

OPHTHALMOLOGY

Eye under pressure

With glaucoma as the most common cause of irreversible blindness, it is essential to understand its cause – pressure build-up in the eye.



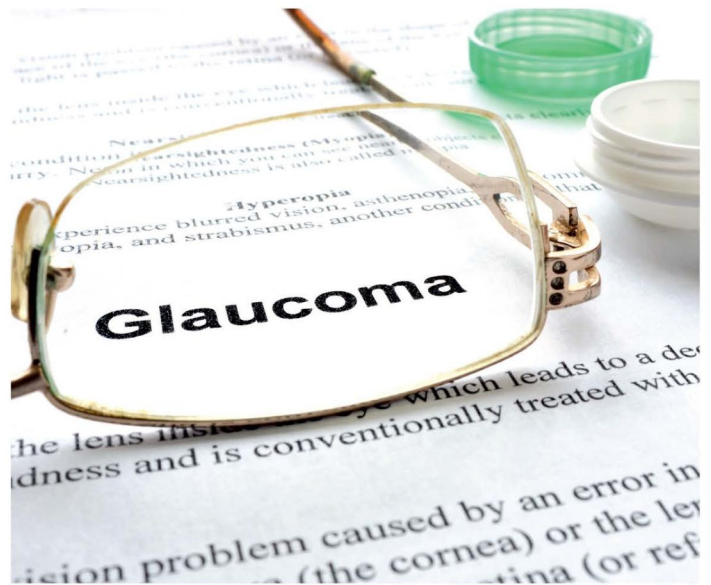
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Our eyes are constantly producing fluid from cells located behind the iris, the coloured part of the eye. This fluid contains water and nutrients that nourish the internal eye structures as it flows towards the front of the eye. The fluid drains out through small drainage angles in the front of the eye and re-enters the blood stream.

This free flow of fluid from the back to the front of the eye and into the drainage angles is vital to maintaining a stable and normal eye pressure. Obstruction at any point will result in abnormal accumulation of fluid within the eye and a rise in eye pressure.

What happens?

In the most common form of glaucoma, Primary Open-Angle Glaucoma, microscopic debris fills up the drainage angles so that fluid drainage is greatly reduced. In Primary Angle-Closure Glaucoma, which is very common in Asians, outflow of eye fluid through the pupil – the central opening within the iris – may be impaired or the drainage angles covered by the iris. Other possible causes include abnormal blood vessels that grow and occlude the



drainage angles because of poorly controlled diabetes mellitus; and damage to the drainage angles by blunt trauma to the eye.

As the fluid pressure within the eye rises above normal tolerance level, tissues are stretched and nerve cells at the back of the eye suffer injury. Mild and transient increases in pressure usually don't cause much damage and the tissues recover quite well, but prolonged high pressure causes irreversible damage to nerve cells.


Silent damage

The rise in eye pressure may be gradual so that the patient does not experience pain, redness, blurring of vision or tearing. But over time, as more and more cells are irreversibly damaged, the result is loss of peripheral vision.

It is usually only noticed when a large proportion of nerve cells have died and parts of the central vision are affected. Now the person will

experience blurred or dimmer vision, indicating an advanced stage of glaucoma. Most forms of glaucoma occur in this painless, asymptomatic manner, so the absence of warning signs does not imply the absence of the disease. Only a thorough examination by an eye doctor can identify early-stage glaucoma.

Urgent situations

In acute Primary Angle-Closure Glaucoma, the obstruction occurs abruptly so the eye pressure rises two to three fold within a few hours. The tissues are severely stretched causing eye pain and headache, and the cornea swells. The person experiences nausea and vomiting, with blurred vision and haloes appearing around lights. The eye would also appear very red. This is an emergency and requires urgent treatment by an eye doctor to prevent severe and permanent damage to the nerve. Blindness will follow if the proper treatment is not administered. 



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