What You Should Know About Central Retinal Vein Occlusions

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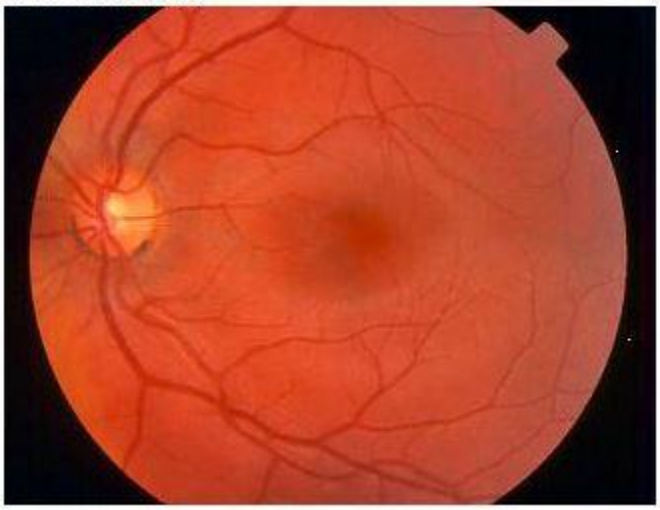
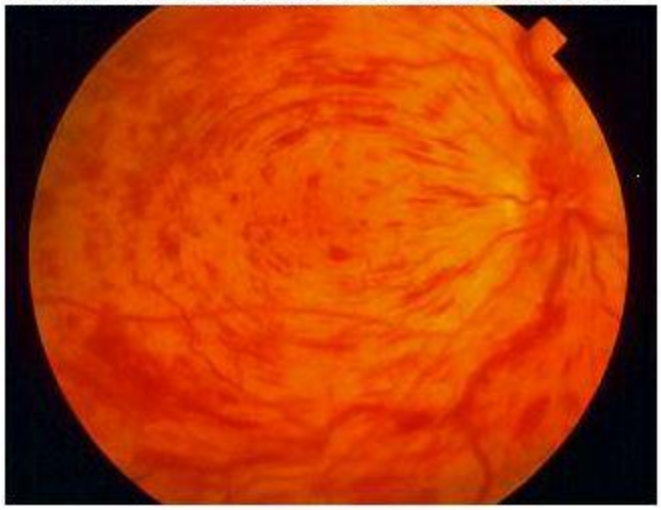
A central retinal vein occlusion is a blockage of the major vein that drains blood from the retina. The retina is the thin film of tissue lining the back of the eye onto which the light is focused and which forms the signals that travel to the brain. Photographs of a normal retina and of a retina with central retinal vein occlusion are shown below. The retina has many arteries and veins as shown in the figure and all of the veins join to form the central retinal vein that drains the blood from the retina. In central retinal vein occlusions a clot develops in the vein preventing the normal drainage of blood. Blood and clear fluid back up into the retina and blur vision.

Normal Retina



Retina with a Central Retinal Vein Occlusion



In some cases a very severe form of glaucoma develops after a central retinal vein occlusion. These patients develop abnormal new blood vessels on the iris - the colored part of the eye surrounding the black pupil. The abnormal blood vessels block the drainage channel for the clear, salty water filling the front of the eye and this causes the eye pressure to increase. For this reason all patients with central retinal vein occlusions must be watched carefully to discover early on whether or not this is occurring. Laser treatment can reverse the process in many cases.

Who Develops Central Retinal Vein Occlusions?

This is a disease of those over 50 years old for the most part. High blood pressure, diabetes, and heart disease are found in approximately two thirds of patients with the disease. Although these are the general rules, exceptions occur and some patients are youthful and in excellent health. In patients who develop central retinal vein occlusion in both eyes and in patients under age 50 without the usual risk factors of hypertension and diabetes, specific blood tests may be drawn to discover underlying tendencies toward clot formation. The most important of these is an elevation in serum homocysteine, an amino acid that causes vascular damage if elevated.

Two Types of Central Retinal Vein Occlusion

Central retinal vein occlusions vary in severity, but generally fall into two categories. Both types decrease the vision, but only one type has a propensity to lead to severe glaucoma. The first type, called nonischemic, shows continued blood flow to most of the retina, but leakage of fluid into the center of the retina causing blurred vision. The second type, called ischemic, often shows the leakage of fluid into the retina, but also shows large areas where blood is simply not getting to the retina. This type often leads to the severe form of glaucoma called neovascular glaucoma. The word neovascular signifies that this form of glaucoma arises from growth of new (neo) vessels (vascular). Injections of anti-vascular endothelial growth factor (anti-VEGF) drugs and laser treatment (panretinal photocoagulation) can often prevent this form of glaucoma if the now vessels are discovered in time. Thus, all patients need to be checked frequently after a central retinal vein occlusion. In addition, two tests are frequently helpful in predicting whether the vein occlusion will lead to glaucoma or not. One is the fluorescein angiograrn, in which pictures of the retina are taken after dye is injected into the vein of the arm. These are regular photographs, not X-rays, and give a good idea of how the retina is getting its blood supply. The second test is the optical coherence tomography scan, which shows the layers of the retina and whether they are swollen and lacking oxygen with disorganization and increased reflectivity. It is likely that your ophthalmologist will order one or both of these tests.

Treatment

Patients with the nonischemic type of central retinal vein occlusion with macular edema often improve when given injections of anti-VEGF drugs such as Avastin, Lucentis, or Eylea. These drugs have to be given over and over at intervals of 1-3 months for extended periods of time. The injections are given through the white part of the eye (the sclera) after anesthetic drops and pledgets are used to numb the surface and betadine drops are used to sterilize the area through which the needle passes. A tiny needle is used (30

gauge) and most patients do not complain of pain, although anxiety is common for the first injection.

Progression of Central Retinal Vein Occlusion

Even patients with the nonischemic type of vein occlusion need close follow-up because of the known ability of a nonischemic type of vein occlusion to convert to the more serious ischemic type. Since this can occur at any time, any marked worsening of vision should lead the patient to be reexamined to make sure such a conversion is detected.

General Suggestions

Since hypertension, diabetes, and heart disease seem to be risk factors in central retinal vein occlusion, these should be meticulously controlled in patients to whom they apply. Attention to these points may help prevent developing a similar problem in the other eye. In addition, if there is any tendency toward the usual form of chronic open angle glaucoma, this should be controlled by drops or surgery to keep the pressure in the eye down. Finally, smoking is a common thread in the history of many patients with this disease and ceasing this unhealthy habit may be helpful.

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