

Medicine for Managers

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Glaucoma

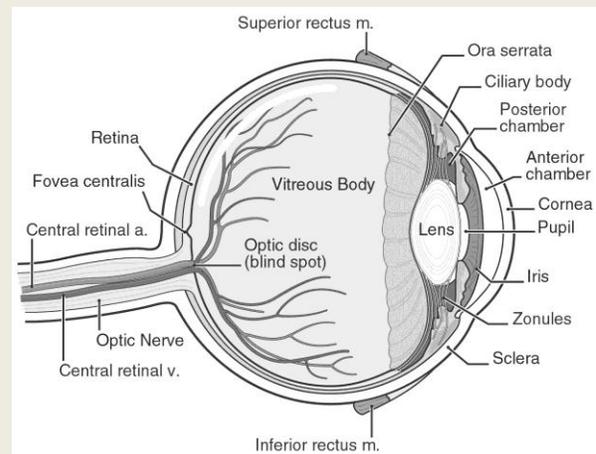
John Lennon sang, “Living is easy with eyes closed” (*Strawberry fields*) but he was wrong. John Wyndham summed things up so much more accurately when, in *Day of the Triffids*, he said, “it had never occurred to me that man's supremacy is not primarily due to his brain, as most of the books would have one think. It is due to the brain's capacity to make use of the information conveyed to it by a narrow band of visible

Vision can be affected by a variety of diseases and disorders. For most of us the thought of losing one's sight is terrifying and the Health Service pays increasing attention to monitoring patients' vision to minimise the risks.

For many, the word **glaucoma** is synonymous with losing vision and the term is used to cover a number of conditions which may cause the vision to deteriorate. It may commonly affect both eyes.

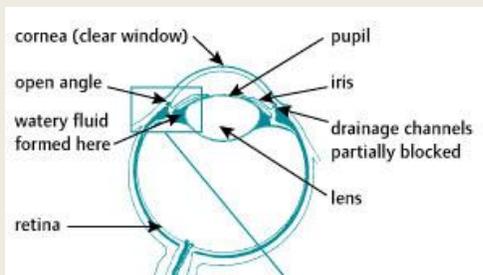
In short, glaucoma is damage to the optic nerve caused by pressure in the eye. The eyes have a complex anatomy and operation. When looking at something, light passes through the front of your eye and your lens, which focuses it on the light sensitive retina where the image is converted to electrical impulses. It is collected in delicate nerves which combine to form the optic nerves which in turn transmit the information to the brain.

Each eye has an anterior and a posterior chamber bathed in 'aqueous humour'. This fluid



is constantly produced and drains through fine connecting tubules (trabecular meshwork) which are located in the space between the iris and the cornea (the angle). The fluid passes into the blood stream. If either production of the fluid is increased or the drainage becomes impaired then the intraocular pressure builds (i.e. the pressure in the eye). If it damages the optic nerve then a patient is diagnosed with glaucoma.

High pressure in the eye (ocular hypertension) is often confused with glaucoma. However high pressure alone does not mean a patient has



Taken from RNIB – glaucoma

The risk factors for developing glaucoma include having high intra-ocular pressure (IOP); getting older (glaucoma is more common in people over the age of 40, and gets more common as we get older); being of African or Caribbean descent; having a first-degree relative with the disease; being short sighted and having a thin cornea.

glaucoma. It is damage to the optic nerve that leads to a diagnosis of glaucoma. A patient can have high pressure without the optic nerve being damaged and someone with a weak optic nerve can acquire glaucoma with normal levels of pressure.

There are four main types of glaucoma:

Chronic Glaucoma (Primary Open Angle Glaucoma). This is the most common type in the UK and is gradual in onset. Around half a million people are thought to suffer from it in England. It is usually result from an increase of pressure in the eye because it is unable to drain fluid properly. However it is not rare for people to have open angle glaucoma without the pressure in their eye rising. Chronic glaucoma is insidious; causing eye damage without causing obvious symptoms meaning around half of those people with glaucoma have not yet had it diagnosed. Peripheral vision is progressively lost, often starting in an arc above or below central vision. If untreated the resulting blank area gradually extends. Central vision is the last to go and, when peripheral vision is lost, the remaining vision, so-called tunnel vision, appears like looking down a long tube.

Since those with glaucoma often do not notice the damage it is doing until the late stages, it is important to have regular eye examinations to detect the early signs. Everyone over 40 years with a parent, child, brother or sister who has been diagnosed with glaucoma is entitled to a free sight test under the NHS, as is everyone over the age 60. These should be done every 2-3 years. There are 3 main tests that are used to detect glaucoma. These are: looking at the optic nerve, measuring the pressure using a tonometer (this may be done by blowing a puff of air at your eye) and checking visual fields to ensure there are no additional blind spots. If the optometrist suspects these tests indicate glaucoma the normal outcome is to refer to an ophthalmologist.

Secondary Glaucoma. This occurs secondary to an eye injury or to another ocular disorder, usually where part of the eye becomes inflamed.

Congenital Glaucoma. This is serious but rare, occurs in the very young and is associated with a developmental abnormality in the eye.

Once glaucomatous damage has occurred it cannot be reversed. However treatment can prevent or delay any further deterioration. Once diagnosed and treated, regular monitoring will be required to ensure that the visual loss is minimised. Normally the mainstay of treatment is to instil drops into the affected eye(s). The drops open the affected drainage channels to drain the aqueous fluid or reduce the amount of fluid produced. If the drops are not effective and visual loss continues, the ophthalmologist may suggest laser treatment. The purpose is to improve drainage by stimulating the drainage tissue in the eye or by creating a new channel for the fluid at the front of the eye. If neither drops nor laser treatment works, surgery can also create a drainage channel through the sclera (outer covering of the eye) beneath the upper eyelid. With the latter approach, eye drops are not usually required any longer.

Acute Glaucoma is generally much less common than the chronic form although Asian populations are at higher risk than other ethnic groups. It occurs when there is a sudden complete blockage of the drainage of aqueous from the eye. Unlike the chronic form it is usually painful and permanent eye damage occurs very quickly. Because the open angle does not remain patent, pressure rises quickly. It usually affects only one eye (although the sufferer could experience the same problem subsequently in the other eye). In the early stages of the disease patients might see

coloured haloes round bright objects. The eye becomes red, the cornea may go misty and the eye is normally painful or uncomfortable. In extreme cases the patient may also suffer nausea.

Further information can be obtained from the Royal National Institute for Blind People on 0303 123 9999 or the International Glaucoma Association on 01233 648170

With early diagnosis there is normally almost complete recovery of vision. Delay in treatment may result in blindness in the eye. Treatment is by emergency hospital admission and lowering of the eye pressure with medication followed by laser iridotomy (where a small hole is made in the iris to allow the fluid to pass through it). Normally the same procedure is undertaken prophylactically in the other eye to remove the risk of a subsequent acute episode.

Following diagnosis, appropriate treatment will maintain the eye's health and will normally keep any possible glaucomatous changes under control. Drivers with glaucoma must notify the DVLA of their condition, although most continue to be able to drive.

I am most grateful for the review and modifications to this article by Stuart Holland (Public Affairs) and Dr Sue Blakeney (Clinical Adviser) at the College of Optometrists, 42 Craven Street, London WC2N 5NG.

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