Adult Orbital Tumors (and Mimics) (sans Lacrimal Gland)

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Globe Neoplasms

- Melanoma
- Hemangioblastoma
- Metastases

Ocular Melanoma

- Uveal tract (choroidal-90%)
- Caucasian:AA=15:1; 6th decade
- Asymptomatic or painless visual disturbance
- Most “dome-shaped” with broad choroid base
- Mushroom-shape implies Bruch membrane penetration
- CT: Enhancing soft-tissue mass
- MR: T1-moderately hyperintense; T2-markedly hypointense; moderate enhancement
- Often associated with retinal detachment

Choroidal Melanoma

Invades optic disc; Does not penetrate globe
**Choroidal Melanoma**

43F

**Choroidal Melanoma (with retinal detachment)**

42F: Several months of decreasing vision

**NO! Hemangioblastoma!**

43F with VHL

**Choroidal Metastases**

66F: Breast adenocarcinoma

54M: Lung carcinoma

53M: Malignant melanoma

**Enlarged Optic Nerve/Sheath Complex**

- Optic nerve glioma
- Perioptic meningioma

**Perioptic Meningioma**

- 2%-5% of orbital tumors
- F:M = 2:1 to 4:1; 5th decade
- Slowly progressive, painless visual loss and ON atrophy
- Usually tubular; Ca++ in 33%-50% (often “tram-track” configuration)
- CT: Enhancing mass around ON
- MR: T1-isointense; T2-variable, homogeneous enhancement
- Occasional distal perioptic cysts
**Perioptic Meningioma**

- "Tram-track" calcification, Extension through optic canal

**64F: Progressive, painless visual loss**

**Perioptic Meningioma**

- 51F: Progressive painless proptosis

**Intracranial Space**

- Cavernous malformation
- HPC/SFT
- Metastases
- (Schwannoma)
- Leukemia
- Lymphoma

**Cavernous Malformation**

Congenital, present at birth, grow slowly and do NOT involute

- Most common adult intracranial lesion
- F>M; mean age 43-48 yrs;
- Usually intraconal
- Slowly enlarge – painless proptosis
- CT: Well-circumscribed (fibrous pseudocapsule), ovoid, and homogeneous
- MR: T1-isointense; T2-hyperintense w/ dark rim
- Minimal enhancement in early arterial phase but “fills in” on delayed venous phase

**Cavernous Malformation**

- Immediate
- Delayed
**Hemangiopericytoma**
**Solitary Fibrous Tumor**

- Rare, slow-growing vascular tumor
- Extraconal>intraconal; benign=malignant
- F:M = 4:1; mean age 46.5 yrs.
- Well-circumscribed, lobulated, flow-voids
- Remodel (benign) or erode (malignant) bone
- CT: enhancing, lobulated mass, EARLY arterial phase enhancement (vs. cavernous malformation)
- MR: T1-isointense; T2-iso-hypointense; enhancement

**Orbital Apex Cavernous Malformation**
55F: Slowly decreasing vision 2-3 years

**Cavernous Malformation**
Immediate
Delayed post-contrast

**Orbital Apex Cavernous Malformation**
Immediate
Delayed

51F: Progressive Rt visual loss

**Pseudocapsule facilitates surgical resection**

Note intense immediate enhancement vs cavernous malformation
Metastases

- 13% of orbit tumors
- Ocular, conal, IC, EC (anywhere!)
- Breast #1 (48%-53%) > prostate > melanoma > lung
- Lung mets most common to affect globe (?)
- Proptosis, motility disturbances, diplopia, pain…
- EXCEPT scirrhous breast Ca mets- produce ENOPHTHALMOS due to contracture of orbital fat

Breast Metastases (Adenocarcinoma)

- 74F: 5 mo h/o periorbital swelling
- 77F: Proptosis and diplopia
- 55F: Rt eyelid drooping, swelling and diplopia

Scirrhous Breast Carcinoma

- 60F: Rt enophthalmos
- Right
- Left

Lung Metastasis

- 71M: Increasing eye pain, proptosis, and diplopia
- Mean ADC = 1199.50
Schwannoma

43F: Proptosis and decreased vision

B-Cell Lymphoma

Chloromas

47F with CML: Bilateral proptosis and diplopia

Chloromas (Granulocytic Sarcomas)

Orbital involvement in children is more common in acute leukemias, whereas orbital involvement in adults is more common in chronic leukemias. The patient may have proptosis, ecchymosis, chemosis, diplopia, visual disturbance, or motility disturbances. Granulocytic sarcoma of the orbit is an extramedullary form of myelogenous leukemia. Green pigment is primarily myeloperoxidase.

Conal/Extraconal Space

- Schwannoma
- Neurofibroma
- Metastases
- Lymphomas

Schwannoma / Neurofibroma

- Schwannomas (6% of orbital tumors) > solitary neurofibromas
- Usually V branches; also III, IV, VI
- Proptosis and hypoglossus
- Usually extraconal, slow-growing
- CT: Enhancing soft-tissue EC mass
- MR: T1-isointense; T2-hypo-hyperintense; marked enhancement
- Neurofibromas-not encapsulated; may be less well-defined
**III Schwannoma**

25M with diplopia, ptosis, and dilated pupil

**V1 Schwannoma**

12M: Lt hypoglobus

**VI Schwannoma**

**Supraorbital Nerve Schwannoma**

12M: Lt hypoglobus

**Supraorbital Nerve Neurofibroma**

Patient with NF 1
**V1 Perineural Tumor Spread**

3 different patients with SCCa

**Spontaneous Subperiosteal Hematoma**

**B-Cell Lymphoma**

**HPC-SFT**

78F: Increasing Lt hypoglobus. Had “complete” resection 2 years ago

**HPC/SFT**

**IgG4 Disease**

72F: Abrupt vision loss after cataract surgery with ptosis and proptosis
**Inferior Rectus Lung Metastasis**

**Carcinoid Metastasis**

71F with right IV palsy

**Carcinoid Metastasis**

73M with AML: Rt. VI palsy

**Rt Lateral Rectus Nocardia Abscess**

**Veno-lymphatic Malformation**

43M

**Lymphoproliferative Lesions**

- A spectrum from benign – malignant
- MALT subtype of NHL most common (60-90%)
- Most common primary orbital tumor in adults > 60 years of age; M=F
- Exraconal > intraconal; Lacrimal in approx. 40%
- Sxs: Palpable mass, ocular motility restriction, proptosis
- Well-circumscribed to diffuse and ill-defined
- CT: Iso-hyperintense mass with enhancement
- MR: T1-isointense; T2- variable; mod-marked enhancement
Mean ADC=697

58F: 3 month h/o proptosis, diplopia

B-Cell Lymphoma

12/31/15
1/9/16

B-cell Lymphoma

Look similar?... But this is Granulomatosis with Polyangiitis

SUMMARY

Globe
Choroidal melanoma
Hemangioblastoma
Metastases
Optic nerve sheath complex
Periopic meningioma

Intracanal
Cavernous hemangioma
HPCSFT
Metastases
Lymphoma

Conal/Extraconal
Schwannoma / Neurofibroma
HPCSFT
Metastases
Lymphoma

Thank You!

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