
Our vision: Is for Australians to be free of glaucoma blindness

Iridocorneal Endothelial (ICE) Syndrome

The cornea is the clear window in front of the coloured part of the eye (the iris). It has five layers to it and the inner layer is called the endothelium. The endothelium is a single layer of cells that does not regenerate. Its purpose is to pump fluid out of the cornea, effectively preventing it from becoming waterlogged.

In iridocorneal endothelial (ICE) syndrome, there is a dysfunction with this inner layer of cells. Instead of being a single layer of non-regenerating cells, it starts to replicate and spread. This has three main effects in the eye:

1. It damages the cornea – instead of being a single layer of cells covering the inside of the cornea, the endothelial cells become multilayered. This results in decreased function of this layer and the cornea becomes waterlogged (oedema), decreasing vision. There are other corneal signs an ophthalmologist will detect that will help confirm the diagnosis of ICE syndrome.
2. It causes glaucoma – the eye makes and drains fluid (aqueous). The point where the aqueous drains is called “the angle” and it is located at the junction of the cornea and the iris. Because in ICE syndrome the endothelium replicates and spreads, it eventually covers and damages the angle, preventing the aqueous from draining. This causes the pressure in the eye to increase, and long term high pressure in the eye damages the nerve that connects the eye to the brain (the optic nerve). This is glaucoma and glaucoma damage is irreversible.
3. It damages the iris – As the abnormal endothelium replicates and spreads, it eventually starts to grow over the iris. This damages the iris, and can cause

the pupil (the black central part of the eye) to stop working in the light, to have an oval shape, or even for the iris to develop multiple defects or holes in it. This can cause glare in the eye.

Causes and Who is at Risk

No one knows for sure what causes ICE syndrome. It is sporadic in presentation and not passed on genetically (so it cannot be passed on from parent to child). It is more common in women and is most frequently detected between the ages of 20 and 50 years. It almost always only affects one eye.

Symptoms

The initial presentation of ICE syndrome patients may be due to monocular pain (from corneal edema or elevated intraocular pressure from angle-closure), blurry vision, or iris changes.

Detection

Your eye specialist will conduct a thorough ocular assessment to diagnose the disease.

Treatment

Lowering the pressure with eye drops (and sometimes laser or surgery) can help slow or stop the process of glaucoma and preserve patients' vision. The range of treatments is thus similar to those for the more common forms of glaucoma.

Ongoing Management

As with other types of glaucoma, regular review by an eye specialist is critical to ensure that you do not develop substantial vision impairment.

