

Uveitis Diagnostic Testing Options

STEVEN YEH, MD, EMORY EYE CENTER

Thomas Albin, MD, moderator of the Uveitis Resource Center, spoke with Steven Yeh, MD, Emory Eye Center, about uveitis diagnostic testing options. Their conversation follows:

Thomas Albin, MD: *When you have a patient who has anterior uveitis, with a little bit of vitreous spillover, but no pan-uveitis or posterior segment findings, what diagnostic tests are the most helpful?*

Steven Yeh, MD: One of the key considerations is ruling out an infectious process. Syphilis needs to be excluded via rapid plasma reagin (RPR) or microhemagglutination assay (MHAPT); sarcoidosis should be ruled out via angiotensin-converting enzyme (ACE) lysozyme and possibly an iodized calcium test. If the patient presents with lower back pain or if the uveitis is acute onset or if the patient has a typical pattern of acute anterior uveitis -- including redness and light sensitivity -- I may order a human leukocyte antigen (HLA) B27. There are also rare disease syndromes, such as tubular interstitial nephritis in uveitis, that should be tested for via beta-2 microglobulin (B2M). In pediatric uveitis, I consider ANA rheumatoid factor erythrocyte sedimentation rate (ESR), as well as HLA-B27. If a patient has risk factors for tuberculosis or is from an at-risk population, I consider a purified protein derivative (PPD) or QuantiFERON test.

TA: *What is your treatment approach in an adult intermediate uveitis case vs a pediatric case?*

SY: For adults, if there is anything posterior to the lens I order a workup. Relevant laboratory tests mostly parallel those that I order for anterior uveitis, including evaluation for sarcoidosis, syphilis and tuberculosis. For patients from certain geographic areas, I consider ordering Lyme titers to test for Lyme disease, which can be a cause of intermediate uveitis. For adult patients with neurologic symptoms, such as tingling and sensory motor changes, I think about the possibility of multiple

sclerosis. Also, Steven Yeh, MD, Emory Eye Center, the older a patient is, the more important to be mindful of uveitis masquerade syndromes, such as intraocular lymphoma.

For pediatric patients, we have to consider toxoplasmosis and toxocorditis if they have peripheral lesions. Besides doing laboratory testing, we also look to see if there are features that are characteristic of pars planitis. Aside from the serum antibody test for toxocorditis, one can consider doing an Elisa test -- it's difficult, but it is an option. There's also the Goldman-Witmer Coefficient test, which is based on the comparison of the level of specific antibodies to total immunoglobulin in both aqueous humor and serum.

TA: *What confirmatory tests do you employ if you see a patient with a whitening of the retina involving vessels or retinal vasculitis associated with that?*

SY: Polymerase chain reaction (PCR) testing is highly sensitive for herpes simplex virus (HSV), varicella zoster virus (VZV) and cytomegalovirus (CMV). It's less sensitive for toxoplasmosis, but if there is a concern that the retinitis could be toxoplasmosis, then I'll do a PCR assay, for that, as well.

TA: *Do you find serum antibodies for these viruses helpful?*

SY: The only time serum antibodies are helpful is if they are negative, which is rare from an epidemiologic standpoint. Also, there is speculation that there are differential phenotypes between HSV1 and HSV2 testing, so sometimes serum testing to distinguish HSV1 from HSV2 can be done if the PCR doesn't have the primers to distinguish between the two.

TA: *Intraocular lymphoma is rare and difficult to diagnosis. When you are dealing with this potential masquerade syndrome, what is your process?*

SY: When I consider the possibility of lymphoma, I look at anatomic location of the inflammation, as well as whether there are other defining characteristics that may suggest another ideology. For instance, if there's a granulomatous type inflammation in the anterior chamber, then it's less likely to be lymphoma and more likely to be in the sarcoid or TB category. If there is vitreous cell, I consider the location of the cells -- in terms of being within the vitreous -- well as the level of the retinal pigment epithelium (RPE). If there's a lot of RPE disease, diagnostic imaging can be helpful because autofluorescent characteristics can be seen that are suggestive of prior lymphoma that the body has managed to eradicate on its own. On angiography, sometimes the absence of leakage of the optic nerve or disc could suggest lymphoma, but by no means be fully diagnostic.

If intraocular lymphoma is high on my differential, I rule out infectious and inflammatory diseases, and I may ultimately consider a brain MRI, but because this can be a frightening prospect for the patient, I prefer to rule lymphoma out in every other way possible first.

TA: *Do you routinely get lumbar punctures in these patients?*

SY: If there is a high suspicion of lymphoma and the MRI isn't able to capture it, I consider a lumbar puncture,

but I do not automatically order a lumbar puncture because of the potential necessity for vitrectomy.

TA: *With respect to common laboratory investigations, which human leukocyte antigens (HLA) are the most helpful in evaluating uveitis?*

SY: Approximately 15% to 19% of these patients have posterior segment involvement, so if they have the right clinical features anteriorly I'll order HLA-B27. I order HLA-29 for birdshot, which has the highest relative risk; and I consider HLA-B51 for Behcet's disease. HLA-B51 doesn't necessarily prove or disprove Behcet's -- but it is supportive.

TA: *What is your work-up for a patient who has anterior scleritis?*

SY: For anterior scleritis, I think about collagen vascular disease and this frames the testing I do. I think about rheumatoid arthritis as a common cause of anterior scleritis, both diffuse and nodular, so I consider an ANA and a rheumatoid factor for rheumatoid arthritis. I also evaluate for syphilis and TB, and I consider gout, which is associated with anterior scleritis -- although not often. If the patient has peripheral keratitis, I will generally order ANCA testing. ■