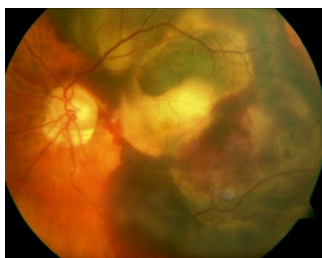


Wet age-related macular degeneration

Age-related macular degeneration (AMD) is a condition that affects the central retina (macula), which is most important for reading vision and daily tasks. Wet AMD is an advanced form of the disease and can cause rapid and severe loss of central vision in one or both eyes. Wet AMD is also known as *neovascular AMD* or *exudative AMD*. Until only a few years ago, a diagnosis of wet AMD meant unavoidable loss of vision, but treatments available for the last several years have finally allowed doctors to control the disease and even improve vision in some cases.

What causes wet AMD?

The onset of age-related macular degeneration is determined largely by genetics. However, only a small fraction of individuals with AMD go on to develop the advanced wet form, and this progression cannot be predicted by genetics. Smoking greatly increases the risk of developing wet AMD. There is good scientific evidence that patients with intermediate stage AMD can reduce their chance of developing wet AMD by using a specific vitamin supplement called the AREDS supplement.



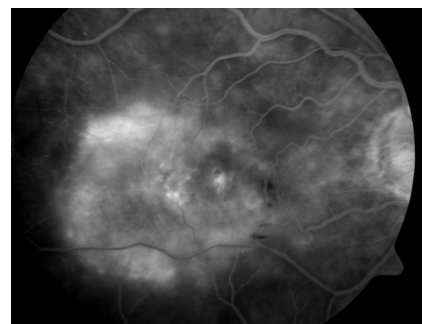
In the wet form of AMD, abnormal blood vessels grow behind the retina. These blood vessels can leak fluid or they can break and bleed. When blood and fluid collect behind the central retina, vision can drop dramatically.

◀ Color photograph of blood under the central part of the retina in wet AMD.

How is wet AMD diagnosed and evaluated?

Because several different diseases can produce blood or fluid in the central retina, your retina specialist will usually order tests to confirm the diagnosis of wet AMD and also document a starting point for treatment in order to measure progress over time.

Optical coherence tomography (OCT) is a fast, non-invasive scan of the retina which measures and locates fluid in and behind the retina. *Fluorescein angiography* (FA) identifies leakage of fluid under and within the retina with a series of photographs taken after intravenous injection of fluorescein dye.



▲ Fluorescein angiogram showing leakage of fluid in wet AMD

BayAreaRetinaAssociates



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Treatment of wet AMD

The primary treatment for wet AMD is injection of medication into the eye. The leakage of blood and fluid in wet AMD is caused by a hormone called VEGF (vascular endothelial growth factor). The medicines injected into the eye block this hormone (anti-VEGF medicines). There are two anti-VEGF medicines currently injected into the eye as treatment for wet AMD:

LUCENTIS. Lucentis (ranibizumab) was developed for use in wet AMD and is FDA-approved for this purpose. The medicine is very expensive (approximately \$2,000 per injection). In most cases the cost is covered partially or completely by health insurance. The medicine is almost always given repeatedly, at monthly intervals or less frequently, in order to achieve the best effect. Lucentis has been studied extensively in large randomized clinical trials, providing the highest quality evidence for its effectiveness.

AVASTIN. Avastin (bevacizumab) works almost exactly the same way that Lucentis works. Avastin was initially developed for intravenous use in patients with colon cancer and it is FDA-approved for that purpose. For more than 5 years, retina specialists have been injecting Avastin off-label into the eye for treatment of wet AMD. The cost per injection is much lower than Lucentis. Avastin is thought by many retina specialists to work as well as Lucentis. Avastin has been studied carefully, but large randomized clinical trials have not been completed for Avastin use in wet AMD the way they were for Lucentis. A large randomized clinical trial is currently being conducted by the National Institutes of Health (NIH) directly comparing Lucentis and Avastin, and the results should be available in the near future.

It is important to understand that anti-VEGF injections do not *cure* wet AMD. The injections reduce bleeding and fluid leakage behind the retina but ongoing injections are usually needed to control the disease. Your retina specialist will talk to you about what to expect over the course of treatment.

Photodynamic therapy (PDT) is an additional treatment that is sometimes used for treatment of wet AMD. PDT by itself is not as effective as Lucentis or Avastin, but a number of studies have shown that PDT combined with Lucentis or Avastin in selected cases can provide good results and reduce the number of anti-VEGF treatments needed to control the disease. Photodynamic therapy consists of intravenous injection of a medicine called Verteporfin, followed by a laser treatment that activates the drug in the area of leaking blood vessels behind the retina.

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Bay Area Retina Associates is a group practice of retinal surgeons. All members of the group are board certified by the American Academy of Ophthalmology and have completed fellowship training in vitreoretinal surgery. BARA surgeons have expertise in the treatment of retinal detachment, diabetic retinopathy, age-related macular degeneration, macular hole, epiretinal membrane, and retinal vascular disease. BARA physicians see patients in seven offices and perform surgery at several hospitals and surgery centers around the East Bay.