

Proliferative diabetic retinopathy (PDR)

Diabetic eye disease is a leading cause for blindness among working age adults in Bahamas.

It is caused by changes to the tiny blood vessels of the retina (the light sensitive layer at the back of the eye). Proliferative diabetic retinopathy is caused by abnormal new blood vessels that grow on the surface of the retina. This is the most advanced stage of diabetic retinopathy. At this stage, you may not have symptoms but are at high risk for vision loss.

How does proliferative diabetic retinopathy cause vision loss?

In proliferative diabetic retinopathy, the blood vessels that nourish the retina are blocked. The retina sends signals that trigger the growth of new abnormal blood vessels. These vessels are thin and fragile. By themselves, they do not cause vision loss. However, vision loss occurs when they bleed into the retina and gel-like fluid fills the eye. In advanced stages of proliferative diabetic retinopathy, scar tissue pulls the retina away from the back of the eye (retinal detachment). Abnormal blood vessels can also increase the pressure within the eye (rubeotic glaucoma). If left untreated, severe vision loss and even blindness will occur.

Who is at risk of proliferative diabetic retinopathy?

All people with type 1 and type 2 diabetes are at risk of proliferative diabetic retinopathy. The longer you have had diabetes, the more likely you are to develop this condition. However, large studies have shown that the people who

have good control of their blood sugar levels, cholesterol, and blood pressure are less likely to develop proliferative diabetic retinopathy.

How is proliferative diabetic retinopathy found?

Proliferative diabetic retinopathy can be found during your yearly visit to your local diabetic eye screening programme. You may not notice changes in your vision at this stage but digital photographs of your eye may show signs of proliferative diabetic retinopathy. A referral will be made for you to the medical retina clinic at Bahamas Vision Centre.

What happens when I go to the medical retina clinic?

You will have a comprehensive eye examination that includes:

- Visual acuity test: A sight test that measures how well you see at different distances
- Eye pressure test: We check the pressure of your eyes. Numbing drops may be used as part of this test.
- Dilated eye examination: Drops are placed in your eyes to widen (dilate) your pupils so that we can examine the back of your eyes.

You may also undergo tests such as:

- Optical coherence tomography (OCT): This test is similar to having a photograph taken of your eye. Pictures are taken using light reflected from the back of your eye. This test allows the eye care practitioner to identify fluid collecting in the macula and plan your treatment.
- Retinal photography: This test is also similar to having a photograph taken of your eye. It takes only a few seconds to take an image of the retina. This test allows the eye care practitioner to assess and monitor the severity of diabetes in your eye.
- Fluorescein angiography: In this test, dye is injected into a vein in your arm. Pictures are taken as the dye passes through blood vessels in the eye. This test allows the eye care practitioner to identify leaking blood vessels in the eye and plan your treatment.

How is proliferative diabetic retinopathy treated?

Proliferative diabetic retinopathy is treated with laser therapy. This is done together with improving the control of your blood sugar, blood pressure, and cholesterol levels. This can be achieved by regular visits to your general practitioner or hospital doctor. If you have very advance proliferative diabetic retinopathy, you may require surgery.

The treatments for proliferative diabetic retinopathy are:

1. Laser therapy
2. Surgery

What is laser therapy?

This treatment uses laser to produce small areas of heat on the retina. This creates small laser burns scattered across the retina. Usually a thousand laser burns are applied in one session. Usually two to three sessions are be required to achieve this. The goal of laser therapy is to cause the abnormal blood vessels to shrink and disappear. Laser therapy does not improve your vision. The aim is to prevent severe vision loss.

What happens during laser therapy?

Laser therapy takes place in the outpatient medical retina clinic. You will have drops to widen your pupils and numb your eye. The lights in the room will be dim. You will sit facing the laser machine and the doctor will place a contact lens on your eye. This will allow the doctor to see to the back of the eye and prevent you from blinking. During laser therapy, you will see flashes of light. You may feel a stinging sensation that can be uncomfortable.

After laser therapy, your vision will be a little blurry for the rest of the day. You will need someone to accompany you home after the treatment. You may wish to bring a pair of sunglasses as your eyes will be sensitive to bright lights.

What are the side effects of laser therapy?

You may experience temporary worsening of vision on the day of laser therapy. This is caused by the bright flashing lights from laser treatment. This usually recovers by the next day. There is a small risk of loss of side vision (visual field) because of laser therapy. This is uncommon due to the development of newer and safer lasers. More than 90% of persons who receive laser will retain enough side vision for driving. In proliferative diabetic retinopathy, the risk of vision loss from no treatment is much higher than laser therapy. Sometimes laser therapy does not work and your vision can still get worse despite treatment.

Can I drive after laser therapy?

The driver and vehicle licensing authority makes the decision on whether you will be able to drive. We will arrange to have your side vision (visual field) tested by our optometrist before making a decision.

What is retinal surgery for proliferative diabetic retinopathy?

In proliferative diabetic retinopathy, bleeding can occur in the retina and gel-like fluid that fills the eye. This blood usually clears on its own within six months. If this fails to clear you may need surgery to remove the blood. In advanced proliferative diabetic retinopathy, scar tissue can form in the retina. This causes the retina to pull away from the back of the eye (retinal detachment). Surgery will be required to remove the scar tissue and repair the retina.