



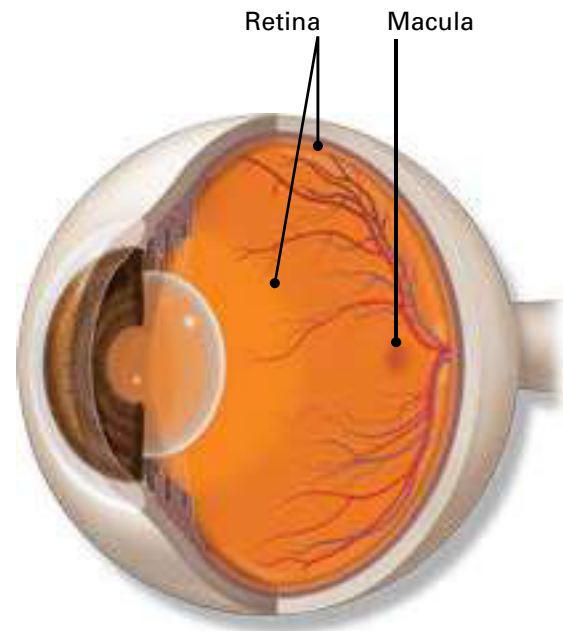
What is macular edema?

Macular edema happens when fluid builds up in the macula, causing swelling. This can distort vision, making things look blurry and colors look washed out. Without treatment macular edema can even lead to permanent vision loss.

What causes macular edema?

Macular edema is caused by pockets of fluid (usually leakage from damaged blood vessels) swelling up in the macula. There are many conditions that can leak fluid into the retina and cause macular edema, including:

- **Diabetes.** With diabetes, high blood sugar levels damage blood vessels, which leak into the macula.
- **Age-related macular degeneration (AMD).** With AMD, abnormal blood vessels leak fluid and cause macular swelling.
- **Macular pucker/vitreomacular traction.** When vitreous in the aging eye doesn't detach completely from the macula, the vitreous tugs on the macula or forms scar tissue, and pockets of fluid collect underneath it.
- **Retinal vein occlusion (RVO).** With blood vessel diseases like RVO, veins in the retina become blocked. Blood and fluid then leak out into the macula.
- **Hereditary/genetic disorders (passed from parent to child),** such as retinoschisis or retinitis pigmentosa.
- **Inflammatory eye diseases.** Conditions like uveitis, where the body attacks its own tissues, can damage retinal blood vessels and cause swelling of the macula.



Eye Words to Know

Retina: Layer of cells lining the back wall inside the eye. This layer senses light and sends signals to the brain so you can see.

Macula: Small but important area in the center of the retina. You need the macula to clearly see details of objects in front of you.

Vitreous: Clear, gel-like substance that fills the inside of your eye. The vitreous helps the eye maintain its shape and also helps send light to the retina.

- **Medication.** Certain drugs have side effects that can lead to macular edema.
- **Eye tumors.** Both benign and malignant tumors can lead to macular edema.
- **Eye surgery.** It's not common, but sometimes after glaucoma, cataract or retinal surgery, you can get macular edema.
- **Injuries.** Trauma to the eye.

What are symptoms of macular edema?

Macular edema is painless and usually doesn't have symptoms when you first get it. When you do have symptoms, they are a sign that the blood vessels in your eye may be leaking.

Common symptoms of macular edema include:

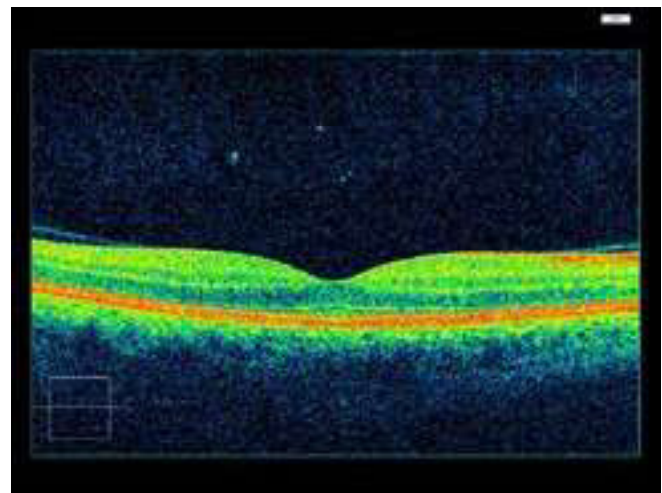
- blurred or wavy central vision
- colors appear washed out or different
- having difficulty reading

If you notice any macular edema symptoms, see an ophthalmologist as soon as possible. If left untreated, macular edema can cause severe vision loss and even blindness.

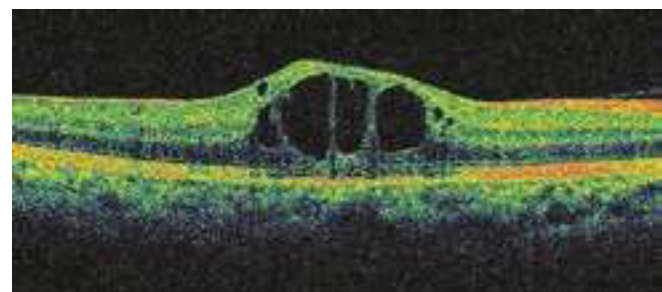
How is macular edema diagnosed?

During an eye exam, your ophthalmologist will dilate (widen) your pupils so they can look at your retina in the back of the eye.

Your ophthalmologist may do other tests that provide a more detailed look inside your eye, such as:



OCT image showing a normal, healthy macula



OCT image of diabetic macular edema, with pockets of fluid collecting under the macula.

Optical Coherence Tomography (OCT). OCT is another way to look closely at the retina. A machine scans the retina and provides very detailed images of its thickness. This helps your doctor find leakage and measure swelling of the macula.

Fluorescein angiography. A yellow dye (called fluorescein) is injected into a vein, usually in your arm. The dye travels through your blood vessels. A special camera takes photos of the retina as the dye travels throughout its blood vessels. This shows whether any blood vessels are leaking and how much leakage there is.

How is macular edema treated?

The best approach to treatment requires addressing the underlying cause of the macular edema, and the related leakage and retinal swelling. Treatment for macular edema depends on what's causing it, and can include:

Medication injections. There are medications called anti-VEGF drugs. Anti-VEGF treatment helps reduce abnormal blood vessels in your retina, and also decreases leaking from blood vessels. This medicine is delivered to your eye through a very slender needle.

Steroid treatment. When macular edema is caused by inflammation, steroid medication may be used. These drugs can be given by eye drops, pills, or injections.

Eye-drop medication. To treat cystoid macular edema, which can occur after cataract surgery, your ophthalmologist may prescribe non-steroidal anti-inflammatory (NSAID) eyedrops for a few months.

Laser treatment. With this surgery, your ophthalmologist applies many tiny laser pulses to areas of fluid leakage around the macula. The goal is to stabilize vision by sealing off leaking blood vessels.

Vitreotomy surgery. When macular edema is caused by vitreous pulling on the macula, a procedure called a vitrectomy may be needed to restore the macula to its normal (lying flat) shape. The surgeon uses tiny instruments to remove the vitreous from the eye and peel scar tissue from the macula. This relieves the traction that is damaging the macula.

Sometimes these treatments can cause you to have increased pressure within the eye, called glaucoma. In such cases, your ophthalmologist will treat you with medicines to control your glaucoma.

Depending on the cause of the macular edema and the treatment plan your doctor has recommended, the macular edema may take several months to resolve. During this time, it is important to follow the treatment regimen that your ophthalmologist recommends in order for your treatment to be effective.

Summary

Macular edema is swelling in the back of the eye caused by a build-up of fluid. It can lead to permanent vision loss if left untreated. Symptoms include blurry/distorted vision and seeing colors as dull or washed-out. See an ophthalmologist for an exam as soon as you have any of these symptoms. Macular edema treatment can include medication injections, steroid medication, and vitrectomy surgery.

If you have any questions about your eyes or your vision, speak with your ophthalmologist. He or she is committed to protecting your sight.

Get more information about uveitis from EyeSmart—provided by the American Academy of Ophthalmology—at aao.org/macular-edema-link.

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