# Closed-Angle Glaucoma

Closed-angle glaucoma can be due to primary causes, where the lens leads to mechanical obstruction of aqueous humor flow, leading to decreased fluid drainage. It can also be due to secondary causes, such as neovascular proliferation over the iris, compromising the angle housing the trabecular meshwork. Chronic disease can be asymptomatic, whereas acute disease is an emergency, and can present with eye pain and blindness along with headache and a rock-hard eye.




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## Primary

**Lens causes pupillary obstruction**
Lens Obstructing Purple-pupil
In primary closed-angle glaucoma, enlargement or forward movement of the lens causes obstruction of normal aqueous flow through the pupil. Often, this occurs in people with shallow anterior chambers of the eye.

**Aqueous humor builds behind iris**
Water from eye-fountain Building behind Iris-flower
As the lens has blocked off pupillary flow of aqeous humor, fluid begins to build up behind the iris.

**Iris bends forward, obstructing trabecular mesh**
Iris-flowers Bends to Obstruct Trebeck in Mesh
Increased pressure from aqeous fluid behind the iris leads to the iris bowing forward, mechanically obstructing the trabecular mesh. As this meshwork is unaccessible, the canal of Schlemm cannot resorb aqueous fluid. This leads to increased fluid buildup in the posterior chamber of the eye.

## Secondary

**Hypoxia Causes Neovascular Proliferation**
Hippo-O2 and Neanderthal-vascular Pro-lifter
In secondary closed-angle glaucoma, an inciting event, such as hypoxia, causes neovascular proliferation within the eye. This typically takes place on the anterior surface of the iris.

**Contraction and obstruction of trabecular mesh**
Flexing and Obstructed Trebeck in Mesh
The neovascular proliferation of the iris leads to tissue contraction and mechanical obstruction of the trabecular mesh. The tissue contraction causes the angle in the anterior eye (where the trabecular meshwork is), to be conformationally changed.

## Chronic disease (Crone)

**Asymptomatic**
Thumbs-up
Chronic disease develops over time and is usually asymptomatic. Patients complain of progressive peripheral vision loss and on exam will have increased intraocular pressure and possible optic nerve damage.

## Acute Disease

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**Eye pain and blindness**

Eye with Pain-bolt and Blinds-over-eye

Acute cases of closed-angle glaucoma are usually from primary lens obstruction of pupillary flow. It is described as sudden, severe eye pain, along with blindness.

**Rock-hard eye**

Rock Eye

Upon inspection, patients will have a "rock hard" eye, due to increased intraocular pressure.

**Headache**

Head-egg lump

Another associated symptom that patients complain of is frontal headache.

**Emergency**

Emergency-lights

Acute situations of closed-angle glaucoma are a true opthalmologic emergency and need immediate care.

**Epinephrine contraindicated**

Epi-pen with Caution-tape

Due to its mydriatic effects, epinephrine is contraindicated and can severely worsen symptoms.

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