**Case Report**

A 73 year old Caucasian male presents for a routine glaucoma examination, but reports symptoms of a persistent flash in his left eye. Clinical exam reveals a choroidal lesion suspicious for melanoma or metastasis.

**Case History**

**8/2010** 70yo WM presents in August 2010 for initial examination with no ocular or visual complaints. His last reported dilation was more than 40 years ago at which time he was told there was a spot in the back of his eye. He denies any family history of ocular conditions, history of trauma, or ocular surgery.

Hypertension since 2002: Hydrochlorothiazide, Lisinopril (132/70, rate 76)
Diabetes Mellitus: Metoprolol
Hypercholesterolemia: Simvastatin

Low compound hyperopic prescription with best corrected vision of 20/20 OD, OS.
Pupils, ocular motilities, confrontation fields, and Amsler grid tests were unremarkable.
Anterior segment evaluation showed slight capped meibomian glands and mild cataracts OU.
Intraocular pressures were measured to be 16mmHg OD and 17mmHg OS.
Dilated exam revealed moderate cupping of the discs 0.65 OD and 0.60 OS, moderately attenuated blood vessels with few crossing changes, and a 3.5 disc diameter flat choroidal nevus located superonasal OD. All other findings were unremarkable.

Patient was diagnosed with blepharitis, mild hypertensive retinopathy, moderate optic nerve cupping, early cataracts, and choroidal nevus OD. The patient to return in 3 months for baseline visual fields.

**9/2011** 71yo: CC itchy/tearing eyes and symptomatic relief with Visine
Recently diagnosed and undergoing radiation treatment for prostate cancer since July 2011.

Pain: Acetaminophen, Ibuprofen
Gout: Allopurinol
HTN: Amlodipine, Hydrochlorothiazide, Lisinopril (116/78, rate 64)
GERD: Omeprazole
CHL: Simvastatin
Prostate: Terazosin, Warfarin
Inactive: Bicalutamide, Colon elec lavage, fentanyl citrate injection, midazolam IV injection
Intradermal injection: Enoxaparin, Goserelin

Intraocular pressures were 19/18 with cupping being noted as 0.70 OD, 0.75 OS.
Choroidal nevus OD was stable.
Return in 3 months for visual fields, glaucoma work up.

**12/2011** 72yo WM Humphrey visual field 12/2011 was reliable and full OD, reliable with superior arcuate defect OS not noted from 2010. Gonioscopy revealed open angles. Corneal thickness was average (544/540). Diagnosed with primary open angle glaucoma, started with travatan qPM OU, and return in 3 months for repeated fields. Last measured IOP 14/14.
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8/2012  72yo WM, Ran out of travatan x 3 weeks. Last visual fields (5/2012) was stable OU.
Pain: Acetaminophen, Ibuprofen
Gout: Allopurinol
HTN: Amlodipine, Hydrochlorothiazide, Lisinopril, metoprolol (130/78, rate 66)
GERD: Omeprazole
CHL: Simvastatin
Prostate: Terazosin, Warfarin, Tamsulosin
Inactive: Bicalutamide, Colon elec lavage, fentanyl citrate injection, midazolam IV injection
Intradermal injection: Enoxaparin, Goserelin

IOP 15/16
Choroidal nevus OD is slightly elevated on clinical observation.
Return in 3 months for pressures.

12/2012  73yo WM, POAG returning for pressure check, travatan qPM OU with good compliance
Reports “light bulb” inferiorly OS for 1 month. Denies floaters/curtains.
IOP 18/19, C/D 0.70 thin sup OD, 0.75 thin inf OS
OD: Choroidal nevus flat sup
OS: 4DD choroidal lesion (+)drusen, elevated, pigmentary changes
B-scan shows small elevation with minimal internal reflectivity
FA confirms early hyperfluorescence that does not change in the late stages. (+)allergy to fluorescein

Referral to outside ocular oncologist immediately.

Differential Diagnosis
- Elaborate on condition
  o Choroidal melanoma is most common primary intraocular malignant neoplasm in adults
    ▪ 88% choroidal, 12% ciliary body/iris
  o Cancer that arises from melanocytes
    ▪ Melanoma 4% skin cancers, 79% skin cancer related deaths
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- Secondary cancers: 5yr ~7.7% rate, most common prostate (23%), breast (17%)
- 6% prostate cancers metastasize to the choroid
- 50% mortality rate
  - 33% from melanoma metastasis, 29% malignant tumor other than metastatic, 11% malignancy of unknown origin
  - Median survival for stage 4 ~9mos, and 3yr survival <15%
- Poor prognosis 70-79yo, males>women 3:2 >80yo
- Diagnosis/Staging scales
  - LUMPO
  - TNM – AJCC and UICC
  - Kaplan-Meier analysis
- Early diagnosis = surgical resection (80% effective for thin lesions)
- Other presentations: Subfoveal melanoma → Tx plaque brachytherapy →

  - Expound on unique features
  - Risk of metastasis depends on several factors: gene expression, basal tumor diameter, tumor thickness, ciliary body/extraocular muscle involvement, melanoma cytomorphology, etc.

  - Diagnostic tests
    - Transcleral fine needle aspiration biopsy
      - Cell culture: cell lines, blood DNA
    - B scan Ultrasonography
    - Fluorescein Angiography
    - Indocyanine Green Angiography

Treatment/Management

- Treatment
  - Enucleation
  - External proton beam radiation
  - Transcleral local resection
  - Endoresection
  - Transpupillary thermotherapy
  - Plaque radiation therapy
  - Iodine Brachytherapy
  - Androgen deprivation therapy: Gonadotropin-releasing hormone agonist (Leuprolide acetate)
  - Intralgesional injection BCG/interferon/interleukin 2 (stage 3)
    - Dacarbazine, Temozolomide, high dose IL2, and paclitaxel (stage 4)
  - Alternative Photodynamic therapy (PDT): induce direct tumor cell photodamage, destruction of tumor vasculature and activation of an immune response
    - Photosensitizing agent + illumination of the tumor with visible light
    - Apoptosis =controlled, energy consuming process of suicidal cell death
      - Mitochondria mediated/intrinsic pathway
      - Death receptor-mediated/extrinsic pathway
    - Necrosis
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- Protective mechanisms against therapy: pigmentation and increased oxidative stress defense
  - Response to treatment
    - Visual symptoms improve significantly depending on location

Conclusion
- Clinical Pearls
  - Lesions present when you least expect them
  - Prompt referral important
  - Ancillary tests like OCT serves a valuable tool
  - Discussion about prognosis important
  - Most aggressive treatment may not be the best
  - Other malignancies may occur

Bibliography