What You Should Know About Retinal Transient Ischemic Attacks (Amaurosis Fugax)

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Transient loss of vision, unassociated with pain, sudden in onset, and lasting 30 seconds to 3 minutes is called amaurosis fugax. Because of its frequent association with blockages of the carotid arteries and its potential implications for later stroke, these episodes are also called retinal transient ischemic attacks (TIAs), a term more widely known by the general public. An attack occurs when blood supply to part of the retina is impaired, causing partial loss of the visual field. The retina is the nerve lining in the back of the eye, vital to our vision. When we look at an image, light is focused on the retina, where a nerve signal is generated, which travels along the optic nerve to the brain to enable vision. Figure 1 illustrates these tissues.

Figure 1. Anatomy of the Human Eye

Causes of Retina TIAs

The most common cause of a retinal TIA is a build-up of cholesterol plaque in the walls of the carotid artery on the same side of the neck as the affected eye. The ophthalmic artery is the first branch of the carotid artery. If a particle of plaque or a clump of platelets, a blood component involved in clotting, breaks off and flows into the eye, it can block a small artery and cause loss of vision. Vision is restored when the particle breaks up further and flows downstream allowing the blood deprived retina to regain its blood supply.

Much less commonly, retinal TIAs occur from particles of a clot arising from a diseased heart or from calcium breaking off an abnormal heart valve. Sometimes retinal arteries can develop spasm, a type of migraine event without the headache, producing transient, monocular loss of vision. Trigger events for such spasms can be surprising, such as exercise, nose blowing, or pregnancy. These causes are rare compared to the common cause, which is disease of the carotid artery.
Diagnostic Work-up in Patients with Retinal TIAs

The most important test done is carotid artery imaging by ultrasound, which can show atherosclerosis of the artery walls and reduction in blood vessel diameter. An echocardiogram is done to evaluate the heart valves. Sometimes electrocardiography or Holter monitoring, a continuous form of electrocardiographic monitoring over a 24-hour period, may be done to look for irregularities of the heart rhythm.

Treatment of Retinal TIAs

Depending on the underlying cause, treatment may consist of medicines, such as aspirin or ticlopidine, to reduce platelet clumping on cholesterol plaques, or may rarely involve surgery to open blocked carotid arteries or correct heart valve abnormalities. Dietary changes may be recommended and if serum cholesterol and lipids are elevated, medicines called statins may be prescribed. All patients with retinal TIAs who smoke should seek help in stopping this behavior. Elevated blood pressure is treated with diet, exercise, and sometimes medication. If cardiac rhythm abnormalities are detected, various drugs to regulate the rhythm can be prescribed by a cardiologist.

Final Comments

Retinal TIAs are a potential sign of serious vascular disease. Patients over age 40 with retinal TIAs have higher rates of heart attack and stroke than the general population and they need diagnosis and appropriate treatment of the underlying problem. It is rare for patients under age 40 to have retinal TIAs. In this small, younger age group, retinal TIAs are more likely to be a result of vascular spasm similar to migraine, but without the headache. If such episodes occur rarely, no treatment is needed. If they occur frequently, or interfere with life and work, preventive drugs to block vascular spasm, like verapamil and propranolol, may be helpful.

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