CASE 1

♦ 71 year old, female.

♦ Progressive cognitive decline and behavioural changes for 1 year.

♦ She also complains of intermittent left sided vision loss.
CASE 1- Continuation

- Occipital craniotomy for mass resection: vascular lesion with appreciable plane between normal brain and tumor.
- Residual tumor in the superior aspect of left transverse sinus.
Brain invasive, atypical meningioma, grade II WHO
Atypical Meningioma

- Grade II tumor.
- Invasive lesion, with a more aggressive behaviour and faster growth than typical meningiomas. Brain invasion is a criteria for WHO classification as atypical meningioma.
- Unfortunately morphological imaging usually does not allow differentiation between typical, atypical and malignant meningiomas.
- Necrosis and calcification can be seen. DWI can show an isointense or hyperintense lesion.
- Some authors suggest a higher CBV and reduced ADC when compared to typical meningiomas.
CASE 2

- 50 year old, male.
- Asymptomatic HIV/AIDS, recently started on antiretroviral therapy.
- Right sided weakness, facial weakness and word finding difficult for two weeks.
Case 2- Continuation

- Stereotactic brain biopsy.
- PET SCAN: avid pulmonary mass (undetermined: infectious, inflammatory, tumor). The brain lesion showed reduced FDG uptake.
Immunodeficiency associated large B-cell lymphoma
B-cell Lymphoma

- Common HIV-associated lymphomas are diffuse large B-cell: 1ry CNS lymphoma and Burkitt lymphoma.
- Incidence has decreased with antiretroviral therapy.
- Risk of systemic or 1ry lymphoma in HIV-infected is related to CD4 count.
- 1ry CNS lymphoma can involve brain or meninges. Brain involvement is characterized by single or multiple enhancing lesions. Basal ganglia and corpus callosum are frequently involved. In AIDS, lesions can present necrosis with irregular or peripheral enhancement.
- Diffusion is often restricted due to tumor cellularity. When compared to other brain tumors, CBV is relatively low in 1ry lymphomas.
- On SWI microhemorrhages are rare in primary lymphomas

Case 3

- 54 year old, female.
- Hypernatremia (Na: 174) and progressive vision loss.
Case 3- Continuation

10/31: Endoscopic trans-sphenoidal hypophysectomy and resection of right cavernous sinus component. A CSF leak was observed during surgery and it was decided to stop and wait for histology.
Intrasellar biopsy—Pituitary adenoma
Case 3- Continuation

- A second surgery was done 13 days later to complete the resection of the suprasellar component. A craniotomy was done with partial resection of the suprasellar mass.
Suprasellar biopsy—Extranodal NK/T cell lymphoma, nasal type
Extranodal Natural Killer/T-cell lymphoma

- Two types of NK/T lymphoma: extranodal NK/T lymphoma nasal type (EKNL) and aggressive NK cell leukemia.

- Endemic in East Asia and South America. Epstein-Barr virus is usually detected in its tumor cells.

- EKNL has two subtypes: nasal and extranasal.

- Highly aggressive clinical course and poor prognosis.

- Rarely described in the CNS.

Case 4

- 33 year old, male.
- Motor vehicle accident.
CASE 4- Continuation

- Chest CT: hilar adenopathy, peribronchovascular nodules and apical cysts.
- Craniectomy and partial resection of frontal mass: avascular tumor.
Neurosarcoid
NEUROSARCOIDOSIS

◆ Systemic, non-caseating, granulomatous disease.

◆ Usually manifests during 3rd and 4th decades of life, slightly higher predominance in females. Rarely sarcoidosis may be isolated to CNS.

◆ Involvement of CNS occurs in 5% of sarcoidosis patients, but on necropsy 25% show CNS involvement.

◆ In the CNS neurosarcoidosis can manifest pachymeningitis (with hypointensity on T2WI), leptomeningitis mainly in the sellar/suprasellar and fronto-basal regions, unenhanced or enhanced parenchymal lesions and cranial nerve involvement. In the spine intramedullary as well as nerve root enhancement can occur. A normal MRI does not exclude neurosarcoidosis.

Nozake K, Judson MA. Presse Med 2012; 41: e331-48
Case 5

- 36 year old, male.
- Neck pain after an accident 3 months ago.
Case 5- Continuation

- CSF negative for lymphoma, germinoma or metastatic disease.
- Infratentorial supracerebellar approach for mass resection.
Pilocytic astrocytoma, WHO grade I
PILOCYTIC ASTROCYTOMA

- Glial tumor, grade I WHO.
- Slow growing lesion, well circumscribed.
- Most common locations: cerebellum, brainstem, diencephalum (hypothalamus and optic pathway).
- Affects more commonly children and adolescents between 5 to 15 years. Rarely diagnosed over 18 yo.
- In adults they are more commonly supratentorial.
- They can be solid, cystic or mixed lesions.
- The solid component enhances on CT and MRI. The cysts can present peripheral enhancement. Sometimes pilocytic astrocytomas can present an agressive imaging appearance.

Case 6

- 5 year old, male.
- Goldenhar syndrome (incomplete development of the ear, nose, soft palate, lip and mandible), craniofacial microsomia, tetralogy of Fallot, congenital thoracic scoliosis and Hirschsprung disease.
CT when the patient was a newborn
First MRI for evaluation of the inner ear - 11 months old
Case 6- Continuation

- Suboccipital craniotomy.
Dermoid cyst (skin appendages not shown).
DERMOID CYST

- Dermoids result from inclusion of ectoderm elements (hair follicles, sebaceous glands, and apocrine glands) during neural tube closure.

- Usually midline lesions, more common in the spinal canal than in the cranium.

- The most common locations of intracranial dermoids are: posterior fossa and parasellar region.

- More commonly diagnosed in the first decades of life.

- Rarely rupture to the CSF spaced and chemical meningitis can ensue.
DERMOID

- Associations between dermoids and dermal sinus can occur.
- CT: the lipomatous component is hypodense. Calcifications can be seen.
- MRI: hyperintensity on T1WI and hypointensity on T2WI due to lipomatous component. Chemical shift can be identified sometimes.
- When rupture: free lipids droplets can be seen in CSF spaces as well as meningeal enhancement.
- Occasionally dermoid cysts can have a similar appearance as an epidermoid cyst (“black dermoid), if composed mainly of non-fat components.

Osborn AG, Preece MT. Radiology 2006; 239: 650-664.