Financial Disclosure
I have the following financial interests / relationships to disclose:

- Acorn Aeron Corporation – S
- Alcon Laboratories, Inc. – C,L,S,T
- Allergan, Inc. – C,L,T
- Aiko Asia Ltd. - S
- Bausch + Lomb - C
- C-MER Eye Care Holdings Ltd. - C

C = Consultant / Advisor
L = Lecture Fees
S = Grant Support
T = Travel Support

Primary Angle Closure Disease (PACD)
A spectrum of disease

Stages based on natural history of angle closure:
- Primary angle closure suspect (PACS)
- Primary angle closure (PAC)
- Primary angle closure glaucoma (PACG)

General Principles in PACG
- Open up all appositionally closed portions of angle
- If IOP still uncontrolled, start topical medications
- If IOP not controlled by maximally tolerated medications, proceed to further surgery

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General Principles in PACG
- Open up all appositionally closed portions of angle
- Laser peripheral iridotomy
- Argon laser peripheral iridoplasty (ALPI) to open residual appositionally closed segments
- Lower threshold for lens extraction
General Principles in PACG

Laser iridotomy
- Eliminates pupil block
- Eliminates appositional AC in 75-80% of eyes
- No effect on PAS

General Principles in PACG

PACG – after Laser iridotomy:
- Majority of eyes still require topical IOP-lowering drugs
- >50% require filtration or other IOP-lowering surgery
- Worse prognosis if previous APAC

General Principles in PACG

Laser iridoplasty
- Opens up residual appositionally-closed portions of angle due to:
  - Plateau iris
  - Iris crowding
  - Lens?
- No effect on PAS

General Principles in PACG

May consider skipping iridotomy & iridoplasty if very extensive (approaching 360°) PAS

Lens extraction dramatically deepens the anterior chamber in PACG eyes

Before Lens Extraction
After Lens Extraction


PACG + Cataract (IOP-uncontrolled)
Phaco vs. PhacoTBx

Phaco Group
Phaco-trabeculectomy Group

‘Clear’ Lens Extraction

- Lens in PACG is pathological: too thick +/- too anterior -> shallow AC and angle closure
- Should we emphasize the only ‘normal’ aspect of this lens??

Uncontrolled PACG + No Cataract Phaco vs. TBx

Time in relation to surgery / months

General Principles in PACG

- Open up all appositionally closed portions of angle
- If IOP still uncontrolled, start topical medications
  - Choice of medications similar to POAG
  - PGAs of increasing importance

Role of IOP-lowering drugs

Pilocarpine
- Less commonly used due to side effects
- Effective in opening up appositional AC if iridotomy / iridoplasty not possible

Role of IOP-lowering drugs

- At presentation if high IOP posing immediate danger, or ‘acute’ presentation
- May be needed after angle-opening procedures if IOP still not ‘safe’

General Principles in PACG

- Open up all appositionally closed portions of angle
- If IOP still uncontrolled, start topical medications
- If IOP not controlled by maximally tolerated medications, proceed to further surgery
**Importance of Surgery**

- ~35% of PACG eyes need surgical intervention for IOP control in 6-year FU.


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**‘Primary’ in PACS / PAC / PACG / PACD is misleading?**

‘Primary’ implies:
- One single disease entity
- One management approach
- No known underlying cause / mechanism?

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**Known mechanisms of ‘primary’ angle closure include:**
- Pupil block
- Plateau Iris Syndrome
- Lens-related mechanism
  - Lens position
  - Lens thickness
  - Acute lens swelling
- Choroidal pressures

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**Various Combinations of Mechanisms Leading to Angle Closure**

- PACG
- PAC
- PAC
- PAC

- Eye 1
- Eye 2
- Eye 3
- Eye 4

- Pupil Block
- Plateau Iris
- Lens Position
- Lens Thickness

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**Mechanisms Change with Age in Same Eye**

- Age 20
- Age 40
- Age 60
- Age 80

- PACG
- PAC
- PAC

---

**Objective of Surgery**

To remove the greatest ‘chunk’ from the risk column by selecting the procedure (or combination of procedures) with the least risks.
Interventions Reversing Angle Closure

<table>
<thead>
<tr>
<th>Pool Block</th>
<th>Plateau Erie</th>
<th>Lens Position / Thickness</th>
<th>Relative Risks</th>
<th>Visual Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Iridotomy</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>Laser Irideplasty</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Lens Extraction</td>
<td>+</td>
<td>+/ -</td>
<td>+</td>
<td>+ +</td>
</tr>
</tbody>
</table>

360° Complete Appositional Angle Closure (Hypothetical)
With OHT ± GON

- Visually significant cataract
  - Cataract extraction
  - Other IOP-lowering surgery: GSL, ECP, TSCP, MIGS, Trabeculectomy, GDD

- No visually significant cataract
  - Consider laser iridotomy first if significant pupil block
  - If Lens Mechanism predominates: CLE
  - Other IOP-lowering surgery: GSL, ECP, TSCP, MIGS, Trabeculectomy, GDD

360° Complete Synechial Angle Closure (Hypothetical)
With OHT ± GON

- Visually significant cataract
  - Ref: EAGLE Study
  - GSL, ECP, TSCP, MIGS, Trabeculectomy, GDD

- No visually significant cataract
  - If Lens Mechanism insignificant: Other IOP-lowering surgery ± CLE

PACG

- Appositional closure largely - LI / LPI / lens extraction ± other glaucoma surgeries
  - Extensive PAS
  - Longer duration of closure
  - More advanced glaucoma
  - Lens Extraction

- Inadequate IOP control ± drugs
  - Adequate IOP control with ± without drugs
  - Extensive PAS
  - Shorter duration of closure
  - Less advanced glaucoma

- Failed IOP control ± drugs
  - GDD
  - Trabeculectomy / MIGS
  - Cyclophotocoagulation (Transscleral or Endoscopic)

- Failed IOP control
  - Glaucoma implant

Organizer: Asia-Pacific Academy of Ophthalmology
Host: Chinese Ophthalmological Society

SAVE THE DATE
19–16 AUGUST 2020
KUALA LUMPUR, MALAYSIA

8/24/2019
Thank you!