Ocular Toxoplasmosis

- Caused by Toxoplasma gondii
- Obligate intracellular protozoan
- 500 million have antibodies worldwide
- 50% of adult population in US have asymptomatic infection
- 28-55% of all cases of posterior uveitis
- First isolated from the brain of a “gondii” (North African Rodent)
- Cat family is definitive host, can infect other mammals and birds
- Oocysts found in intestinal tracts of cats
- Cysts ingested (most likely)
- Poor hygiene, infected pork, chicken but probably not beef
- Can survive outside host for up to 1 year
- Two forms in humans: cysts or tachyzoites.
- Propensity for cardiac and skeletal muscle and neural tissue (brain & eye)

Clinical Manifestations

Acquired vs. Congenital

- Most cases are presumed reactivation of congenital infection
- 2 to 6/1000 women acquire infection while pregnant, 40% risk of transmission to fetus.
- Of infected infants: 70% chorioretinal scars, 5% will die or severe disability, 1-2% severe visual impairment
- Northern Brazil has high rate of acquired disease

Systemic

- 90% lympadenopathy
- fever, malaise, occasional sore throat
- immunocompromised- fulminant CNS disease

Ocular

- Keratic Precipitates, anterior chamber cell and flare, posterior synechia, cataract
- Retinochoroiditis
- Vitritis- concentrated over lesion, scaffolding of vitreous strands
- Macular edema
- Retinal vasculitis
- VF defect in area of scar
- FFA of active lesion- early blockage and subsequent leakage

Atypical Presentations

- In early infection: gray-white fine punctate lesions in deep retina and RPE, progress to more classic lesions
- Papillitis, vitreal inflammation, nerve fiber bundle defects
- Bullous like inflammatory lesions in mid-periphery
- Wide ring-like lesion near extreme periphery resembling pars planitis
- Scleritis

Reasons for Vision Loss

- Vitreal inflammation causing clouding
- Lesion in posterior pole with edema affecting fovea
- Lesion in fovea
- Subsequent CNVM

Diagnosis

- Typical lesions
- Toxoplasmosis titers are supportive
    - IgM titers- can be missed
    - IgG titers- high rate of false positives
- Immunoflourescence, ELISA
- Western blot for Toxo antigens
- PCR and Southern Blot for Toxo DNA
- Angiography: flourescein tagged Ab (successful in rabbit studies)

Therapy

- Should you treat it at all?
    - Lesion within temporal arcade
    - Lesion next to optic nerve or large vessel
    - Lesion has induced large degree of hemorrhage
    - Vision drop of > two lines
    - Multiple recurrences with vitreal contraction
- No truly randomized, controlled clinical trials to compare efficacy
- Generally 4-6 weeks, multi-drug regimens

Medications

- Sulfadiazine 1g PO QID
- Pyrimethamine 75-100mg load and 25-50mg PO BID (bone marrow suppression, nausea)

    - Use concurrently: Folinic Acid 3-5mg PO 3 times/week (Baseline CBC, follow q week)
- Clindamycin 150-300mg PO TID-QID (?reduces recurrence, risk of pseudomembranous colitis)
- Trimethoprim-sulfamethoxazole (DS) I PO BID
- Atovaquone (Mepron) 750mg PO BID (kills cysts in vitro)
- Tetracycline 2g load and 250mg PO QID (to replace clindamycin)
- Prednisone 20-60 mg/day not used alone

Rothova et.al. (The Netherlands) Am J Ophth, 115:515-523. April, 1993

Treatment Regimen #1

- Pyrimethamine, Sulfadiazine, Folinic Acid, Prednisone
- Best at reducing size of lesions (49%),
- more medication side effects (26%),
- recurrence rate at 3 years (42%)

Treatment Regimen #2

- Clindamycin, Sulfadiazine, Prednisone
- Reducing size of lesions >1/2 DD (28%)
- med side effects (17%)
- recurrence rate at 3 years (67%)

Treatment Regimen #3

- Co-trimoxazole, Prednisone
- Reducing size of lesions >1/2 DD (11%)
- med side effec!ts (4%)
- recurrence rate at 3 years (40%)

Treatment Regimen #4

- No treatment (peripheral lesions)
- Reducing size of lesions >1/2 DD (20%)
- no med side effects
- recurrence rate at 3 years (53%)

Comments

- Recurrence rates not statistically significant
- Size of retinal lesion correlated with duration of inflammation
- All side-effects were reversible
- Delay in starting medication (even up to 1 week) did not alter duration of inflammation
- Sub-tenon's steroid- risk of increasing activity of organism
- Vitrectomy- for vitreal haze reducing vision, perioperative antibiotics advocated
- Cryotherapy and Laser photocoagulation generally not successful