

Diabetic macular edema

Diabetic macular edema (DME) is swelling of the macula, or central retina, in patients with diabetes mellitus. The retina is like the film in a camera, and the central part of the retina is the most important for detailed central vision. The retina is fed by a tree of blood vessels. Diabetes affects the blood vessels in the eye and may cause them to leak. When fluid leaks out of the retinal blood vessels, it collects in the retina and causes the retina to swell like a sponge. When the retina is swollen, central vision may be blurred or distorted.

Who gets diabetic macular edema?

Diabetic macular edema is the leading cause of vision loss in patients with diabetes mellitus. DME is more likely to occur with longer duration of diabetes and poor control of diabetes. High blood pressure also increases the risk of DME.

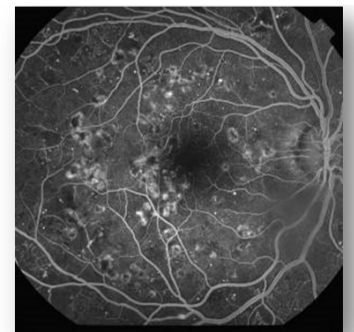
Vision loss from diabetic macular edema tends to occur gradually over time. Diabetic changes in the retina are almost always visible before diabetic macular edema occurs, which is why regular examination of the retina is important for all diabetic patients. It is easier to maintain good vision by preventing DME in the first place rather than treating it after it occurs.

How is diabetic macular edema diagnosed and treated?

Your retinal surgeon may order diagnostic tests in the office to determine the degree of diabetic swelling and damage to the retina. *Optical coherence tomography* (OCT) is a scan of the retina that locates and measures swelling. *Fluorescein angiography* identifies poor blood flow and fluid leakage in the retina.

Treatment of diabetic macular edema involves maintaining good control of blood sugars and blood pressure, and avoiding smoking. Without controlling these factors, the success rate of any treatment is reduced.

Treatments for diabetic macular edema are described in detail on the back of this handout and include laser as well as injections. In many cases, treatment involves a combination of these therapies. Your retinal surgeon is trained in the most effective use of these treatments and will tailor the treatment to your individual eyes.



▲ Fluorescein angiogram showing diabetic changes.

BayAreaRetinaAssociates



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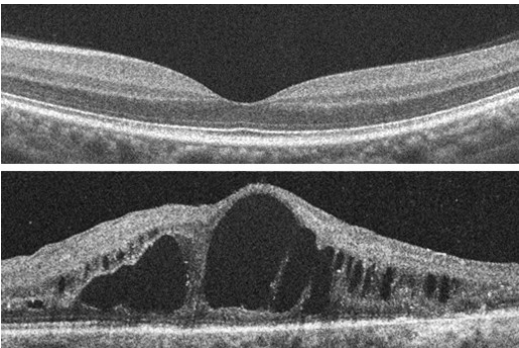
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Treatments for diabetic macular edema

Laser treatment	Laser treatment closes leaky blood vessels and slowly leads to resorption of fluid from the retina. The laser takes about 3 months to work, often with a very gradual effect. You may need more than one treatment, 3 months or more after first treatment. After the laser, it takes up to 30 minutes for colors to return to normal in the vision. The vision may be blurred for a couple of weeks. You may see spots for weeks to months before they spontaneously fade. Have someone else drive you to the office the day of laser treatment.
Steroid injection	Triamcinolone, a steroid, is injected into the eye in the office after the eye is numbed. The medicine lasts several months, and patients may see the steroid particles floating in their vision until the medicine dissolves. Some patients will develop cataracts or elevated pressure in the eye after injection. Triamcinolone has been safely used off-label in the eye for decades.
Anti-VEGF injection	A clear medicine is injected into the eye after the eye is numbed. The injection may be repeated depending on the response to treatment. Avastin (bevacizumab) has been safely used off-label in the eye since approximately 2005. Lucentis (bevacizumab) will soon be available.
Vitrectomy	The vitreous gel that fills the back of the eye is removed in the operating room and a thin layer of tissue is peeled from the retina.

Will my vision improve after treatment?



▲ Optical coherence tomography images showing a normal retina (top) compared to a retina swollen with diabetic macular edema (bottom).

It is important to understand that the first goal of treatment is the prevention of further vision loss, which is likely to happen without treatment. The second goal of treatment is improvement of the vision. Modern treatments are very effective at both of these goals.

With a combination of the best treatments available, we reduce the risk of further vision loss by at least half. The chance of visual improvement is about 15% with laser treatment. The chance of visual improvement is higher with injections of steroids or anti-VEGF medicines, but repeated injections are usually needed to maintain these improvements. The longer the retinal swelling has been present, the harder it is to improve vision, since some degree of vision loss may become permanent over time.

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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.