

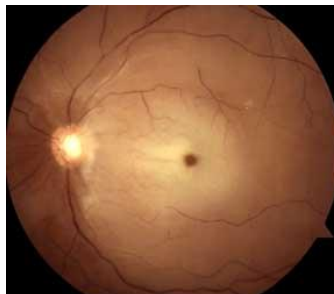
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## *Branch Retinal Artery Occlusion (BRAO)*

Branch retinal artery occlusion (BRAO) is a blockage of blood supply to an area of the retina. The most common cause of BRAO is embolic event, a fibrin, cholesterol, or other plaque that breaks off from another area of the body and is carried to the retina by the bloodstream and lodges in a retinal artery.



Visual loss from retinal artery occlusion is equivalent to loss of function in other parts of the body from stroke. Unfortunately, visual loss is not usually reversible, even with time. Central vision is lost suddenly if the blocked retinal artery is one that nourishes the macula, the part of the retina responsible for fine vision. Following BRAO, vision can range from normal (20/20) to barely detecting hand movement. If you have had a branch retinal artery occlusion, regular visits to your eye care specialist are essential and your eye doctor will request additional studies to assess your risk for other complications. Central retinal artery occlusion (CRAO) is the loss of blood flow to the main artery in the retina.



The first sign of CRAO is a sudden and painless loss of vision that leaves you barely able to count fingers or determine light from dark. This is an ocular emergency. CRAO usually occurs in people between the ages of 50 and 70. The most common medical problem associated with CRAO is arteriosclerosis, hardening of the arteries. Carotid artery disease is found in almost half the people with CRAO. The most common cause of CRAO is an embolic event, a fibrin, cholesterol, or other plaque that breaks off from another area of the body and is carried to the retina where it then lodges in the main artery and blocks flow. Loss of vision can be permanent without immediate treatment. Retinal damage occurs after 90 minutes, but even 24 hours after symptoms begin, some vision may still be saved. The goal of emergency treatment is to restore retinal blood flow if possible. After

emergency treatment, you should have a thorough medical evaluation to determine the underlying cause of your arterial occlusion. A CRAO can be a harbinger of life-threatening disease.

## Causes

In elderly patients, embolic disease is the most common etiology of a branch retinal artery obstruction. In a study of 70 patients with retinal emboli, 40 were found to have cholesterol emboli, 8 platelet-fibrin emboli, 6 calcific emboli, and 1 possible myxomatous embolus. These types of emboli can also be iatrogenically displaced during cardiac angiography, catheterization procedures, or any interventional embolization of any branch of the carotid artery.

Types of emboli (endogenous and exogenous) include the following:

- Cholesterol – Atheromatous plaques from the aorto-carotid system
- Platelet-fibrin – Carotid or cardiac thrombosis
- Calcific - Calcified cardiac valves and atheromatous plaques of the carotid artery
- Leukoemboli - Vasculitis, Purtscher retinopathy, septic endocarditis
- Fat emboli - Following long bone fractures
- Amniotic fluid emboli - Complication of pregnancy
- Tumors - Atrial myxoma, mitral valve papillary fibroelastoma
- Talc emboli - Long-term intravenous drug abusers
- Corticosteroid emboli - Complication of intralesional or retrobulbar steroid injection
- Air emboli – Following trauma or surgery
- Synthetic particles – From synthetic materials used in artificial cardiac valves and other vascular procedures; facial dermal filler (Restylane)
- Interventional embolization material (Onyx)

## Risk Factors

- Smoking
- Hypertension
- Hypercholesterolemia
- Diabetes
- Coronary Artery Disease
- History of stroke or transient ischemic attack (TIA).

Seventy-five percent of patients have hypertension or carotid occlusive disease.