Diagnosis and treatment of Toxoplasmosis in an immunocompromised patient with Wegener’s Granulomatosis

Abstract:
A 28 YO presents with an active toxoplasmosis lesion adjacent to the optic nerve. Patient’s medical history is significant for Wegener’s Granulomatosis, kidney transplant, immunosuppression therapy and drug allergy to Bactrim, requiring clindamycin intravitreal injection.

Case History:
A 28 YO Hispanic female presents with complaints of new onset floaters and cloudy vision in her left eye for five days. Patient also reports mild watering and a sense of building pressure behind her left eye and denies flashes of light. Ocular history is significant for toxoplasmosis OD in 2006. Medical history is significant for Wegener’s Granulomatosis, kidney transplant and fibromyalgia. Patient is currently taking CellCept and Prograf immunosuppressives to prevent transplant rejection in addition to Omeprazole, Xanax and Percocet. The patient also reports significant antibiotic allergies that have developed following her kidney transplant including Bactrim, vancomycin, ciprofloxacin, penicillin, ibuprofen and tuberculin.

Pertinent Findings:
Patient presents with entering visual acuities of 20/20 OD and OS with normal entrance tests including pupils that were reactive with no afferent pupillary defect. Goldman intraocular pressure was found to be asymmetric with OD 22mmHg and OS 17mmHg. Anterior segment examination OD was found to be normal whereas anterior segment examination OS revealed 2+ conjunctival injection, 1+ fine corneal endothelium keratic precipitates and 2+ anterior chamber cells. Dilated fundus exam OD was pertinent for a 3DD old and inactive toxoplasmosis scar. Dilated fundus exam OS was pertinent for diffuse vitritis, focal vasculitis of vessels extending from the optic nerve and an active retinitis adjacent to the optic nerve head with an active lesion of the inferior margin of the disk.

Differential Diagnosis:
Primary differential diagnoses for this patient includes active toxoplasmosis retinitis or Wegener’s vasculitis and retinitis. Other differentials to consider include infectious retinitis due to toxocariasis, CMV, tuberculosis, candidiasis, HSV, HZV and syphilis. Practitioners should also consider serpiginous choroiditis, septic retinitis and sarcoidosis when suspicious for toxoplasmosis.

Diagnosis and discussion:
This patient was diagnosed with ocular toxoplasmosis based on clinical examination and previous ocular history.
Toxoplasmosis gondii is an intracellular protozoan that can infect humans who come into contact with infected oocysts found in cat feces or undercooked meat. This organism can exist in an inactive form (bradyzoites) or active form (tachyzoite), the later which can cause ocular inflammation and destruction. Toxoplasmosis can become latent and reactivate causing ocular inflammation and damage, which occurs commonly in patients that are immunocompromised as in the patient outlined above. Ocular signs of toxoplasmosis include anterior uveitis, satellite lesions of inflammation adjacent to an old retinal scar vitritis and vasculitis. In patients that are immunocompromised extensive retinitis and areas of inflammation non adjacent to existing scars may be seen.

This patient’s case is unique in that she has a systemic history positive for Wegener’s Granulomatosis. Wegener’s Granulomatosis is an autoimmune condition that causes inflammation as well as death of tissues, most commonly in the respiratory tract, kidneys and small organs such as the eye. Wegner’s can present ocularly in many ways including, scleritis, keratitis, proptosis, uveitis, retinitis, retinal necrosis, optic neuropathy and vasculitis. The nonspecific ocular involvement of Wegener’s makes the diagnosis or pathophysiology of the diagnosis a clinical challenge. Although ocular Wegener’s and toxoplasmosis can have similar findings, vasculitis, retinitis and uveitis are believed to be rare findings due to Wegener’s Granulomatosis, and relatively common in toxoplasmosis. In this is case it is important that the proper diagnosis was determined as ocular toxoplasmosis and Wegner’s retinitis are treated differently. Wegener’s requires systemic steroids, which when given without antimicrobials would exacerbate the ocular toxoplasmosis in our already immunocompromised patient.

**Treatment/Management:**

Although some debate exists as to when to treat ocular toxoplasmosis in small peripheral lesions, the proximity to the optic nerve in this case requires prompt treatment. Due to immunosuppression and significant drug allergies this patient was unable to be treated with the standard treatment of pyrimethamine, sulfadiazine and corticosteroids or the alternative treatment of trimethoprim and sulfamethoxazole with prednisone. Referral to a retinologist for treatment was made with suggested treatments of clindamycin, azithromycin and atovaquone. Upon examination patient was given intravitreal injection of clindamycin and effectiveness will be evaluated at future examinations. Utilizing intravitreal injection allows for directed treatment of ocular tissues, high drug concentration and significantly decreases systemic adverse reactions. Azithromycin was considered because of its less toxic nature, effectiveness against both the tachyzoite and cystic forms of toxoplasmosis and its ability to cross the blood barrier. Atovaquone was recommended due to its ability to treat toxoplasmosis, potential to prolong reactivation and its added benefit of protecting the patient from bone marrow toxicity in her immunocompromised state.

**Conclusion:**

In conclusion, many patients have a comorbidity of systemic and ocular pathology that can span from autoimmune to infectious diseases as seen in the patient outlined here. It is not always clear on a clinical level which disease is responsible for ocular pathology, therefore making
treatment challenging. This case highlights the importance of understanding the pathophysiology behind the ocular and systemic disease so that the proper diagnosis and management with other health providers can be chosen.

Bibliography


