

Angle Assessment: Pen Torch Method

Description: The anatomical angle is where the cornea and the iris meet. Positioned in the angle is the Trabecular Meshwork, the area where the fluid, called the aqueous humor, exits the eye. Angles can be “deep” (wide open), narrow (very close together), or closed (touching, blocking all outflow- and considered an ocular emergency). It is important to assess each patient’s angles BEFORE dilation because the change that occurs in anatomy upon dilation could induce angle closure in patients with anatomically narrow angles. There are several ways to assess angles, the two most common ways are by slit lamp examination and the transilluminator method.

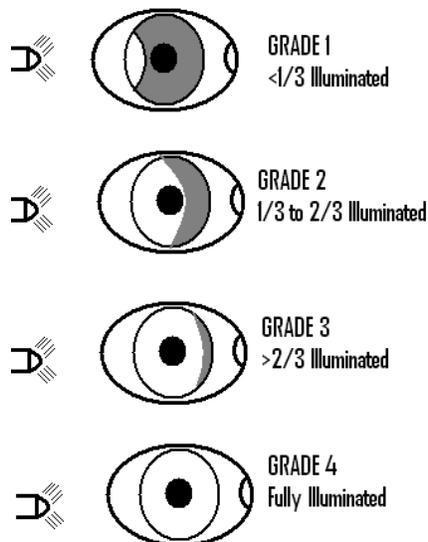
Equipment: Transilluminator

Purpose: Estimate the depth of the anterior chamber angle to determine if a patient is safe for dilation.

Requirements: This should be checked *without correction*. The room lights should be off.

Testing Process:

1. Advise patient to look straight ahead with both eyes open.
2. Shine light source into patient’s eye from the temporal canthus so that the light lies at a parallel angle to the eye.
3. Observe the illumination of the iris.
 - a. In the case of a deep anterior chamber, the entire iris will illuminate.
 - b. In the case of a shallow anterior chamber, the iris sits forward (closer to the cornea) blocking some of the light and parts of the iris may not be illuminated.
4. If angles appear narrow, consult physician for instructions BEFORE dilation.
5. Document the results.



Angle Assessment: Van Herick Method

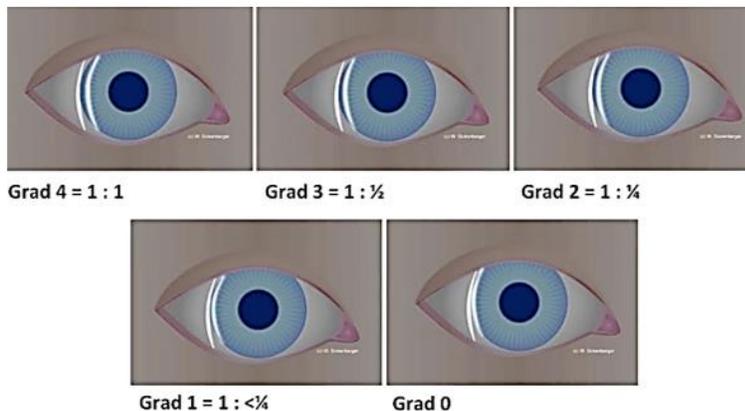
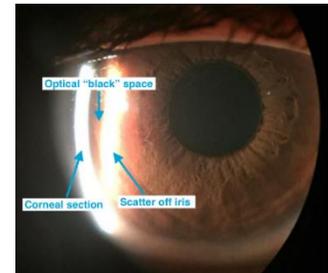
Equipment: Slit Lamp

Purpose: Estimate the depth of the anterior chamber angle to determine if a patient is safe for dilation.

Requirement: This should be checked without correction. The room lights should be off.

Testing Process:

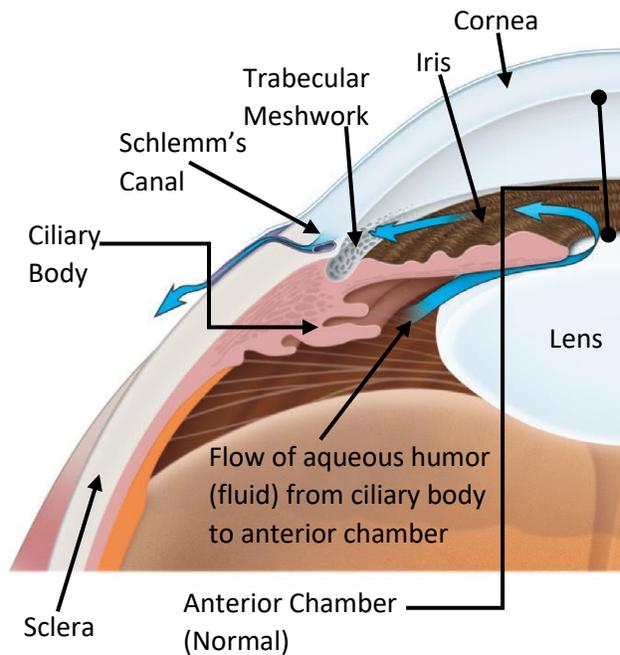
1. Position patient at the slit lamp. Instruct them to place their chin in the chin rest and the forehead against the bar.
2. Turn on the slit lamp power.
3. Adjust the beam to a tall, thin slit beam.
4. Adjust the angle of the slit lamp beam to 60 degrees.
5. When moving slit lamp, use the base to make large adjustments and use the joystick to make fine adjustments.
 - a. Project a slit beam into the anterior chamber and observe the light reflex off the cornea and the light reflex off the iris. The distance between these two reflexes is a measure of the anterior chamber depth.
 - b. Adjust the slit beam to shine near the very edge of the temporal cornea.
 - c. Adjust the slit beam to shine near the very edge of the nasal cornea.
6. Determine how many lines (same size as the beams) can fit with in the space. (Less than two lines are concern for narrow angles. Normal range is 3-4 lines).



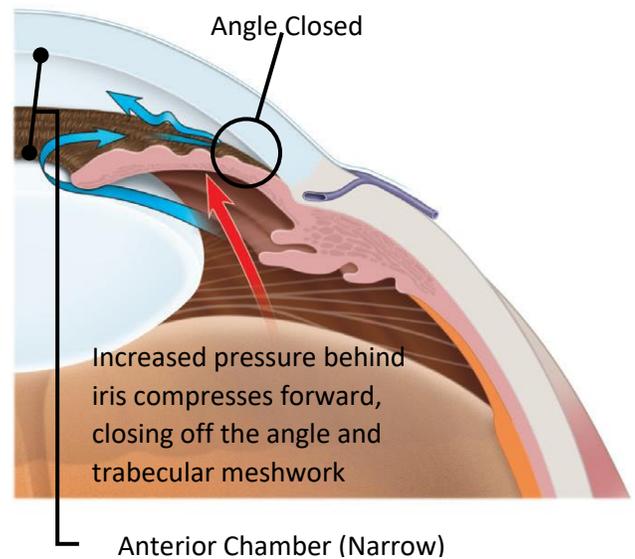
7. If angles appear narrow, consult physician for instructions BEFORE dilation.
8. Document results.

Angle-Closure Glaucoma/Narrow Angle

Normal Eye Anatomy



Angle Closure Glaucoma

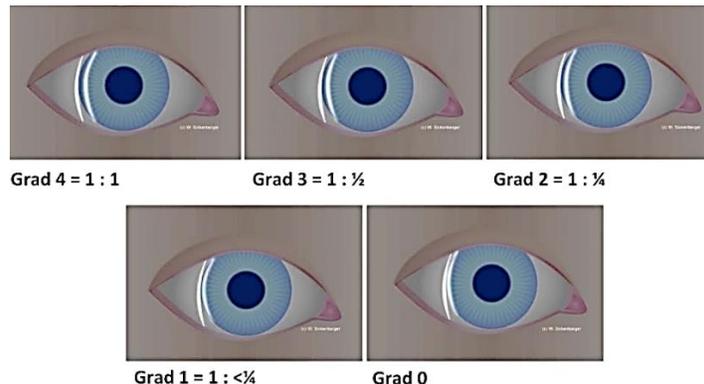


Far less common than open-angle glaucoma is narrow-angle, or angle-closure, glaucoma.

- Accounts for about a third of all Glaucoma cases and is associated with a shallow anterior chamber
- The reduced space between the front of the iris and the back surface of the cornea is usually located 360 degrees around the cornea at the iris, but there is adequate drainage of aqueous in most instances where an Acute Angle Closure attack has not happened. If this does occur the drainage system then is completely closed off and the aqueous fluid is not able to flow properly resulting an extreme eye pressure
- The longer the eye pressure stayed elevated to the point the Optic Nerve can't handle, vision loss and damage is permanent

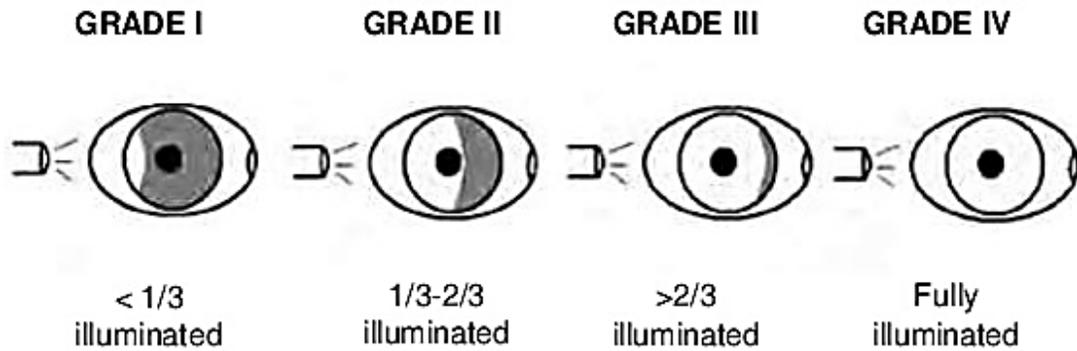
Checking Angles

Slit Lamp Method:

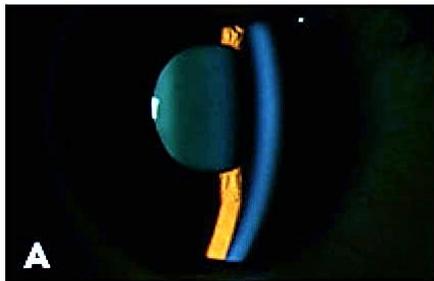


Angle-Closure Glaucoma/Narrow Angle

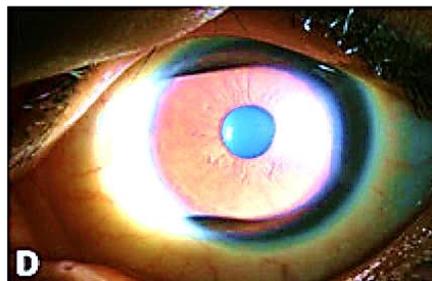
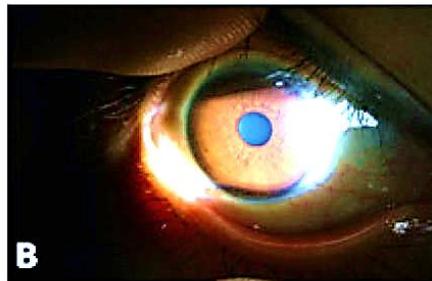
Transilluminator Method:



Narrow Angles under a Slit Lamp



Narrow Angles with Transilluminator



Factors that can contribute to Angle Closure or Narrow Angles:

- Natural dilation of the pupil in dim illumination
- Pharmaceutical related dilation of the pupils in an eye exam, or due to other medications such as decongestants, antidepressants, or anti-anxiety drugs
- **Cataracts**, when the natural lens thickens/grows (as it does with age) can push the posterior portion of the iris causing a narrowing in the anterior chamber
- **Hyperopic Eyes** (shorter/farsightedness)
 - **+Sph Lensometry**

Angle-Closure Glaucoma/Narrow Angle

Symptoms of Angle Closure:

- Mid-dilated pupil
- Decrease in vision
- Hazy/Cloudy vision
- Hazy cornea
- High IOP
- Headache/vomiting contributed to high IOP
- Red eye

