

LPI: WHAT'S THE CONTROVERSY

Nate Lighthizer, O.D., F.A.A.O.
Assistant Dean of Clinical Care
Director of Continuing Education
Chief of Specialty Care Clinics
Chief of Electrodiagnostics Clinic
NSU Oklahoma College of Optometry
Tahlequah, OK
lighthiz@nsuok.edu

1

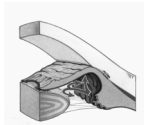
Disclosures

- ▣ Aerie Pharmaceuticals
- ▣ Biotissue
- ▣ Diopsys
- ▣ Ellex
- ▣ EyePromise
- ▣ Ivantis
- ▣ Maculogix
- ▣ Nidek
- ▣ Nova Ocular
- ▣ Novartis
- ▣ Optovue
- ▣ Quantel
- ▣ Reichert
- ▣ RevolutionEHR
- ▣ Sight Sciences
- ▣ Shire

2

Anatomically Narrow Angles / Angle Closure

- ▣ Anatomic disorder characterized by peripheral iris & TM apposition
- ▣ 4 basic forms:
 - Pupillary block
 - Plateau iris
 - Phacomorphic glaucoma
 - Malignant glaucoma



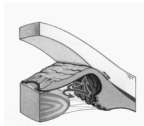
3

Pupillary Block Glaucoma Mechanism

4

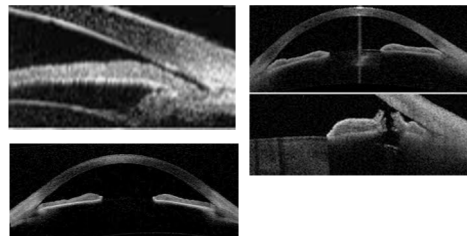
Anatomically Narrow Angles / Angle Closure

- ▣ Anatomic disorder characterized by peripheral iris & TM apposition
- ▣ 4 basic forms:
 - Pupillary block
 - Plateau iris
 - Phacomorphic glaucoma
 - Malignant glaucoma



5

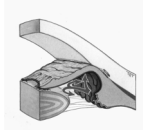
Plateau Iris Syndrome



6

Anatomically Narrow Angles / Angle Closure

- Anatomic disorder characterized by peripheral iris & TM apposition
- 4 basic forms:
 - Pupillary block
 - Plateau iris
 - Phacomorphic glaucoma
 - Malignant glaucoma



7

PI Indications

- Primary angle closure
- Plateau iris syndrome/configuration
- Secondary pupillary block
 - Phacomorphic, malignant glaucomas
- Pigmentary glaucoma
- Prophylaxis*
 - Narrow angles on gonioscopy
 - Most often reason why PI is done

8

Laser peripheral iridotomy (LPI)

- How likely is this patient to develop glaucoma?
- How do we predict whether she will progress?
- How effective is LPI?
- What do we do if LPI fails?

9

A Simplified Classification Scheme

1. Anatomically narrow (PACS)
 - Indentation gonioscopy opens angle
 - Normal IOP
 - Heightened suspicion
 2. Anterior synechiae and/or elevated IOP (PAC)
 - Minimal natural history data
 3. Closed angles and glaucomatous damage (PACG)
- (Fourth category: Acute symptomatic angle closure)

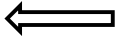

10

How narrow is too narrow?

- Gonioscopy: iridotrabecular contact in at least 180 degrees
 - Iridotrabecular contact = failure to see posterior meshwork
- AS-OCT: angle opening is less than 5-10 degrees
 - Visante: use lens vault measurement

11

A Simplified Classification Scheme

1. Anatomically narrow (PACS)
 - Indentation gonioscopy opens angle 
 - Normal IOP
 - Heightened suspicion
 2. Anterior synechiae and/or elevated IOP (PAC) 
 3. Closed angles and glaucomatous damage (PACG)
- (Fourth category: Acute symptomatic angle closure)

12

PI Alternatives

- ▣ Surgical Iridectomy
 - Equal results to laser PI
 - Much more invasive
 - More trauma to iris
 - Infection
- If concurrent surgery not occurring, laser PI is the way to go

13

PI Pre-op Exam

- ▣ Visual acuity
- ▣ Slit Lamp Exam OU
 - Note lid position
 - Note AC depth
- ▣ Gonio OU
 - Pigment in the TM?
 - Neovascularization?
 - Peripheral anterior synechiae?
- ▣ IOP's OU
- ▣ Educate Pt
- ▣ Informed Consent Signed

14

PI Risks, Complications, Contraindications

CONTRAINDICATIONS

1. Corneal problems
2. Intraocular inflammation
3. Iris in contact with endo
4. Angle closure from NVG or inflammatory glaucoma
5. Patient unable to hold steady or fixate
6. Macular problems?

RISKS/COMPLICATIONS

1. Non-perforation
2. IOP spike/elevation
 - Most often transient
3. Inflammation
 - Pred Forte QID X 1 week
 - Use appropriate laser energy
- ▣ Others: hyphema, synechiae, peaked pupil, floaters, blur, monocular diplopia, RD, permanent vision loss

15

PI Procedure

- ▣ Patient Pre-op Drops
 - 1 drop Pilocarpine 1% or 2% OU
 - 1 drop Alphagan or Iopidine OU
- ▣ Laser Settings
 - Depends on which laser you use

16

PI Laser Options

ARGON LASER

- ▣ Less commonly used
- ▣ Advantages:
 - Less bleeding
 - Less debris
- ▣ Disadvantages:
 - Less successful compared to YAG laser in penetration
 - Requires more shots
- ▣ Settings:
 - Spot size = 50 microns
 - Duration = 0.1 sec
 - Power = 300-1200 mW

YAG LASER

- ▣ More commonly used
- ▣ Advantages:
 - Very good penetration rate
- ▣ Disadvantages:
 - More likely to bleed
 - Much more debris
- ▣ Settings:
 - Spot size = fixed
 - Duration = fixed
 - Energy = 2.0 - 5.0 mJ
 - Offset = 0 - 250 microns

17

PI Procedure

- ▣ Sit patient comfortably
- ▣ Adjust laser for your comfort
 - Armrest, oculars, controls
- ▣ Instill proparacaine in both eyes
- ▣ Select PI location
 - Usually superiorly under lid
 - Crypt
 - 11:00 or 1:00
- ▣ Place Abraham Iridotomy laser lens on eye with goniosol or cellulisc
 - Orientation of lens matters
 - Button @ 11 or 1 o'clock (for a superior PI)

18

PI Procedure

- ▣ Focus HeNe beams on the iris
- ▣ Perform the procedure OU
 - Argon first for pre-treatment
 - YAG to finish PI
 - No pain for patients - usually
 - May feel popping/snap/clap in ears
- Takes longer than a YAG Cap
 - Occasional bleeding
 - Debris/pigment
 - "pigment plume"

19

PI Procedure

- ▣ Often times it takes 2 visits to finish PI
 - 70-80% through the first visit
 - 150-250 mJ maximum energy for me on 1 visit
- ▣ Goals:
 - patent PI \approx 1mm in size
 - Deepening of the AC
 - IOP control

20

PI Procedure

- ▣ Post-op Care
 - Remove laser lens
 - Rinse Eye/Clean eye
 - 1 drop of Alphagan or Iopidine post-laser
 - IOP measurement 30 minutes post-laser
- ▣ Post-op drops
 - Pred Forte QID to surgical eye X 1 week
- ▣ Pt ed
- ▣ RTC 1 week for f/u

21

1 week post-operative exam

- ▣ VA's
- ▣ Anterior segment exam
 - Check for cell/flare
 - Note AC depth
 - Is the PI patent?
- ▣ Gonio - did angle deepen?
- ▣ Check IOP
- ▣ D/C Pred Forte
- ▣ Release back to referring doc

22

Peripheral Iridotomy (PI)

- ▣ Reimbursement codes
 - 66761 \$292.05
- ▣ 10 day global period

23

LPI: WHAT'S THE CONTROVERSY

Nate Lighthizer, O.D., F.A.A.O.
 Assistant Dean of Clinical Care
 Director of Continuing Education
 Chief of Specialty Care Clinics
 Chief of Electrodiagnostics Clinic
 NSU Oklahoma College of Optometry
 Tahlequah, OK
 lighthiz@nsuok.edu

24