What You Should Know About Diffuse Unilateral Subacute Neuroretinitis

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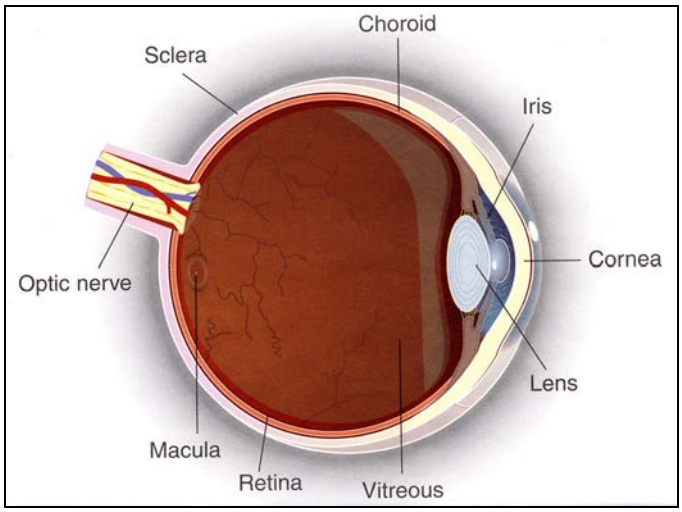
Diffuse unilateral subacute neuroretinitis (DUSN) is an inflammatory condition of the retina caused by the presence of a parasitic worm. These worms can live in the eye for months to years, moving in the space between the retina and the choroid, two of the outer coats of the back of the eye. Figure 1 shows the normal anatomy of the eye. The choroid is a layer of blood vessels just inside the tough white scleral coat. The retina is a thin layer of nerve tissue which converts focused light into a nerve signal conducted to the brain. The worms get into the eye via the blood vessels of the choroid. It is thought that handling of infested meat or contaminated food leads to ingestion of parasites which penetrate the intestinal lining, gain access to the bloodstream, and thereby are conveyed to the eye.

Figure 1. Anatomy



What Types of Worms Cause Diffuse Unilateral Subacute Neuroretinitis?

There appear to be two types of worms responsible for DUSN. A smaller worm, usually 400 – 1000 microns long, is thought to be the dog hookworm. This worm is most commonly seen in cases from Brazil, Venezuela, and Central America. A larger worm, usually 1500 – 2000 microns long, is thought to be the raccoon roundworm. Cases from Europe and the Midwestern United States are usually in this category.

What are the Symptoms and Signs?

DUSN causes blurred vision, floaters, and sometimes twinkling lights. The ophthalmologist can see the inflammatory cells in the vitreous gel, areas of retinal white spots, representing inflamed retina, and later on, pigmented scarring of the retina. In advanced cases the vessels become thin and the optic nerve may turn pale representing loss of neurons. The disease cannot be passed from human to human. Other organ systems are not involved.

What is the Treatment?

If the ophthalmologist can identify the worm (see figure 2), laser treatment can be applied to the worm to kill it. Other times the worm is too elusive to actually see, and presumptive therapy with a drug against parasites, such as thiabendazole or albendazole may be used. In the late stage, the worm will not be seen, the arteries are thin, the disc slightly pale, and the retinal pigment epithelium mottled (see figure 3, left eye, compared to normal right eye). The visual field in such cases is severely constricted (see figure 4).

Figure 2. View Inside Eye with early stage DUSN

Figure 3 Comparison of Eyes in a Patient with Late Stage DUSN

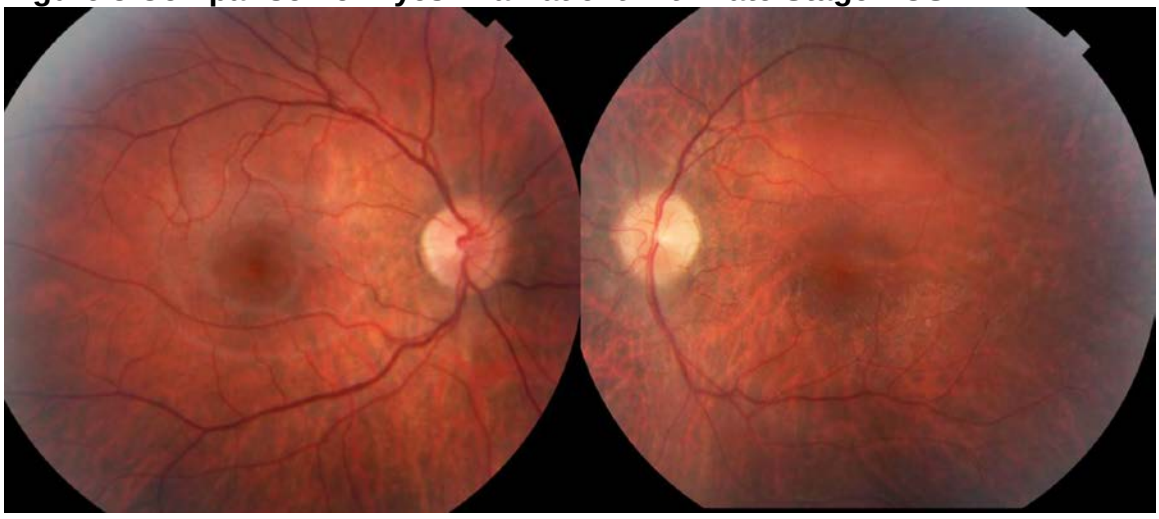
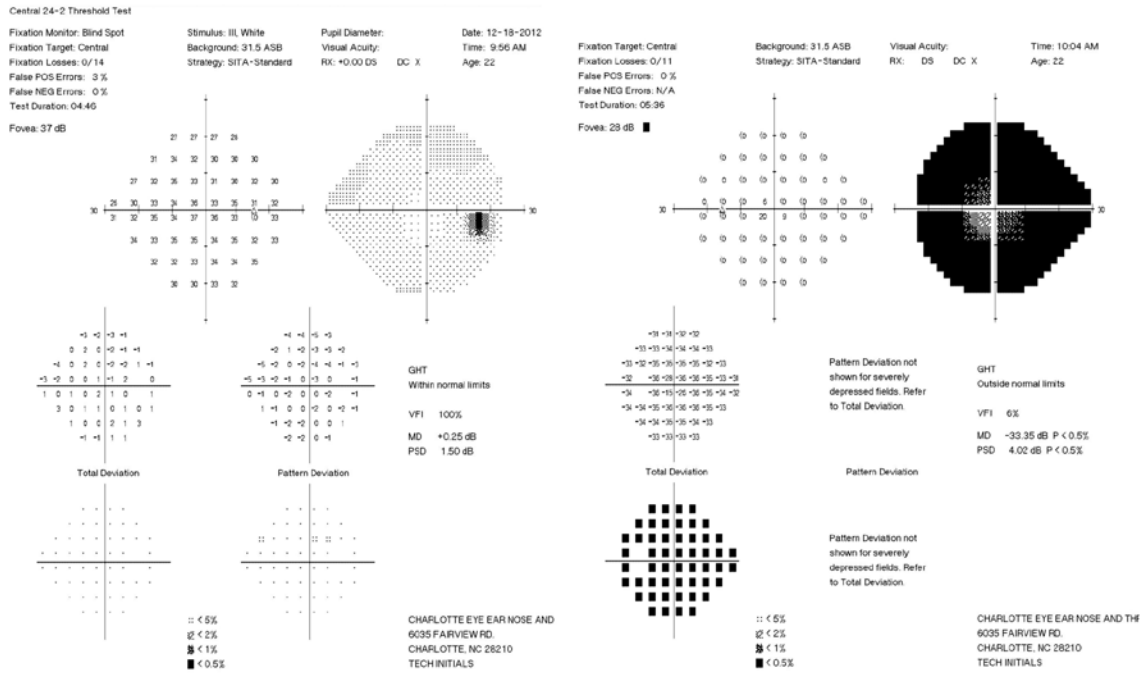


Figure 4 Visual Field in Late Stage DUSN



Final Comments

DUSN is a serious eye disease that frequently is misdiagnosed because of its rarity. It is often diagnosed at an advanced stage, because the unaffected eye continues to function well as the affected eye declines. Treatment can arrest the disease, but cannot restore the function that has been lost. Many cases of so-called unilateral retinitis pigmentosa are actually advanced cases of DUSN. This is a mistake for ophthalmologists to avoid, because a diagnosis of retinitis pigmentosa implies that the fellow eye is likely to become involved later, whereas such is not the case with DUSN, which does not spread from one eye to the other.

After reading this brochure, if you have a desire to read in more depth about DUSN, an excellent resource is the Pubmed page on the National Library of Medicine website at the following link:
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi.

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