Gonioscopy and Slit Lamp Exam for the Glaucoma Suspect

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Disclosure

- Michael Chaglasian has the following disclosures:
  - Advisory Board: Alcon, Allergan, Bausch+Lomb, Carl Zeiss Meditec, Merck, Sucampo
  - Speakers Bureau: Alcon, Allergan, Carl Zeiss Meditec
- The content of this presentation is in no manner influenced by any of the aforementioned parties or companies

GONIOSCOPY:

- A MUST to confirm diagnosis
- van Herrick is NOT accurate.
- For those with narrow angles identify lowest structure visible:
  - CB > SS > TM > SL
- A steep-narrow approach may also be noted

GONIOSCOPY Why??

- Indications:
  - ALL glaucoma suspects.
  - can’t diagnose “open” angle glaucoma without seeing that the angle is “open”!!
  - Angle abnormalities;
    - Pigmentation neovascularization
    - recession foreign bodies
  - appositional vs. synechial closure

GONIOSCOPY

- Look at peripheral iris
- Look for peripheral anterior synechiae as evidence of past closure attacks
- Gonioscopy of both eyes to confirm a narrow angle approach (symmetry).

What should I look for?

- Angle landmark structures
  - Record the deepest structure that you see
  - Estimate width (degrees) of angle opening
    - iris surface to corneal endothelium
  - Peripheral Anterior Synechia (PAS)
  - Amount of Trabecular Meshwork pigment
  - Shape and profile of peripheral iris
    - May show anterior “bowing” (bombe)
Gonioscopy and Slit Lamp

Normal Angle Structures

Grading the Angle

Modified Shaffer Grading System

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Schwalbe’s Line vs. TM

Gonioscopy and Slit Lamp

Peripheral Iris Configurations

Schwalbe’s line Trabecular meshwork

GONIOSCOPY

Key Structure: Scleral Spur (c)

Three Mirror Lens Angle Structures

- If this is identified, future, short term angle closure is unlikely

Four-Mirror Gonioscopy

- Pro’s:
  » Exam friendly
    - No formal pt preparation required
    - Quick → 360° assessment in 10-15 seconds
    - Can view all 4 quadrants without moving lens
  » Patient friendly
    - No goniosol down pt cheek
    - No torquing of eye as rotate lens
    - No suction to break for lens removal
    - Easier for pt’s with small interpalpebral fissures
  » Allows indentation gonio for PAS evaluation
  » For all above reasons, you’ll do it more often

Gonioscopy Lenses

- Volk G-4 nf
- Volk G-4
  » 2 in 1
  » www.volk.com
Gonioscopy Lenses
- Posner 4 mirror
  - Handle
- Sussman 4 mirror
  - No handle
  - www.ocular-instruments.com

4-Mirror Technique

4-Mirror Insertion

General Guidelines
- Do an external and slit lamp examination first.
- Perform Tonometry First.
  - Gonio may lower IOP
- Use anesthesia.
- Gonio for both eyes.
- Keep lens centered.

Indentation Gonioscopy
A. = Appositional angle closure
B. = Synechial angle closure

General Guidelines
- Use Magnification of 10-25x
- Use short and narrow beam
  - May rotate beam
- Use joystick to move beam across view
- “Tilt” lens on cornea to view over iris bowing
- Use a dark room
  - Constricted pupil in lighted room will appear more open

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**Indentation Gonioscopy**

- Useful when iris surface is convex
  - Done when it's difficult to recognize angle structures
  - Deepening the angle “makes things clearer”
- Can/Should be done most of the time
  - Identifies amount of PAS and extent of the angle closure.

**Indentation Gonioscopy**

- Without indentation
- With indentation: synchiae present

**Four-Mirror Gonio: Indentation**

- Appositional angle closure
- CLOSED
- OPEN

**Open Angle**

- PAS
Gonioscopy on the Web!

www.gonioscopy.org

OCT Anterior Segment Imaging

Cirrus HD-OCT image with a visible angle recess (blue arrow). Schlemm’s canal is very well clearly seen (red arrow).

Segment Imaging

Angle Structures

• Scleral spur (red arrow)
• Schlemm’s canal (blue arrow)
• Schwalbe’s line (green arrow)

Images courtesy of Martha Leen, M.D. & Paul Kremer M.D.  Achieve Eye and Laser Specialists, Silverdale, WA

Cirrus HD-OCT Anterior Segment Imaging

Images courtesy of Martha Leen, M.D. & Paul Kremer M.D.  Achieve Eye and Laser Specialists, Silverdale, WA
The Slit Lamp Exam of the Anterior Segment it’s Appearance in Glaucoma: (Or: Things I should look at before the optic nerve)

Outline

• Cornea
• Angle
• Pupil
• Iris

Anterior Segment and Glaucoma:

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Gonioscopy and Slit Lamp

Cornea: Keratic Precipitates (KPs)

Uveitic Glaucoma

Uveitic Glaucoma

- Low IOP in early inflammatory phase
  - Decreased aqueous production
- Identify:
  - Peripheral Anterior Synechia (gonio.)
  - Posterior Synechia
- Steroids and Steroid Responders
- Prostaglandins not always contraindicated
- Chronicity and Recurrence

Cornea: Guttata

Fuch’s Dystrophy

Iridocorneal Endothelial Syndrome

Chandler’s Syndrome
Progressive Iris Atrophy
Cogan-Reese

Ocular Surface Disease

Lissamine Green Stain
OSD, Glaucoma and Quality of Life

Cornea: OSD/Glaucoma Tx Options

Traumatic Angle Recession

left eye showed very deep angle with significant exposure of ciliary body

Exfoliation Syndrome

Exfoliation Syndrome

XFS: Gonioscopy
Gonioscopy and Slit Lamp

Iris

ICE Syndrome  Neovascularization  Iris Transillumination Defects

Anterior Segment and Glaucoma

Slow Down and Take a Careful Look

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