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 good control of blood sugar, good control of blood pressure, and not smoking. Without controlling these, the success rate of any treatment is reduced. Treatments for diabetic macular edema 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.
Medications that can be injected into the eye (intravitreal injections) for treatment of diabetic macular edema include bevacizumab (Avastin, which is used off-label for this condition), ranibizumab (Lucentis, which is FDA approved for this condition), aflibercept (Eylea, which is FDA approved for this condition), dexamethasone (Ozurdex, which is FDA approved for this condition), fluocinolone acetonide (Iluvien, which is FDA approved for this condition) and triamcinolone (a steroid which is used off-label for this condition) which can be injected around the side of the eye.

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, particularly when diabetes and high blood pressure are well controlled.

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 medications 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.