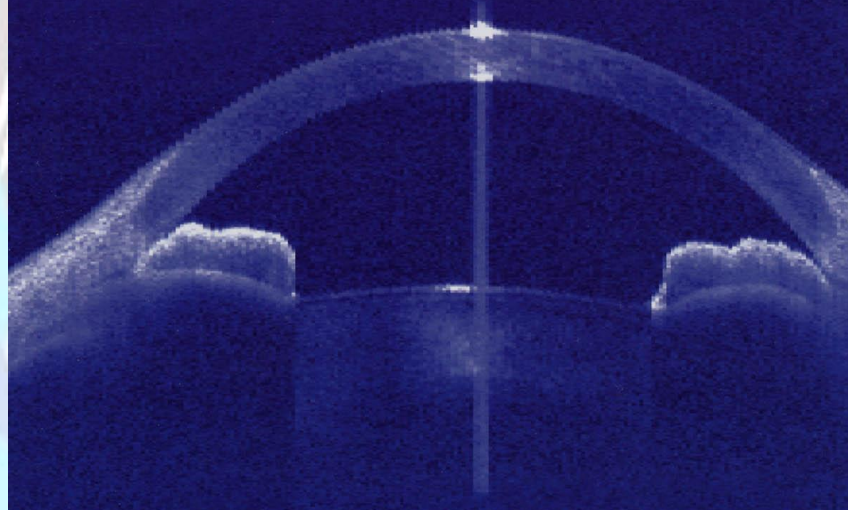


Kugler Publications, The Hague, The Netherlands

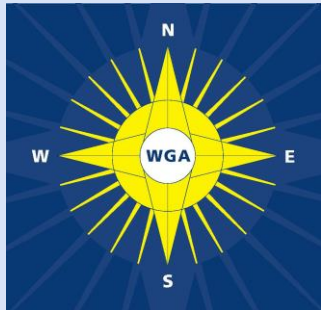
# Angle Closure and Angle Closure Glaucoma



Robert N. Weinreb and David S. Friedman

Consensus Series - 3

**The Global Glaucoma Network**



**Fort Lauderdale, Florida May 3, 2006**

**WGA**



**The Global Glaucoma Network**



# Epidemiology, Classification & Mechanism

WGA

## *Classification*

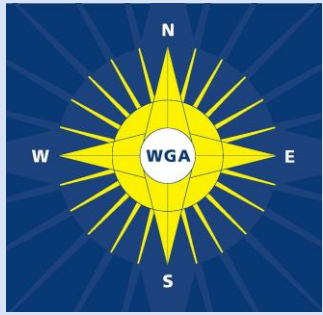
1. The proposed classification scheme can be used not only to classify the natural history of angle closure, but also to determine prognosis and describe an individual's need for treatment at different stages of natural history of the disease.



# Epidemiology, Classification & Mechanism

**WGA**

2. Additional clinical sophistication can be gained describing sequelae of angle closure affecting the cornea, trabecular meshwork, iris, lens optic disc and retina. Specifically, the extent of PAS, level of presenting IOP (in asymptomatic cases) and presence of glaucomatous optic neuropathy should be noted.

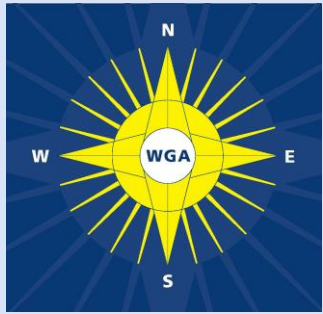


# Epidemiology, Classification & Mechanism

**WGA**

3. Ascertaining the mechanism of angle closure (pupillary block, plateau, lens-related, retro-lenticular) is essential for management, and it should be used in conjunction with a classification of the stage of the disease.

*See Comments to this statement on next slide*



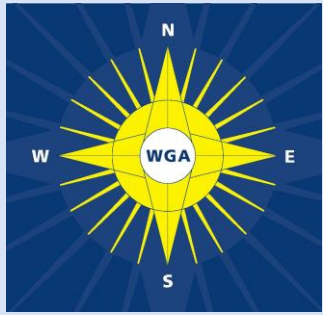
# Epidemiology, Classification & Mechanism

WGA

## *Comments to Statement 3*

***Comment:*** Further refinement of these systems (such as the inclusion of symptoms as a defining feature of angle closure) should be made on the basis of peer-reviewed evidence.

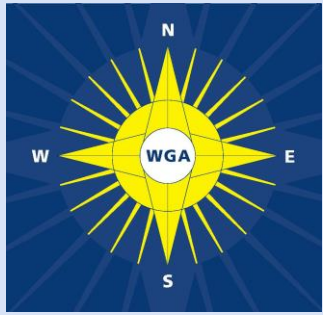
***Comment:*** Angle closure can be caused by one or a combination of abnormalities in the relative or absolute sizes or positions of anterior segment structures or abnormal forces in the posterior segment that may alter the anatomy of the anterior segment. Angle closure may be understood by regarding it as resulting from blockage of the trabecular meshwork caused by forces acting at four successive anatomic levels: the iris (pupillary block), the ciliary body (plateau iris), the lens (phacomorphic glaucoma), and vectors posterior to the lens (malignant glaucoma).



# Epidemiology, Classification & Mechanism

WGA

4. Although the amount of pupillary block may vary among eyes with angle closure, all eyes with angle closure require treatment with iridotomy.



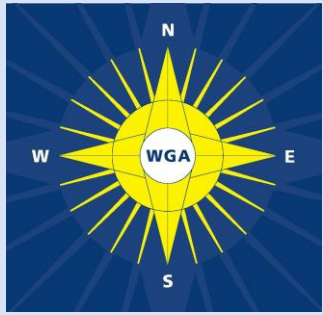
# Epidemiology, Classification & Mechanism

WGA

## *Gonioscopy*

5. **Gonioscopy is indispensable to the diagnosis and management of all forms of glaucoma and is an integral part of the eye examination.**





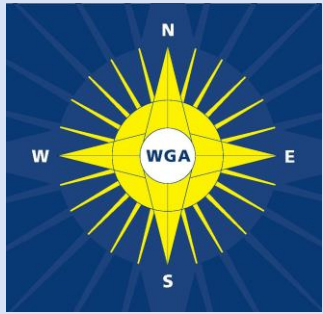
# Epidemiology, Classification & Mechanism

WGA

6. An essential component of gonioscopy is the determination that iridotrabecular contact is either present or absent. If present, the contact should be judged to be appositional or synechial (permanent).

*Comment:* The terms 'iridotrabecular contact (stating the number of degrees)' and 'primary angle closure suspect' should be substituted for 'occludable', as this is more accurate.

*Comment:* The determination of synechial contact may require indentation of the cornea during gonioscopy, in which case a goniolens with a diameter smaller than the corneal diameter is preferred.



# Epidemiology, Classification & Mechanism

**WGA**

7. Access to a magnifying, Goldmann-style lens enhances the ability to identify important anatomical landmarks, and signs of pathology. Although the accuracy of indentation with this lens has not been validated, its use does complement that of a gonioscope with a diameter smaller than the corneal diameter. The ideal standard is access to both types of lens.



# Epidemiology, Classification & Mechanism

WGA

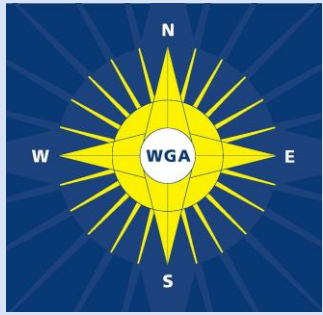
8. Anterior segment imaging devices may augment the evaluation of the anterior chamber angle, but their place in clinical practice still needs to be determined.



# Epidemiology, Classification & Mechanism

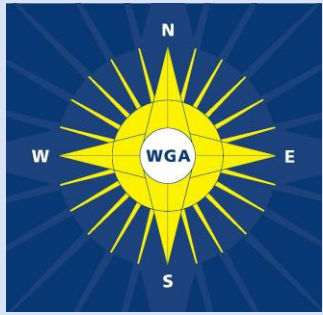
**WGA**

9. It is desirable to record gonioscopic findings in clear text. Describing the anatomical structures seen, the angle width, the iris contour and the amount of pigmentation in the angle are all desirable.



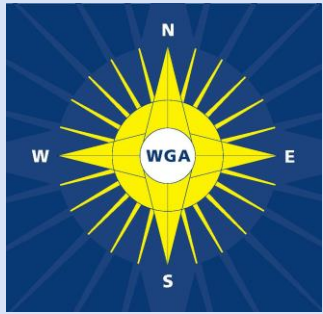
# Management of Acute Angle Closure Crisis

- 1. Laser iridotomy should be performed as soon as feasible in the affected eye(s), and should also be performed as soon as possible in the contralateral eye.**
- 2. Medical management is the recommended first step in treating acute angle closure, but the results of studies comparing this to immediate laser surgery are not yet available.**



# Management of Acute Angle Closure Crisis

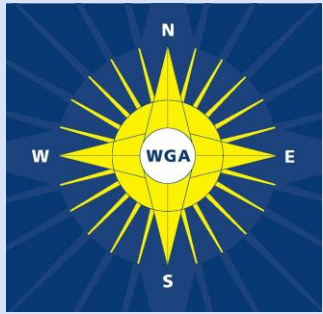
3. Laser iridoplasty can be effective at breaking acute attacks and should be considered if an attack cannot be broken by other means.
4. Paracentesis should be reserved for cases where other approaches have failed.
5. Primary cataract extraction may be a treatment option, but data supporting its use are limited.



# Surgical Management of Primary Angle Closure Glaucoma

- 1. Laser peripheral iridotomy is recommended as the primary procedure in eyes with PACG.**

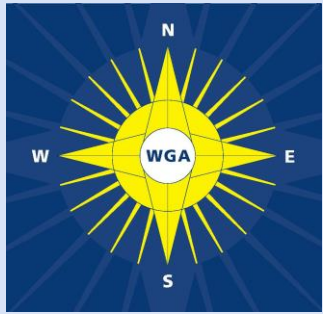
***Comment:*** LPI can be performed easily on an outpatient basis and patients can then be monitored for response to treatment. This will allow time to undertake elective surgery in those with uncontrolled IOP, those with advanced disease or with co-existing cataract. LPI also serves as prophylaxis against acute angle closure.



# **Surgical Management of Primary Angle Closure Glaucoma**

- 2. There is lack of evidence for recommending primary incisional surgery (without laser PI) in eyes with PACG.**
- 3. Trabeculectomy may be performed to lower IOP in eyes with chronic PAC (G) insufficiently responsive to laser or medical therapy.**

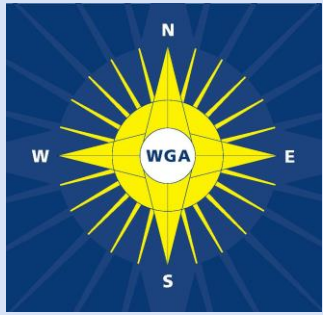




# Surgical Management of Primary Angle Closure Glaucoma

4. There is insufficient evidence for deciding which cases with PACG should undergo cataract surgery alone (without trabeculectomy).

*Comment:* Cataract surgery alone may be considered in eyes with mild degree of angle closure (less than 180 degrees of PAS), mild optic nerve / visual field damage or those that are not on maximal tolerated medical therapy.



# Surgical Management of Primary Angle Closure Glaucoma

6. Combined cataract and glaucoma surgery in certain eyes may be useful to control IOP and restore vision.

*Comment:* There is limited published evidence about the effectiveness of combined cataract extraction and trabeculectomy in eyes with PACG. There is a need for studies comparing this form of surgery with separately staged cataract extraction and trabeculectomy.



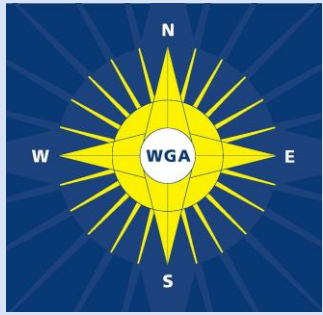
# Surgical Management of Primary Angle Closure Glaucoma

7. There is limited evidence about the effectiveness of goniosynechialysis in the management of PACG



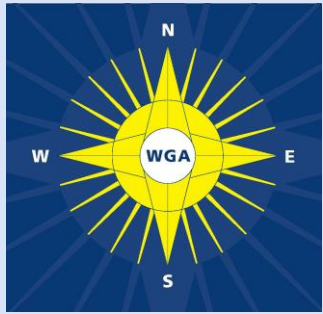
# Laser & Medical Treatment on Primary Angle Closure Glaucoma

1. Medical treatment should not be used as a substitute for laser iridotomy or surgical iridectomy in patients with PAC or PACG.
2. Prostaglandin analogues appear to be the most effective medical agent in lowering IOP following laser iridotomy, regardless of the extent of synechial closure.



# Detection of Primary Angle Closure & Angle Closure Glaucoma

1. Angle closure case detection or opportunistic screening should be performed in all persons forty years of age and older undergoing an eye examination.
2. Given the low specificity of the flashlight test, it is not recommended for use in population-based screening or in the clinic.
3. A shallow anterior chamber is strongly associated with angle closure. The use of ACD for population-based screening is as yet unproven.



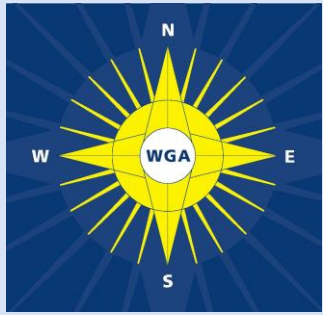
# Detection of Primary Angle Closure & Angle Closure Glaucoma

**4. Many clinicians currently perform iridotomy as prophylaxis in the presence of any visible iridotrabecular contact.**

*Comment:* Published evidence is lacking to justify this practice since it is unknown whether LPI is effective at preventing AAC, PAC, and PACG from developing in individuals with gonioscopically detected iridotrabecular contact.

*Comment:* Research is needed to determine racial / ethnic variations in response to iridotomy.

*Comment:* Evidence is needed to evaluate the meaning of a shallow LACD in the presence of an 'open' angle on gonioscopy.



# Detection of Primary Angle Closure & Angle Closure Glaucoma

5. There is currently no evidence in the literature supporting the standard use of provocative tests for angle closure. A negative provocative test does not exclude angle closure.