

Grand Rounds



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Subjective

- **CC:** “My vision is bad”
- **HPI:** 62 y/o AAM complains of a gradual decrease in vision in his right eye over the course of years. He denies any associated symptoms.
- **PMHx:** Hypertension, diabetes mellitus type II, hyperlipidemia, sinusitis, bipolar disorder
- **POHx:** None

Subjective

- **Family History:** No eye diseases
- **Social History:** Alcohol and tobacco dependence, previously lived in a homeless shelter, no pets
- **Medications:** Hydrochlorothiazide, metformin, simvastatin
- **Allergies:** NKDA
- **ROS:** unremarkable except for chronic low back pain

Exam

	OD	OS
<u>VA(CC):</u>	20/50	20/20

Pupils: Irregular OD, No APD

<u>IOP:</u>	11	12
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EOM/CVF: Full OU

Slit Lamp Exam

	OD	OS
<u>Ext/L/L:</u>	no nodules	no nodules
<u>C/S:</u> nodules	quiet, no nodules	quiet, no
<u>K:</u>	mutton fat KPs inferior edema	clear
<u>AC:</u> quiet	deep and quiet	deep and
<u>Iris:</u>	numerous Bussaca nodules	WNL

Dilated Fundoscopic Exam

OD:

Hazy view of the retina with few details apparent. No vitreous cell or haze was noted.

OS:

c/d 0.4

M – dot hemorrhages, microaneurysms

V – WNL

P – rare dot hemorrhages

No vitreous cell or haze noted

Subjective

- ROS: negative for fevers/chills, weight loss, night sweats, fatigue, cough, shortness of breath, trauma, intraocular surgery, hearing loss or other abnormalities, rash, urinary or kidney problems, diarrhea, GI upset, travel to rural or foreign destinations, insect bites

Assessment

- Recurrent anterior uveitis of unknown etiology OD (granulomatous)
- Differential:
 - **Sarcoidosis**
 - Tuberculosis
 - Syphilis
 - VKH disease

Plan

■ ACE 34 IU/L (20-72 IU/L)

■ PPD Negative

■ RPR Nonreactive

■ MHA-TP* Negative

■ CBC Hgb 11.9 g/dL

■ CXR

■ Chest -
CT

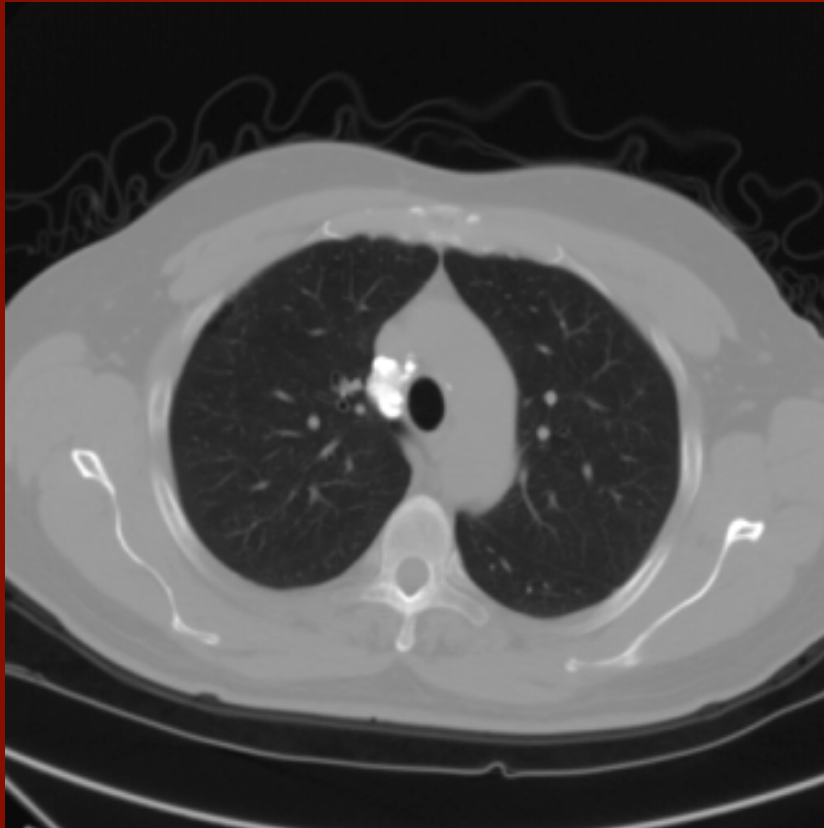
*MHA-TP = microhemagglutination assay for *Treponema pallidum*

Assessment



Chest Xray showing calcified granulomas near the trachea

Assessment



Chest CT showing calcified hilar lymph nodes (left) and a calcified granuloma (right)

Course

- The patient was not treated as there was no intraocular inflammation and no systemic symptoms
- He was lost to follow up, but...

HPI #2

- The patient returned 2 years after his last visit complaining of decreased vision OD. He had not experienced any pain, redness of the eye, or new systemic symptoms.
- Exam essentially unchanged, except:
 - VA(CC) 20/60-2 OD
 - IOP 34 mmHg OD
 - Gonioscopy showed PAS OD

Course

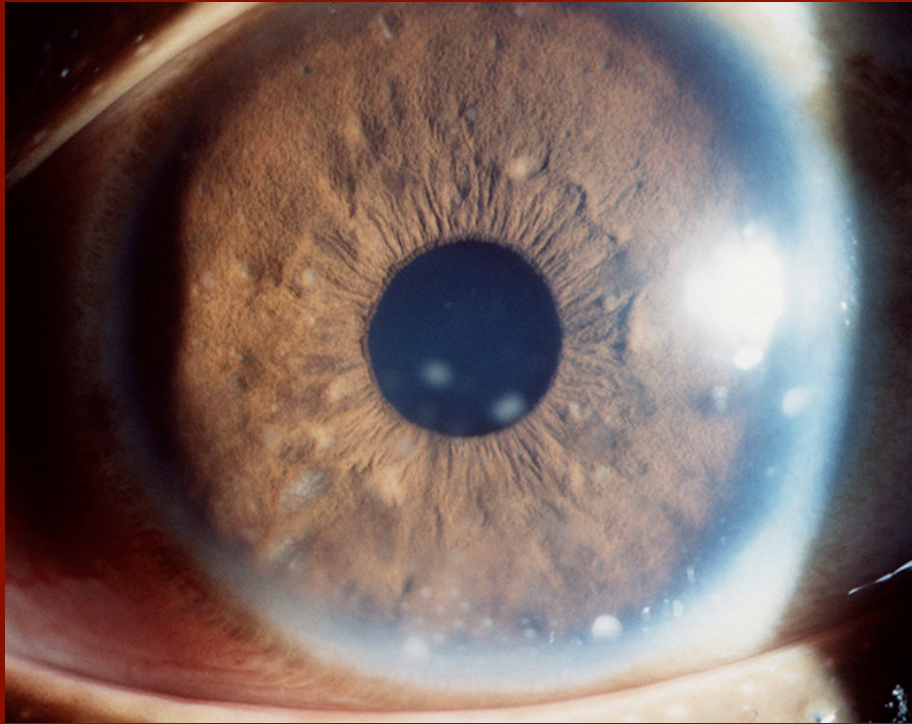
- The patient was started on Timolol OD QAM and IOP at follow up was 14mmHg OD.

Discussion - Sarcoidosis

- Sarcoidosis is a systemic granulomatous disorder of unknown etiology
- The most common site of involvement is the thoracic cavity (90% of those affected), but other sites include lymph nodes, joints, bones, CNS, skin, and eyes
- Most common among African Americans, although all races can be affected
- Most commonly affects adults age 20-50 years

Discussion - Sarcoidosis

- Ocular involvement occurs in 15-50% of patients
- Uveitis is the most common ocular manifestation and occurs in 2/3 of patients with ocular involvement
- Any ocular tissue may be involved, including:
 - Skin/conjunctiva – granulomatous nodules
 - Lacrimal gland – keratoconjunctivitis sicca
 - Posterior segment – vitritis (snowballs, “string of pearls”), perivascular sheathing, granulomas, “candlewax drippings”, retinal vascular occlusions, CME, optic neuritis



Busacca (above) and Koeppe
(right) iris nodules



Conjunctival nodule (above)
and lacrimal gland
enlargement (below)



Discussion - Sarcoidosis

- **Lofgren syndrome** consists of erythema nodosum, febrile arthropathy, bilateral hilar lymphadenopathy, and acute iritis
- **Heerfordt syndrome** (uveoparotid fever) consists of uveitis, parotitis, fever, and facial nerve palsy.

Pathogenesis

- Immune reaction triggered by either infectious antigens or non-infectious environmental antigens in genetically susceptible patients
- Abnormal activation of CD4+ Th1 cells in the affected organs which results in granuloma formation and inflammation
- These granulomas can resolve or become infiltrated with fibroblasts and collagen matrix to become permanent fibrotic lesions

Etiology - Infectious

■ Mycobacterium

- *M. tuberculosis* DNA has been detected with PCR in 26% of sarcoidosis biopsy specimens
- IgG against *M. tuberculosis* catalase-peroxidase protein has been reported in 50% of sarcoidosis patients

■ Propionibacterium

- The incidence of *P. acnes* or *P. granulosum* DNA in the tissue of patients with sarcoidosis is higher than in control patients and patients with TB

Etiology - Environmental

- Various studies have reported rural living, exposure to pine pollen, lumber industry, pica, fireplaces, wood stoves, hair spray, inhalation of peanut dust, and mold exposure (etc, etc, etc...) to be risk factors for the development of saarcoidosis
- A Case Control Etiologic Study of Sarcoidosis (ACCESS)
 - Increased risk of disease was associated with insecticide, mold, and mildew exposure as well as agricultural work
 - Decreased risk was associated with cigarette smoking

Sarcoidosis - Diagnosis

- International Criteria for the Diagnosis of Ocular Sarcoidosis: Results of the First International Workshop on Ocular Sarcoidosis (2006)
- International group of uveitis specialists collaborating to guide the diagnosis of ocular sarcoidosis
- Discussed signs, laboratory/imaging evaluations, and potential diagnostic criteria

Sarcoidosis - Diagnosis

- Seven signs of intraocular sarcoidosis identified:
 1. Mutton fat KPs, small granulomatous KPs, or iris nodules
 2. Trabecular meshwork nodules or tent shaped PAS
 3. Vitreous snowballs
 4. Multiple peripheral chorioretinal lesions
 5. Nodular and/or segmental periphlebitis and/or retinal macroaneurysm
 6. Optic disk nodules and/or a solitary choroidal nodule
 7. Bilaterality

Sarcoidosis - Diagnosis

- Laboratory/imaging tests judged to be of value:
 1. Negative tuberculin skin test (TST) in a patient with prior Bacillus Calmette-Guérin (BCG) or prior positive TST
 2. Elevated ACE and/or lysozyme levels
 3. Chest Xray/CT with bilateral hilar lymphadenopathy (BHL)
 4. Abnormal liver enzyme tests

Sarcoidosis - Diagnosis

- Four levels of certainty for the diagnosis of ocular sarcoidosis (diagnostic criteria) were recommended in patients in whom other possible causes of uveitis had been excluded:
 1. *Definite ocular sarcoidosis*: biopsy-supported diagnosis with a compatible uveitis
 2. *Presumed ocular sarcoidosis*: no biopsy, but chest imaging showing BHL, with compatible uveitis
 3. *Probable ocular sarcoidosis*: no biopsy, chest imaging without BHL, but ≥ 3 signs and ≥ 2 positive lab tests
 4. *Possible ocular sarcoidosis*: negative lung biopsy, but ≥ 4 signs and

Sarcoidosis - Treatment

- Corticosteroids are the first line agents in systemic disease
- Topical steroids are first line for anterior uveitis
- Periocular or oral steroids may be used for intermediate and posterior uveitis
- Corticosteroid sparing agents: cyclosporine A, methotrexate, mycophenolate mofetil, anti-TNF- α therapy (infliximab, etanercept, adalimumab)
- Surgical management plays a role (e.g. cataracts, glaucoma drainage procedures)

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Thank you