomas

- Around cavities, infratentorial -> **Hydrocephalus**.
- Children , young adult.
- CT, MRI >> in ventricular system, elk+/ calcification.
- Surgery : totally **Restricted + chemo/ radio** (seed tumor cells)

C. Medulloblastomas

- Childhood, in midline posterior fossa/ cerebellum
- > CSF obstruction, vomiting, headache, truncal Ataxia
- Malignant -> by CSF -> to spinal theca -> cauda equina
- MRI, CT >> enhance well, noncommunicating hydrocephalus
- TX: CSF diversion -> Complete Removal +Radiotherapy

D. Meningiomas

- Adult F> M ... from Arachnoids >> Extra axial
- Idiopathic & Due to ionizing radiation, NF2 associated
- Calcification / **Hyperostosis** of adjacent bone.
- Most common sites [olfactory groove, parasagittal area, convexity of the brain, supra sellar area, Intraventricular]
- MRI, CT >> enhance well with C. + Vasogenic edema
- TX:
 - ▶ Complete Removal -> Radiotherapy
 - ▶ steroids +/- anti epileptics
 - ▶ Endovascular embolization / highly vascular

E. Vestibular Shwanoma

- benign, posterior fossa tumor, from Schwann cells.
- from **CN VIII** , unilateral hearing loss, tinnitus, disequilibrium
unsteady gait, dizziness ... late : **CN V & VII** involvement
- MRI/ CT with C. >> it well enhance
- CN testing >> Weber & Rinne test, decreased corneal Reflex
Facial twisting ~ ipsilateral

F. Pituitary Adenoma

- benign, from ant. lobe
- Macro vs. Micro ... Functional vs. Non-functional
- optic chiasm -> bitemporal hemianopia
- Cushing syndrome, acromegaly, hyperprolactinemia.
- hemorrhage or necrosis -> pituitary insufficiency
- MRI/ CT + Endocrine tests + Visual Field testing
- In micro- prolactinomas -> medications/dopamine agonist
- Surgery -> severe visual manifestations, failure of medical treatment -> **transphenoidal** or **transethmoidal**
- Post op endocrine replacement therapy.

C.

MEDULLOBLASTOMA

MOST COMMON MALIGNANT BRAIN TUMOR IN CHILDREN

HEADACHE, NAUSEA, VOMITING, DIZZINESS, VISUAL DISTURBANCES

TUMOR CAN COMPRESS 4TH VENTRICLE, CAUSING HYDROCEPHALUS

MAJORITY ARISE IN THE CEREBELLUM

TRUNCAL ATAXIA, SEIZURES, SENSORY DEFICITS

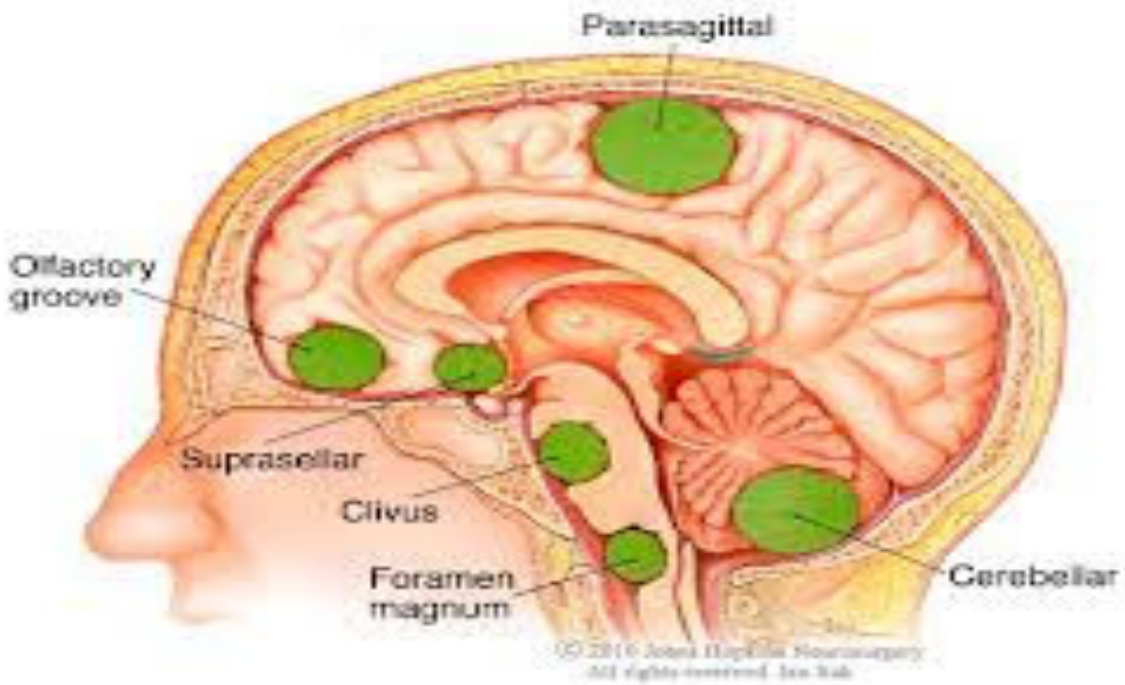
TREATMENT USUALLY CONSISTS OF SURGERY, RADIATION, AND CHEMOTHERAPY

IMAGING MODALITY OF CHOICE IS MRI

WWW.MEDCOMIC.COM

© 2017 JORGE MUNIZ

D.



E.

ACOUSTIC NEUROMAS

AUDITORY NERVE

UNILATERAL SYMPTOMS

CEREBELLO-PONTINE ANGLE

DIZZINESS

SCHWANN CELLS

FACIAL WEAKNESS