International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 - 8683*
Volume 5, Number 4, November 2026, *Page. 3873 - 3880*
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Acute Angle-Closure Glaucoma In An Elderly Woman With Elevated Intraocular Pressure: A Case Report

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Abstract

Acute angle-closure glaucoma is an ophthalmic emergency that can lead to irreversible vision loss if elevated intraocular pressure is not promptly managed. Typical clinical manifestations include acute ocular pain, decreased visual acuity, ocular redness, corneal edema, a mid-dilated pupil, and elevated intraocular pressure. This case report aims to describe the clinical manifestations, diagnostic process, and management principles of acute angle-closure glaucoma in an elderly patient. A 65-year-old woman presented with a chief complaint of sudden decreased vision in the left eye that had begun two weeks prior to examination. The complaint was preceded by intermittent tearing and a dull aching sensation in the left eye for approximately one month. Two weeks before presentation, the patient experienced severe pain in the left eye radiating to the left side of the head, accompanied by ocular redness, eyelid swelling, and markedly blurred vision described as seeing through smoke. The right eye had experienced a gradual decline in vision over approximately one year. Examination revealed uncorrected visual acuity of 20/60 in the right eye and 1/60 in the left eye. The left eye showed eyelid edema, lacrimation, ciliary and conjunctival injection, corneal edema and opacity, a shallow anterior chamber, iris bombe, a mid-dilated pupil, and an absent pupillary light reflex. Intraocular pressure was 18 mmHg in the right eye and 49 mmHg in the left eye. Confrontation visual field testing revealed generalized constriction of the visual field in the left eye. Based on the clinical findings, the patient was diagnosed with acute angle-closure glaucoma in the left eye and immature senile cataract in the right eye. The patient received intraocular pressure-lowering medical therapy and was scheduled for further evaluation and definitive treatment with laser peripheral iridotomy once the corneal condition permitted the procedure. Acute angle-closure glaucoma should be considered in elderly patients presenting with a red eye, acute ocular pain, decreased vision, and elevated intraocular pressure. Prompt recognition of clinical signs and immediate reduction of intraocular pressure are essential to minimize the risk of irreversible optic nerve damage. Evaluation of the fellow eye is also important because of the presence of anatomical predispositions that may increase the risk of a similar attack.

Keywords: Acute Angle-Closure Glaucoma; Intraocular Pressure; Red Eye; Glaucoma; Case Report

INTRODUCTION

Glaucoma is a group of progressive optic neuropathies characterized by damage to retinal ganglion cells and optic nerve axons, which can lead to progressive visual field loss. Elevated intraocular pressure is one of the major risk factors for glaucomatous damage, although optic nerve damage may also occur at intraocular pressure levels within the normal range. Glaucoma is one of the leading causes of irreversible blindness worldwide and often progresses asymptomatically in its early stages, earning it the designation of the "silent thief of sight."[1–3]

The burden of glaucoma increases with advancing age. Certain anatomical conditions, including a shallow anterior chamber and a narrow anterior segment configuration, increase the risk of anterior chamber angle closure. In acute angle-closure glaucoma, the angle closes rapidly, obstructing aqueous humor outflow and resulting in a marked elevation of intraocular pressure. This condition constitutes an ophthalmic emergency because severely elevated intraocular pressure can cause optic nerve damage and permanent vision loss.[4–6]

Clinically, an acute angle-closure glaucoma attack may present with severe ocular pain, headache, ocular redness, blurred vision, corneal edema, a shallow anterior chamber, and a mid-dilated pupil with a sluggish or absent response to light. Intraocular pressure is

generally markedly elevated. Delayed diagnosis and treatment may increase the risk of structural and functional damage to the eye.[5],[6]

This case report describes a 65-year-old woman with acute angle-closure glaucoma in the left eye, with an intraocular pressure of 49 mmHg and a marked reduction in visual acuity to 1/60. This case is important because it demonstrates the characteristic clinical features of an ophthalmic glaucoma emergency in an elderly patient, as well as the presence of senile cataract in the contralateral eye, which requires further evaluation and preventive management.

Case Report

Patient Information

A 65-year-old woman presented to Makassar Eye Hospital on December 23, 2025, with a chief complaint of decreased vision in the left eye. The patient was a housewife. According to the case history, she had no history of systemic diseases such as hypertension or diabetes mellitus, no history of ocular trauma, had never worn glasses, and had never previously undergone an eye examination by an ophthalmologist. There was no reported history of previous ocular disease, medication use, or family history of eye disease.

Chief Complaint and History of Present Illness

The decrease in vision in the left eye occurred suddenly approximately two weeks before presentation to the hospital. The visual disturbance was preceded by intermittent tearing and an aching sensation in the left eye for approximately one month. Initially, the patient reported that her vision remained normal.

Approximately two weeks before examination, her symptoms worsened with the onset of severe pain in the left eyeball radiating to the left side of the head. The pain was accompanied by ocular redness and eyelid swelling. During the attack, vision in the left eye became markedly blurred, which the patient described as “seeing through smoke.” The patient did not report nausea or vomiting and denied any previous episodes of similar symptoms.

In the right eye, the patient reported a gradual decrease in vision over approximately the preceding year. Her vision had progressively become less clear when viewing distant objects and when reading. These symptoms were not accompanied by pain, redness, or tearing. The patient occasionally experienced eye fatigue and a mild aching sensation in the right eye after spending prolonged periods in poorly illuminated rooms.

Physical Examination

The patient appeared moderately ill but was conscious and oriented (*compos mentis*). Her blood pressure was 134/77 mmHg, pulse rate was 113 beats/minute, respiratory rate was 18 breaths/minute, body temperature was 36°C, and oxygen saturation was 99% on room air.

Facial examination revealed mild asymmetry with palpebral swelling. The left eye appeared red and watery, whereas the right eye appeared quiet.

Ophthalmological Examination

Uncorrected distance visual acuity was 20/60 in the right eye and 1/60 in the left eye. Best-corrected visual acuity and near visual acuity were not assessed.

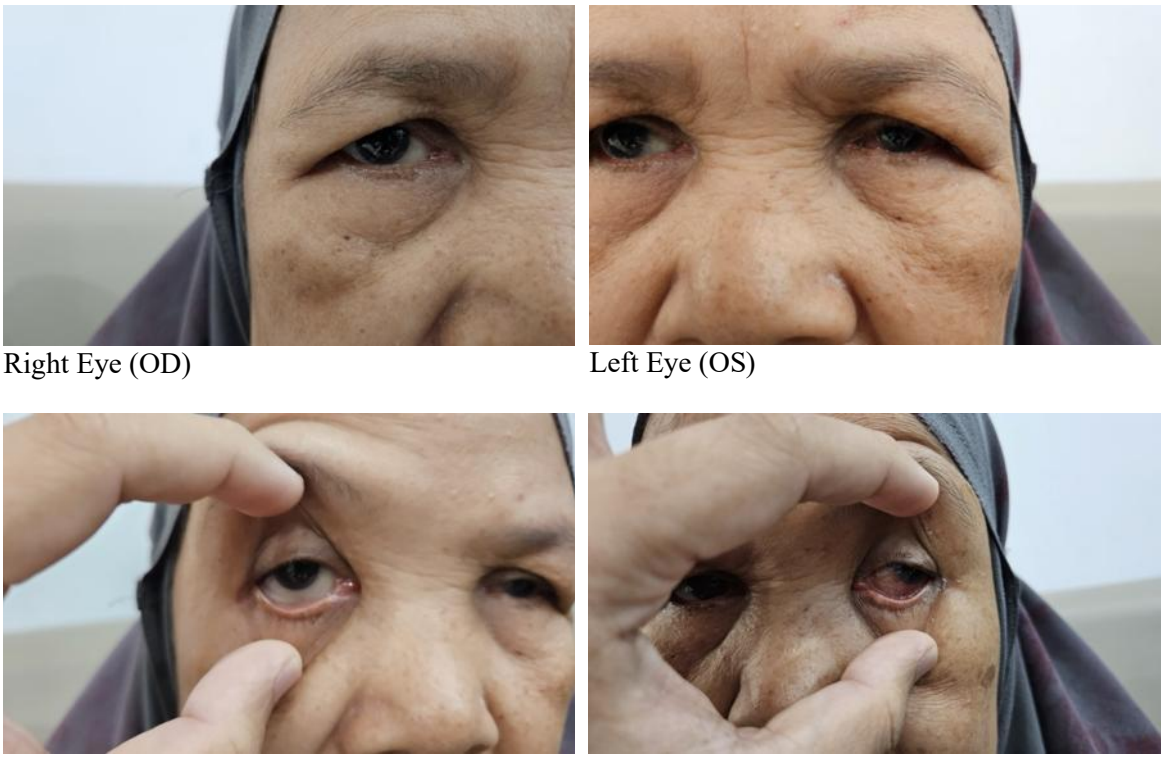


Figure 1. Clinical photographs of the patient showing a comparison between the right and left eyes. The left eye shows conjunctival hyperemia with palpebral swelling.

Source: Patient's clinical documentation, with permission for publication obtained following informed consent.

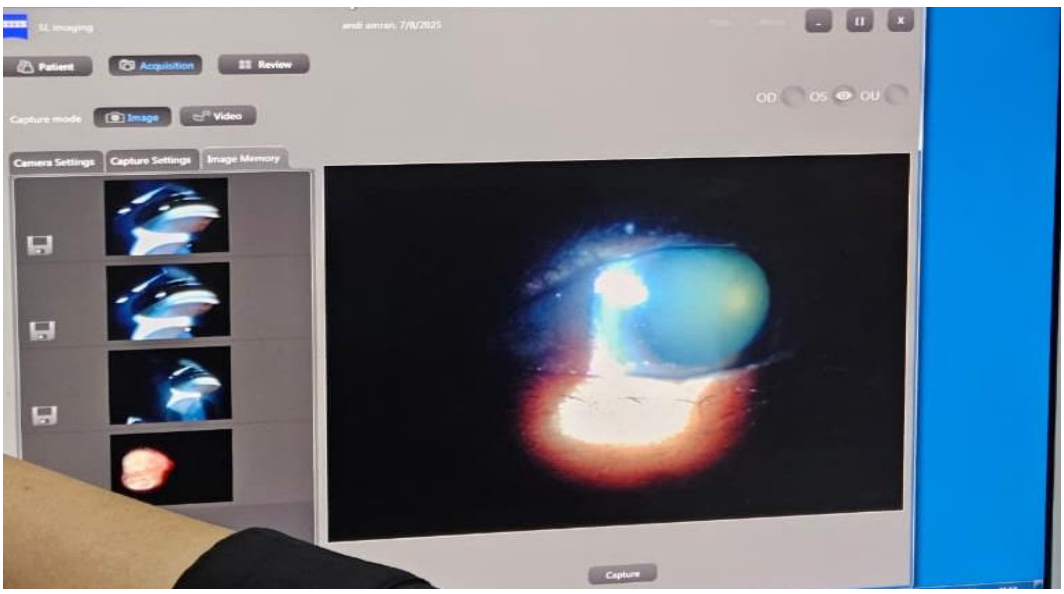


Figure 2. Slit-lamp examination of the left eye (OS).

Anterior segment examination of the right eye showed no palpebral edema or hyperemia, no lacrimation, no conjunctival injection, a clear cornea, an anterior chamber within the limits of the examination performed, a round brown iris, and a round, isocoric pupil with a positive light reflex. The lens was cloudy. Examination of the left eye revealed palpebral edema, lacrimation, ciliary and conjunctival injection, corneal edema and opacity, a shallow anterior chamber, iris bombe, and a mid-dilated pupil with absent direct and consensual light reflexes. Extraocular movements were full in both eyes in all directions, without restriction or nystagmus. Confrontation visual field testing showed a normal visual

field in the right eye, whereas the visual field in the left eye was constricted in all quadrants. Intraocular pressure (IOP), measured by tonometry, was 18 mmHg in the right eye and 49 mmHg in the left eye. Palpation revealed tenderness of the left eye.

Table 1. Summary of Ophthalmological Examination Findings

Parameter	Right Eye (OD)	Left Eye (OS)
Uncorrected distance visual acuity	20/60	1/60
Palpebra	Edema (−), hyperemia (−)	Edema (+)
Lacrimation	(−)	(+)
Conjunctiva	Injection (−)	Injection (+)
Ciliary injection	(−)	(+)
Cornea	Clear	Edematous and opaque
Anterior chamber	Not reported as shallow	Shallow
Iris	Round, brown	Iris bombe
Pupil	Round, isocoric	Mid-dilated
Light reflex	+/+	−/−
Confrontation visual field	Normal	Constricted in all quadrants
Intraocular pressure	18 mmHg	49 mmHg
Tenderness	Absent	Present
Lens	Cloudy	Cloudy

Additional Investigations and Diagnostic Assessment

The examination revealed an intraocular pressure (IOP) of 49 mmHg in the left eye. The clinical findings of severe unilateral ocular pain, acute visual impairment, ocular redness, corneal edema, a shallow anterior chamber, iris bombe, a mid-dilated pupil, and markedly elevated IOP strongly supported the diagnosis of acute angle-closure glaucoma.

Gonioscopy, fundus examination or fundus photography, optic nerve optical coherence tomography (OCT), and automated perimetry were planned after the IOP was controlled and the optical media were sufficiently clear to permit examination. Gonioscopy is necessary to assess the extent of angle closure and the possible presence of peripheral anterior synechiae (PAS). Fundus examination and optic nerve OCT are necessary to evaluate the condition of the optic nerve and establish baseline data for monitoring disease progression, while perimetry is used to assess visual field defects.

In the right eye, the gradual decline in vision over approximately one year, accompanied by a cloudy lens and visual acuity of 20/60, supported the diagnosis of immature senile cataract. The IOP in the right eye remained within the normal range at 18 mmHg. Based on the overall clinical findings, the working diagnoses were:

1. Left eye: Acute angle-closure glaucoma.
2. Right eye: Immature senile cataract.

The differential diagnoses for the left eye included acute anterior uveitis and keratitis. Acute anterior uveitis was considered less likely because it is typically associated with miosis and signs of intraocular inflammation, whereas this patient had a mid-dilated pupil and markedly elevated IOP. Keratitis was also considered less likely because there was no reported corneal infiltrate, specific epithelial defect, or ocular discharge. The corneal opacity in this patient was more consistent with corneal edema secondary to elevated IOP.

The differential diagnoses for the right eye included age-related macular degeneration and presbyopia. However, the presence of lens opacity on anterior segment examination, together with decreased visual acuity, more strongly supported senile cataract as the primary cause of the visual impairment.

Case Timeline

Table 2. Chronology of the Case Course

Time	Clinical Event
Approximately 1 month before examination	The left eye frequently became watery and had an intermittent aching sensation.
Approximately 2 weeks before examination	Severe pain developed in the left eye, radiating to the head, accompanied by ocular redness, palpebral edema, and sudden visual impairment.
Approximately 1 year before examination	The right eye experienced a gradual decline in vision.
December 23, 2025	The patient was examined at Makassar Eye Hospital; visual acuity was 20/60 in the right eye and 1/60 in the left eye; IOP was 18 mmHg in the right eye and 49 mmHg in the left eye.
At examination	The left eye showed corneal edema and opacity, a shallow anterior chamber, iris bombe, and a mid-dilated pupil.
After diagnosis	Medical therapy was initiated, and further evaluation and definitive treatment were planned.
Follow-up	Follow-up visits on December 27, 2025, January 8, 2026, and January 15, 2026, showed a decrease in left-eye IOP to 13.1–19 mmHg, improvement in visual acuity to 20/100, a clear cornea, and a formed anterior chamber. Treatment was continued, and the patient remained adherent with no reported adverse effects.

Management

The primary goal of management of the left eye was to reduce intraocular pressure (IOP) as rapidly as possible to minimize the risk of further optic nerve damage. According to the case report, the patient received medical therapy consisting of Cendo Glopac eye drops every 8 hours, one drop in the left eye; Cendo Polydex eye drops every 4 hours, one drop in the left eye; Glauseta tablets every 12 hours; and KSR tablets every 24 hours.

Further management was planned to include topical antiglaucoma medications according to the clinical condition, close monitoring of IOP, and laser peripheral iridotomy (LPI) once the cornea was sufficiently clear. LPI is a definitive treatment used to address pupillary block in angle-closure glaucoma by creating an alternative pathway for aqueous humor flow. In cases that remain uncontrolled despite medical therapy and laser treatment, surgical intervention may be considered.[6],[7]

For the right eye, the patient was scheduled for IOP monitoring and evaluation of the anterior chamber angle. Prophylactic LPI may be considered if a narrow anterior chamber angle is identified. Cataract surgery, specifically phacoemulsification with intraocular lens implantation, was also planned as definitive treatment for the cataract once clinical indications were met.

The patient was educated regarding the potential of the disease to cause permanent vision loss, the importance of adherence to treatment and follow-up visits, and the need for evaluation of the right eye despite the absence of an acute attack.

Follow-Up and Outcome

The patient underwent follow-up examinations after initiation of therapy on December 27, 2025, January 8, 2026, and January 15, 2026. At each visit, IOP, visual acuity, and the condition of the anterior segment were evaluated.

On December 27, 2025, IOP was 14 mmHg in the right eye and 13.1 mmHg in the left eye, with visual acuity of 20/70 in the right eye and 20/400 in the left eye. The cornea was clear, the anterior chamber was formed, the pupil was pharmacologically dilated, and the lens appeared cloudy. Gonioscopy was not performed, and LPI had not yet been performed.

Treatment was continued with P-Pred eye drops in the left eye every 2 hours, moxifloxacin one drop every 3 hours in the left eye, and methylprednisolone 8 mg twice daily. The patient was reported to be adherent to the treatment, with no adverse effects or adverse events observed.

On January 8, 2026, IOP was 13 mmHg in the right eye and 19 mmHg in the left eye, with visual acuity of 20/70 in the right eye and 20/100 in the left eye. The cornea remained clear, the anterior chamber was formed, the pupil was pharmacologically dilated, and the lens appeared cloudy. Gonioscopy was not performed, and LPI had not yet been performed. Treatment was continued with P-Pred eye drops in the left eye every 2 hours, moxifloxacin one drop every 3 hours in the left eye, and methylprednisolone 8 mg twice daily. The patient remained adherent to treatment and experienced no adverse effects or adverse events.

On January 15, 2026, IOP was 15 mmHg in the right eye and 18 mmHg in the left eye, with visual acuity of 20/70 in the right eye and 20/100 in the left eye. The cornea remained clear, the anterior chamber was formed, the pupil was pharmacologically dilated, and the lens appeared cloudy with nuclear opacity. Gonioscopy was not performed, and LPI had not yet been performed. Treatment was continued with P-Pred eye drops in the left eye every 2 hours, moxifloxacin one drop every 3 hours in the left eye, and methylprednisolone 8 mg twice daily. The patient remained adherent to treatment, with no adverse effects or adverse events observed.

Overall, during the follow-up period, the IOP in the left eye decreased from 49 mmHg at initial presentation to 13.1 mmHg on December 27, 2025, followed by 19 mmHg on January 8, 2026, and 18 mmHg on January 15, 2026. Visual acuity in the left eye also improved from 1/60 to 20/400 at the first follow-up visit and subsequently to 20/100 at the following two visits. The cornea became clear and the anterior chamber was formed. Throughout the follow-up period

Discussion

Acute angle-closure glaucoma is an ophthalmic emergency caused by closure of the anterior chamber angle, resulting in impaired aqueous humor outflow. One of the most common mechanisms is pupillary block. In this condition, the flow of aqueous humor from the posterior chamber to the anterior chamber is obstructed, leading to increased pressure behind the iris. This increased pressure pushes the iris anteriorly and causes contact with the trabecular meshwork. Subsequent angle closure further reduces aqueous humor outflow and results in a rapid increase in intraocular pressure (IOP).[4–6]

In this case, this mechanism was supported by the presence of a shallow anterior chamber and iris bombe in the left eye. An IOP of 49 mmHg was an important finding supporting the diagnosis. Markedly elevated IOP can cause corneal edema, resulting in a hazy cornea and severe visual blurring. This finding was consistent with the patient's description of her vision as being like “seeing through smoke.”

The patient's clinical presentation was also consistent with the characteristic features of an acute angle-closure glaucoma attack. She experienced severe unilateral ocular pain radiating to the head, ocular redness, sudden visual impairment, corneal edema, a mid-dilated pupil, and elevated IOP. This combination of findings should prompt immediate suspicion of acute angle-closure glaucoma, particularly in elderly patients.[5,6]

Age is an important risk factor in this case. Age-related anatomical changes in the anterior segment may increase the risk of narrowing of the anterior chamber angle. Female sex has also been reported to be associated with a higher risk of angle-closure glaucoma compared with male sex. Thus, the patient's characteristics of being a 65-year-old woman are consistent with a population profile associated with a higher risk of this condition.[4,6]

The visual impairment in the right eye had different characteristics from that in the left eye. The right eye had experienced a gradual decline in vision for approximately one year

without pain or redness. Examination revealed a cloudy lens with a visual acuity of 20/60, making a diagnosis of immature senile cataract more consistent with the clinical findings. However, the presence of a shallow anterior chamber in the right eye requires attention because it may indicate an anatomical predisposition to angle closure.

The fellow eye in patients presenting with an acute angle-closure glaucoma attack also requires evaluation. The eye that has not yet experienced an attack may have a similar anatomical configuration and therefore remain at risk of angle closure. Therefore, gonioscopy of both eyes is important to determine the angle configuration and the need for prophylactic intervention. Laser peripheral iridotomy in the affected eye and in the fellow eye at risk is one strategy for treating or preventing pupillary block.[7]

The differential diagnosis of a red eye accompanied by acute visual impairment should be considered systematically. Acute anterior uveitis may cause ocular redness, pain, and blurred vision, but it is typically associated with signs of intraocular inflammation and a miotic pupil. In this case, the left pupil was mid-dilated, with an IOP of 49 mmHg. Keratitis may also cause pain and visual impairment but typically presents with more localized corneal abnormalities, infiltrates, or epithelial defects. In this patient, diffuse corneal edema was observed, which was more consistent with elevated IOP.

Initial management of acute angle-closure glaucoma aims to rapidly reduce IOP. Agents that suppress aqueous humor production, topical medications, and osmotic therapy may be used according to the patient's clinical condition. Once IOP has decreased and the optical media are sufficiently clear, laser peripheral iridotomy is performed to address the pupillary block mechanism. Ophthalmic literature considers laser peripheral iridotomy an important treatment across the spectrum of primary angle closure, including acute primary angle closure.[7]

In this patient, the duration of symptoms, which had reached approximately two weeks before presentation, was an important concern. Prolonged elevation of IOP can cause irreversible damage to retinal ganglion cells and the optic nerve. Therefore, even when IOP is successfully reduced, visual acuity may not fully return to its pre-attack level.

One strength of this case report is the availability of relatively comprehensive clinical data describing the relationship between symptoms, anterior segment findings, IOP, and visual impairment in acute angle-closure glaucoma. However, this report has limitations, including the absence of gonioscopy findings, optic nerve examination, OCT RNFL, perimetry, and long-term follow-up data in the available documentation. Therefore, the patient's anatomical classification and final functional outcome could not be fully assessed.

In addition, the diagnostic terminology in the initial report, which referred to “acute attack glaucoma,” should be specified in the article as acute angle-closure glaucoma because this term more accurately describes the clinical mechanism observed. However, determining whether the condition is truly primary or secondary requires gonioscopic evaluation and a comprehensive assessment for secondary causes. Therefore, this report uses the diagnosis of acute angle-closure glaucoma based on the clinical findings without making an etiological claim regarding a mechanism that has not been confirmed.

This case demonstrates that early recognition of the combination of ocular redness, acute pain, visual impairment, corneal edema, a mid-dilated pupil, a shallow anterior chamber, and elevated IOP is essential in clinical practice. Delayed management may increase the risk of permanent vision loss, while evaluation of the fellow eye is necessary to help prevent a similar event.

CONCLUSION

Acute angle-closure glaucoma is an ophthalmic emergency that requires prompt diagnosis and immediate reduction of IOP. In this case, the diagnosis was supported by severe left-eye pain, acute visual impairment to 1/60, ocular redness, corneal edema, a shallow anterior chamber, iris bombe, a mid-dilated pupil, and an IOP of 49 mmHg. The presence of senile cataract in the fellow eye and possible anatomical predisposition highlight the importance of comprehensive evaluation of both eyes. Long-term management requires monitoring of IOP, assessment of optic nerve structure and function, and definitive treatment according to the mechanism and anatomical condition of the eye. This case emphasizes the importance of early recognition of the clinical signs of acute angle-closure glaucoma to prevent irreversible vision loss.

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