

Diabetic Retinopathy



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OVERVIEW

Diabetes is a disease that occurs when the pancreas does not secrete enough insulin or the body is unable to process it properly. Insulin is the hormone that regulates the level of sugar (glucose) in the blood. Diabetes can affect children and adults.

How does diabetes affect the retina?

The effect of diabetes on the eye is called diabetic retinopathy. India is said to be the world's diabetes capital and diabetic retinopathy is the sixth cause of blindness in the country.

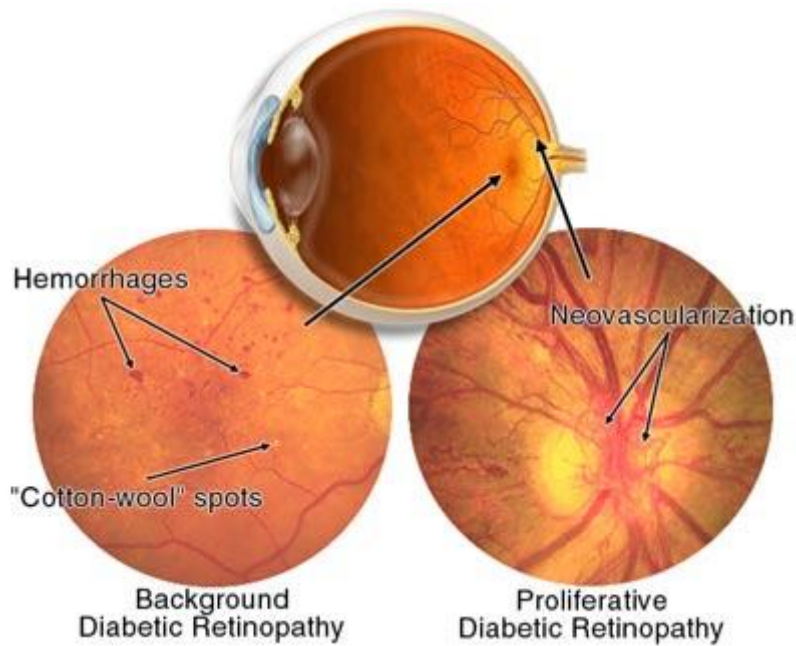
Diabetic retinopathy (DR) is a vascular disorder affecting the microvasculature of the retina. It is estimated that diabetes mellitus affects 4 per cent of the world's population, almost half of whom have some degree of DR at any given time. DR occurs both in type 1 and type 2 diabetes mellitus and has been shown that nearly all type 1 and 75 per

cent of type 2 diabetes will develop DR after 15 yr duration of diabetes as shown in earlier epidemiological studies.

Over time, diabetes affects the circulatory system of the retina. The earliest phase of the disease is known as pre-proliferative diabetic retinopathy or background diabetic retinopathy. In this phase, the arteries in the retina become weakened and leak, forming small, dot-like hemorrhages. These leaking vessels often lead to swelling or edema in the retina and decreased vision.

The next stage is known as proliferative diabetic retinopathy. In this stage, circulation problems cause areas of the retina to become oxygen-deprived or ischemic. New, fragile, vessels develop as the circulatory system attempts to maintain adequate oxygen levels within the retina. This is called neovascularization. Unfortunately, these delicate vessels hemorrhage easily. Blood may leak into the retina and vitreous, causing spots or floaters, along with decreased vision.

In the later phases of the disease, continued abnormal vessel growth and scar tissue may cause serious problems such as retinal detachment and glaucoma.



SIGNS AND SYMPTOMS

The affect of diabetic retinopathy on vision varies widely, depending on the stage of the disease. Some common symptoms of diabetic retinopathy are listed below, however, diabetes may cause other eye symptoms.

- Blurred vision (this is often linked to blood sugar levels)
- Floaters and flashes
- Sudden loss of vision

DETECTION AND DIAGNOSIS

Diabetic patients require routine eye examinations so related eye problems can be detected and treated as early as possible. Most diabetic patients are frequently examined by an physician or endocrinologist who refers to ophthalmologist or vitreo-retinal surgeons for diabetic retinopathy screening and treating.

TREATMENT

Diabetic retinopathy is treated in many ways depending on the stage of the disease and the specific problem that requires attention. The retinal surgeon relies on several tests to monitor the progression of the disease and to make decisions for the appropriate treatment. These include: Digital fluorescein angiography(DFA),optical coherence tomography (OCT) and ultrasound imaging of the eye.

Diabetic retinopathy causes dimness in vision due accumulation of fluid in the central part of the eye (macula) , its called diabetic macular edema (DME). Laser therapy ,Anti-VEGF Injection or steroid injections reduces the fluid accumulation and restores the vision.

The abnormal growth of tiny blood vessels and the associated complication of bleeding is one of the most common problems treated by vitreo-retinal surgeons. Laser surgery called pan retinal photocoagulation (PRP) is usually the treatment of choice for this problem.

With PRP, the surgeon uses laser to destroy oxygen-deprived retinal tissue outside the central vision of the patient. While this creates blind spots in the peripheral vision, PRP prevents the continued growth of the fragile vessels and seals the leaking ones. The goal of the treatment is to arrest the progression of the disease and prevents bleeding in the eye.

Vitrectomy is another surgery commonly needed for diabetic patients who suffer a vitreous hemorrhage (bleeding in the gel-like substance that fills the center of the eye). During a vitrectomy, the retina surgeon carefully removes blood and vitreous from the eye, and replaces it with clear salt solution (saline) or gas(C3F8). At the same time, the surgeon

may also gently cut strands of vitreous attached to the retina that create traction and could lead to retinal detachment or tears.

Patients with diabetes are at greater risk of developing retinal tears and detachment. Tears are often sealed with laser surgery. Retinal detachment requires surgical treatment to reattach the retina to the back of the eye. The prognosis for visual recovery is dependent on the severity of the detachment.

PREVENTION

Researchers have found that diabetic patients who are able to maintain appropriate blood sugar levels and strict renal profile (urea and creatinine levels) have fewer eye problems than those with poor control. Diet and exercise play important roles in the overall health of those with diabetes.

Diabetics can also greatly reduce the possibilities of eye complications by scheduling routine examinations with an ophthalmologist. Many problems can be treated with much greater success when caught early. As we all know “PREVENTION IS BETTER THAN CURE ”.