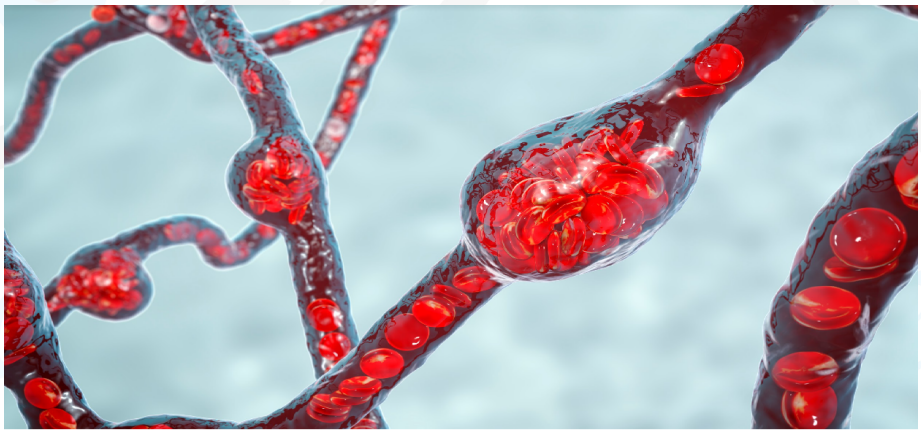
Wasatch View Eye Care
Wasatch View Eye Care www.wasatchview.com
Jeff Mellor, OD, MEd, FAAO-Optometrist
10412 S. 2200 W. South Jordan, UT 84095 (801) 858-2020
2135 W. Main Street, B101 Lehi, UT 84043 (801) 702-8550

Diabetic Retinopathy

Overview

Diabetes results from the body's inability to properly manage the levels of glucose in the blood. It is caused by inadequate secretion of insulin in the pancreas or a poor response to insulin. Insulin secreted by the pancreas instructs the body to store glucose in the liver, muscles and fat tissue. Without glucose absorption, the level of glucose in the blood gets elevated. Elevated blood glucose causes damage to the vascular system throughout the body. This includes the delicate vascular system of the retina. The changes seen in the retina include microaneurysms, hemorrhages, new blood vessel growth and microvascular abnormalities.



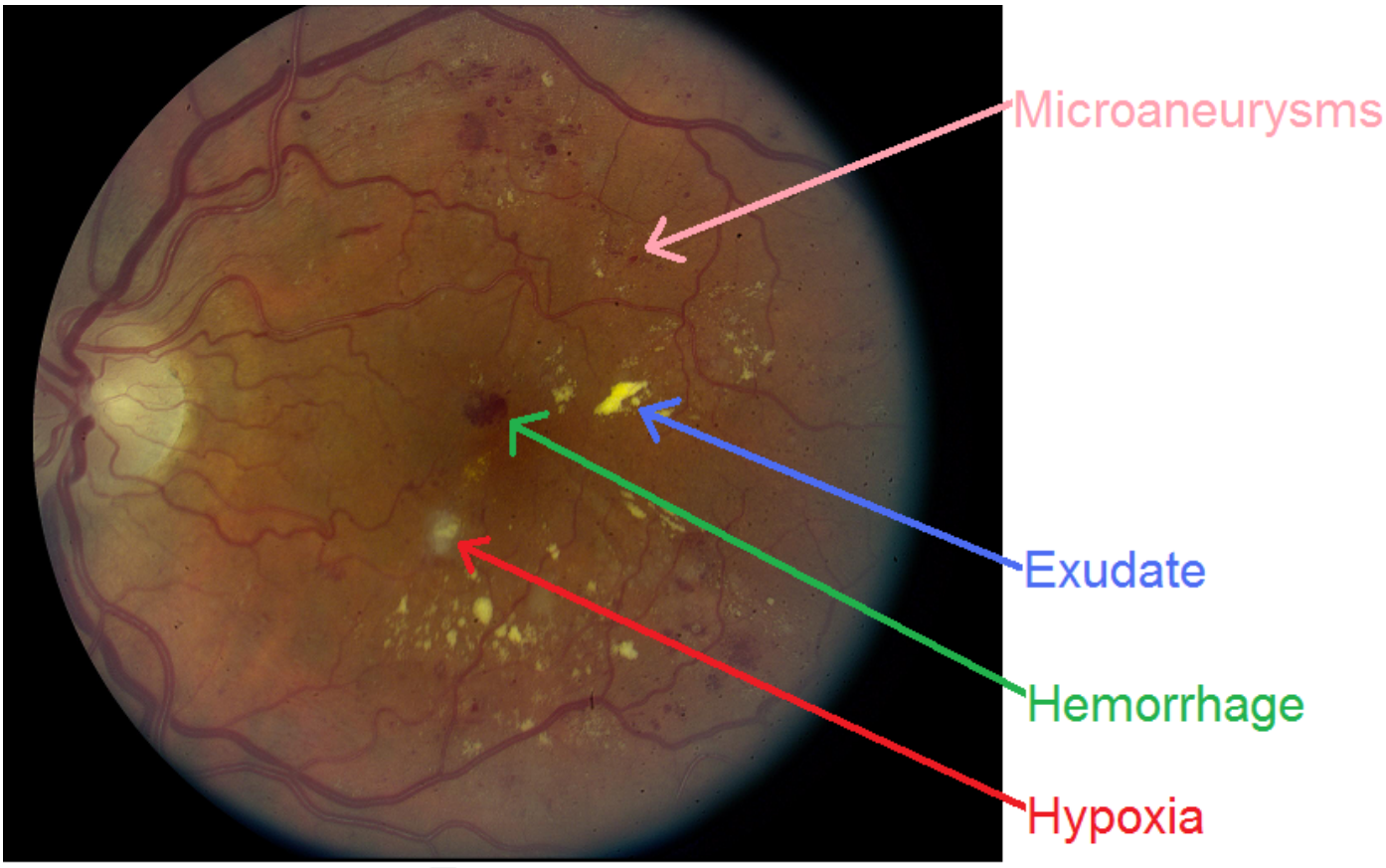
Microaneurysms form in the retina from diabetes

Diabetes may lead to decreased corneal sensation/healing, glaucoma, cataracts and most concerning retinopathy leading to blindness. Patients with diabetes may notice decreased/distorted vision and in advanced cases become blind. Your eye doctor may notice hemorrhages, swelling and abnormal blood vessel growth in the retina. Regular dilated eye exams are important so that if treatment is needed, it can be initiated promptly. Treatment of diabetic retinopathy first involves getting the patient's blood sugar under control through coordination with their primary care doctor or internist. Having a glycosylated hemoglobin test below 7% is ideal. Advanced cases of diabetic retinopathy should be managed by retinal specialists. Their treatments include burning peripheral parts of the retina in a procedure called *panretinal photocoagulation* (*PRP*), lasering leaking blood vessels (*photocoagulation*), removal of the vitreous (*vitrectomy*) and injections of medications that stop new blood vessel growth (*endothelial growth factor inhibitors*).

Signs and Symptoms

There are typically no symptoms in very early diabetic retinopathy. However, as it progresses spots are seen, vision can blur, fluctuate, and have areas that are blacked out. Advanced stages may cause mild to severe vision loss, decreased contrast sensitivity and distortion.

Early signs detected by your eye doctor include microaneurysms in the retinal vasculature, dot-blot hemorrhages, hypoxia (low oxygen levels) and exudates (swelling). Advanced signs include neo-vascularization (abnormal blood vessel growth), massive hemorrhages and retinal traction/detachment. Swelling in the macula is very concerning because of its effect on central vision (clinically significant macular edema or CSME).



Causes

Diabetic retinopathy happens because elevated levels of blood glucose damage the microvasculature of the retina. This leads to bleeding, edema and poor circulation. The retina becomes starved for a better blood supply and releases substances that proliferate new blood vessel growth in an attempt to prevent retinal deterioration. However, the new blood vessels do not improve circulation and lead to more hemorrhages, swelling and in some cases a retinal detachment.

Testing & Evaluation

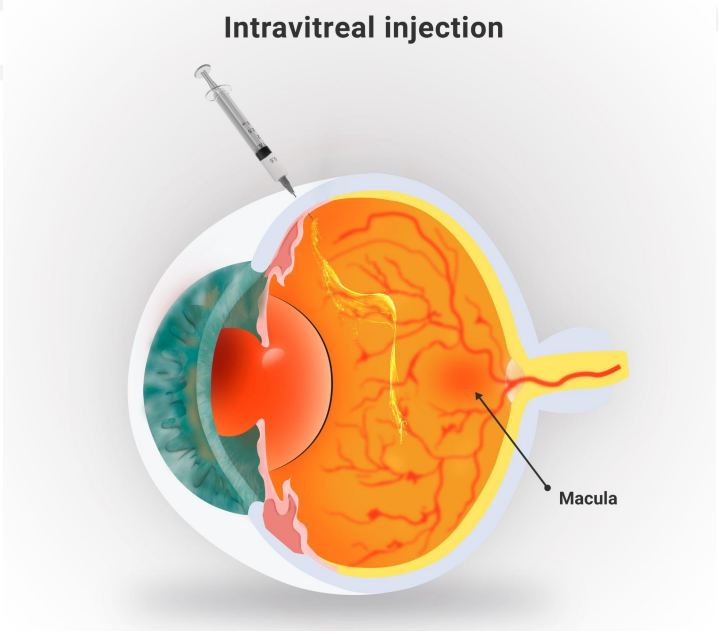
Evaluation of diabetic retinopathy is done with a dilated fundus exam and checking your intraocular pressure by your eye doctor. Testing includes an assessment of best corrected visual acuity, gonioscopy, ocular photos, optical coherence tomography (OCT) scans and fluorescein angiography.

Diabetics with no signs or mild retinopathy should be dilated every year. Mild to moderate diabetic retinopathy is followed every 3-6 months. All serious cases of diabetic retinopathy are best managed by a retinal specialist.

Management

Maintaining a tightly controlled blood sugar is the best and most important treatment in any stage of diabetic retinopathy. Type I and Type II diabetics should keep their glycosylated hemoglobin (Hgb A1c) below 7%.

Advanced cases can receive PRP (pan-retinal photocoagulation) where 1,000 to 2,000 laser burns are done in the peripheral retina to decrease the release of substances that proliferate new blood vessel growth. Another laser might also be used to treat edema and leaking blood vessels by the macula (photocoagulation). In some cases a vitrectomy is done where the vitreal fluid inside the eye is replaced to remove abnormal blood vessel growth, proliferative substances, hemorrhages and traction on the retina. Anti-VEGF intravitreal injections are done to reduce new blood vessel growth. The medications in these injections include Eylea & Lucentis.



Websites

All About Vision: http://www.allaboutvision.com/conditions/diabetic.htm

American Optometric Association:
https://www.aoa.org/healthy-eyes/eye-and-vision-conditions/diabetic-retinopathy?sso=y

National Eye Institute:
https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/diabetic-retinopathy