

## Diabetic Retinopathy

### Introduction

Diabetes is a common condition. Both type I (often childhood onset, insulin dependent) and type II (often later onset, usually not immediately requiring insulin) diabetes can cause complications in the eye.

The complications in the eye relate to damage to the tiny blood vessels in the retina. The retina is the inside lining of the back of the eye. It acts like a camera film to convert light into electrical signals. These signals are then transmitted to the brain for processing. In essence the retina acts like a camera taking pictures of the world, the optic nerve connecting the eye and the brain acts like a cable and the brain like the television screen.

The blood vessels in the eye are extremely delicate. Prolonged exposure to high blood sugar, as in diabetes, causes damage to these blood vessels. The blood vessels can leak fluid, cholesterol and even bleed into the retina. These substances block the light from being transmitted and thus cause blurring or loss of vision in severe cases.

### Symptoms

Most diabetic changes in the eye are without symptoms. Like many conditions, the symptoms often only develop once the damage is severe.

Symptoms can include:

- Blurring of vision despite wearing glasses
- Floaters in the eye(s)
- In very severe cases, total loss of vision or even eye pain.

### Signs

The appearances of the retina in diabetes is characterized by the following:

- ‘Micro-aneurysms’: little sac like out-pouchings from the side of the blood vessels
- Bleeding spots on the retina
- Yellow cholesterol like deposits in the retina
- Growth of new dangerous blood vessels to provide oxygen to the areas of damaged blood vessels. Although this sounds like a good response, these new blood vessels are prone to severe bleeding and can pull the retina away from the lining of the eye, a condition called retinal detachment.

### Treatment

- It is important that **all patients with diabetes** have screening examinations performed on their eyes **at least every two years**. This can be done by :
  - An Ophthalmologist (a fully qualified medical doctor with specialist training in eye diseases and surgery),
  - An Optometrist (a university qualified provider of eye care and glasses) or

- A hospital / diabetic clinic photographic screening programme.
- Patients should be seen urgently by an Ophthalmologist if there is a decline in vision or the patient develops vision threatening complications of diabetic eye disease.
- People in higher risks groups (such as pregnant women, people with poor diabetic control, pubertal children) will need to be seen more frequently.
- Treatment options for diabetes include:
  - Observation – people with evidence of damage may need to be seen as frequently as every 3 months in some cases.
  - Application of retinal laser to prevent bleeding and remove fluid or cholesterol deposits in the retina.
  - Injection of medications to prevent bleeding or improve vision.
- The particular treatment that a patient requires depends on :
  - Their level of vision
  - The severity of their diabetic damage
  - Their ability to return for follow up appointments
  - The relative risks and benefits of any treatment plan.

#### **For Further Information**

1. National Health and Medical Research Council (NHMRC) Guidelines for the Management of Diabetic Retinopathy:  
[http://www.nhmrc.gov.au/\\_files\\_nhmrc/publications/attachments/di15.pdf](http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/di15.pdf)