

GLAUCOMA: THE SILENT THIEF OF SIGHT & NEW TREATMENTS

Glaucoma is the second leading cause of blindness in the world and the leading cause of irreversible blindness. It is estimated that 7 million out of 70 million glaucoma patients worldwide suffer from bilateral blindness as a result of glaucoma.

In developed countries, less than half of those who have glaucoma are aware that they have the disease, and in developing countries, this figure is even lower.

It is a result of an increase in the pressure of the eye (intraocular pressure) which causes progressive damage to the optic nerve (Figure 1). The optic nerve is responsible for carrying visual impulses to the brain and its damage results in loss of vision. The pressure build-up occurs because of an imbalance between the production and drainage of fluid within the eyeball. In most cases the condition progresses slowly and insidiously, and the patient is not often aware of the condition until a late stage. By the time the patient notices a deterioration of vision, there is often already moderate to severe damage of the optic nerve. This is why this disease has been called the “silent thief of sight”.

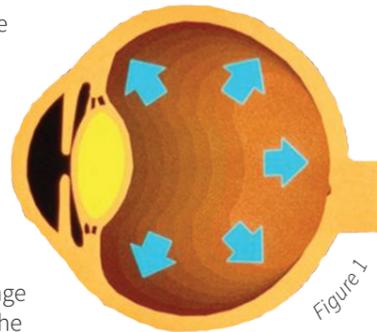


Figure 1

In Singapore, the incidence of glaucoma is approximately 4-5% of the population. It accounts for approximately 25% of registered blindness in Singapore and affects the middle-aged or elderly people. Glaucoma may be inherited, which means that relatives of people with glaucoma have a higher risk.

DIFFERENT TYPES OF GLAUCOMA

Glaucoma can be divided into two main categories: primary open angle glaucoma (POAG) and primary angle-closure glaucoma (PACG). PACG is a major cause of irreversible blindness in Asia and many parts of the world. It is a particularly serious problem in East Asia, where it represents the major form of glaucoma. This is in stark contrast to the situation in Europe and North America, where Caucasians are rarely affected by PACG, and POAG is the dominant form.

Glaucoma may also arise from as a result of other eye diseases, and this is known as “secondary glaucoma”. Secondary glaucoma may arise from inflammation of the

eyeball or when a cataract becomes too swollen. Other causes are eye surgery and injury to the eye.

SYMPTOMS OF GLAUCOMA

In patients with angle-closure glaucoma, they may present as an eye emergency with a sudden increase in eye pressure resulting in severe eye pain and sudden loss of vision (acute angle-closure glaucoma). In these situations the intense pain usually brings the patient to quickly seek medical attention. This is an eye emergency and if the pressure is not controlled promptly, the patient may suffer permanent nerve damage within a few days.

More commonly, however, glaucoma presents as the chronic form. The glaucoma progresses gradually and patients often do not notice any symptoms in the early stage. This form of glaucoma is associated with painless progressive loss of vision. Most patients do not realise that they have glaucoma until there is significant damage to the nerve.

When more severe damage occurs, the patient may initially complain of poorer night vision and loss of peripheral vision. Because the disease is often slowly progressive and occurs more commonly among the middle-aged to elderly, patients often assume that the blurring of vision may be related to cataract formation and do not seek medical attention early. In fact, it is often during an assessment for cataract that glaucoma is detected. Central vision is usually affected only in the advanced stage, where a significant amount of irreversible damage and loss of peripheral visual field, which is termed “tunnel vision”.

DIAGNOSIS AND TREATMENT

Early treatment of glaucoma may help to prevent further damage and visual loss. The patient should see an eye specialist who will be able to determine if glaucoma is present and to assess its severity. The assessment for glaucoma involves measuring the intraocular pressure, examining the optic nerve head and carrying out a visual field examination (Figure 2). The visual field examination is a sensitive test to assess the patient’s peripheral vision as well as central vision. A thorough check of the eye is also carried

out which will help exclude other causes of glaucoma.

There is no cure for glaucoma, but in most cases it can be successfully controlled with medical or surgical treatment. Patients will require long-term follow-up to ensure that the glaucoma control is adequate.



Figure 2

Most glaucoma patients are treated with anti-glaucoma eye drops alone. Eye drops are very safe, effective and convenient to use. There are many types of medication that can help with glaucoma control and these are usually used once or twice a day.

Laser treatment

Laser treatment can help certain forms of glaucoma, particularly angle-closure glaucoma. In this case, a small opening in the coloured part of the eye (iris) is made using lasers to create a bypass channel for fluid to exit. It is performed as a simple outpatient procedure which only takes a few minutes to complete. This is performed for the eye with the condition as well as the other eye as a preventive measure.

Glaucoma surgery

In patients with more advanced glaucoma where medication does not optimally control the glaucoma, surgical treatment may be necessary. Surgery is usually in the form of a filtering operation known as a trabeculectomy, where a bypass channel is created to allow fluid to exit the eye thereby reducing the internal eye pressure. In patients with previous failed trabeculectomies or those with complex glaucoma conditions, an external tube implant may be performed. These are major operations that are associated with potential risks. Hence these are usually reserved for patients with glaucoma that are not medically controlled.

Minimally invasive glaucoma system

New surgical treatments for glaucoma have been developed to help improve eye pressure control for patients with mild to moderate glaucoma. Because of the potential complications associated with standard glaucoma surgery, minimally invasive glaucoma system (MIGS) is a promising surgical alternative.

Because most of the restriction to fluid drainage from the eye rests in the trabecular meshwork, the insertion of tiny devices into the trabecular meshwork aims to increase the outflow of fluid through the trabecular meshwork. As these devices are extremely small and the insertion is minimally invasive, there is little damage to the surrounding tissue (Figure 3). MIGS may be used for moderate glaucoma and it may be combined with cataract surgery.

These procedures are less invasive, have a higher safety profile with fewer complications and have a more rapid recovery time compared to traditional surgery. However, with the increase in safety, there is a trade off in the extent of pressure lowering effect, which is why these are reserved for mild to moderate glaucoma patients and are not suitable for those with advanced glaucoma.



Figure 3

GLAUCOMA FOLLOW-UP

Because central vision is affected last, patients should not rely on how well they can see as a measure of their glaucoma control. The adequacy of glaucoma control can only be determined by your eye doctor, and regular follow-up is essential in ensuring that the glaucoma control is optimal and in picking up early progression of the disease so that appropriate treatment may be instituted. The visual loss in glaucoma is irreversible, which is why early detection and treatment is so important in preventing blindness.

In conclusion, glaucoma treatment is now very advanced with better and safer medication and patients need not go blind from the disease if the disease is detected and treated early. Therefore it may be safer to go for eye screening when one is above 45 years of age to detect the presence of glaucoma or other blinding eye diseases. **PRIME**



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