A 13-Year-Old Girl with Pain and Blurry Vision in the Right Eye
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Introduction:

The patient is a 13 year old girl with no past medical history who presents with a 2 week history of blurry vision in the right eye and a headache like pain around the right eye.

Exam:

At initial presentation, the patient’s vision was 20/40 in the right eye and 20/20 in the left eye. There was an intermittent relative afferent papillary defect in the right eye. Intraocular pressures were 20 in the right eye and 18 in the left eye. There was 1+ flare with trace cells in the right eye on anterior chamber exam. The dilated fundus exam was significant for edema of the optic nerve with hemorrhage and serous retinal detachment surrounding the nerve and extending nasally in the right eye. There was also 2+ vitreous cells and vitritis overlying the right optic nerve. The left eye was normal. (Figure 1)

A fluorescein angiogram was performed and revealed late leakage around the right optic nerve consistent with optic nerve inflammation. (Figure 2) There was an inferotemporal defect in the right eye on Humphrey visual field that was confirmed on a Goldmann visual field. An MRI of the brain and orbits found possible swelling of the retina around the right optic nerve head. Bartonella, lyme, toxoplasmosis, rubella, HSV and CMV titers came back normal. ACE, ANA, FTA-ABS, RA, PPD and CBC were also normal.

Follow-Up and Treatment:

The patient was diagnosed with optic neuritis of unknown etiology and treated with an oral prednisone taper and 1 month of oral doxycycline.

2 months after her initial visit, the patient’s vision stabilized at 20/40 in the right eye. There was still 3+ anterior vitreous cell and a small resolving vitreous hemorrhage. Goldmann visual fields show a stable inferotemporal defect in the right eye. Fluorescein angiogram showed some hyperfluorescence of the right optic nerve. The patient was told to follow up PRN.

7 years later, the patient returned with complaints of a new floater in the right eye. Her vision was 20/40 in the right eye and 20/20 in the left eye. There was no relative afferent papillary defect. The intraocular pressures were 14 in the right eye and 15 in the left eye. The anterior chamber exam was normal in both eyes. On dilated fundus exam, there was a prelaminar gliotic lesion with a focal area of hypopigmentation and associated intraretinal hemorrhage inferonasal in the right eye, with trace overlying vitritis. (Figure 3) A diagnosis of toxoplasmosis was suspected and the patient was started on Bactrim DS twice a day as well as an oral prednisone taper. Toxoplasma titers were sent and came back positive for Toxoplasma gondii IgG. Two months later the lesion in the right eye appeared quiet with resolution of the vitritis and hemorrhage. The final visual acuity was 20/50 in the right eye and she was kept on Bactrim daily for prophylaxis.

Figure 1: Optic nerve OD with hemorrhage and serous retinal detachment.
Discussion:

Toxoplasmosis is caused by the parasitic protozoan Toxoplasma gondii. Although it can infect nearly all warm-blooded animals, sexual reproduction can only occur in members of the Felidae (cat) family, its definitive host. Oocytes, containing sporozoites, are the products of sexual reproduction. Once ingested by the host, sporozoites transform into tachyzoites which reproduce asexually within the host and eventually form bradyzoites that persist within tissue cysts. Bradyzoites can transform back to active tachyzoites if released from cysts or ingested. The most common routes of infection are through eating undercooked meat or contaminated vegetables and through drinking contaminated water.

In the immunocompetent individual, toxoplasmic retinochoroiditis typically resolves over a period of 1 to 2 months [4]. There is conflicting evidence regarding the effectiveness of antimicrobial treatments such as clindamycin, spiramycin, azithromycin, trimethoprim-sulfamethoxazole, atovaquone, pyrimethamine, and/or sulfadiazine for ocular toxoplasmosis in immunocompetent patients. Intravitreal clindamycin with dexamethasone may be an effective alternative [3,4,6]. There is not strong evidence to support the use of one treatment modality over another. However, most uveitis specialists would treat ocular toxoplasmosis. In immunosuppressed individuals, there is stronger evidence of the effectiveness of antimicrobial treatment. Despite the lack of clear evidence that antimicrobial therapy alters the natural history of toxoplasma retinochoroiditis, there is level 1 evidence that trimethoprim-sulfamethoxazole reduces the recurrence risk [6].

Summary:

This patient presented initially with likely Toxoplasma papillitis during the seroconversion phase. She was treated with doxycycline and oral steroids. She then had a recurrence 7 years later at the edge of her previous scar which resolved with Bactrim and oral steroids. She is now taking Bactrim daily for prophylaxis.

Figure 2 (top): FA revealed late leakage around the optic nerve
Figure 3 (bottom): Seven years later, fundus photo shows a prelaminar gliotic lesion with an area of hypopigmentation and associated intraretinal hemorrhage in the right eye, with trace overlying vitritis.
References:


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May 14, 2016

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