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In collaboration with: MEACO

Lasers in ACG

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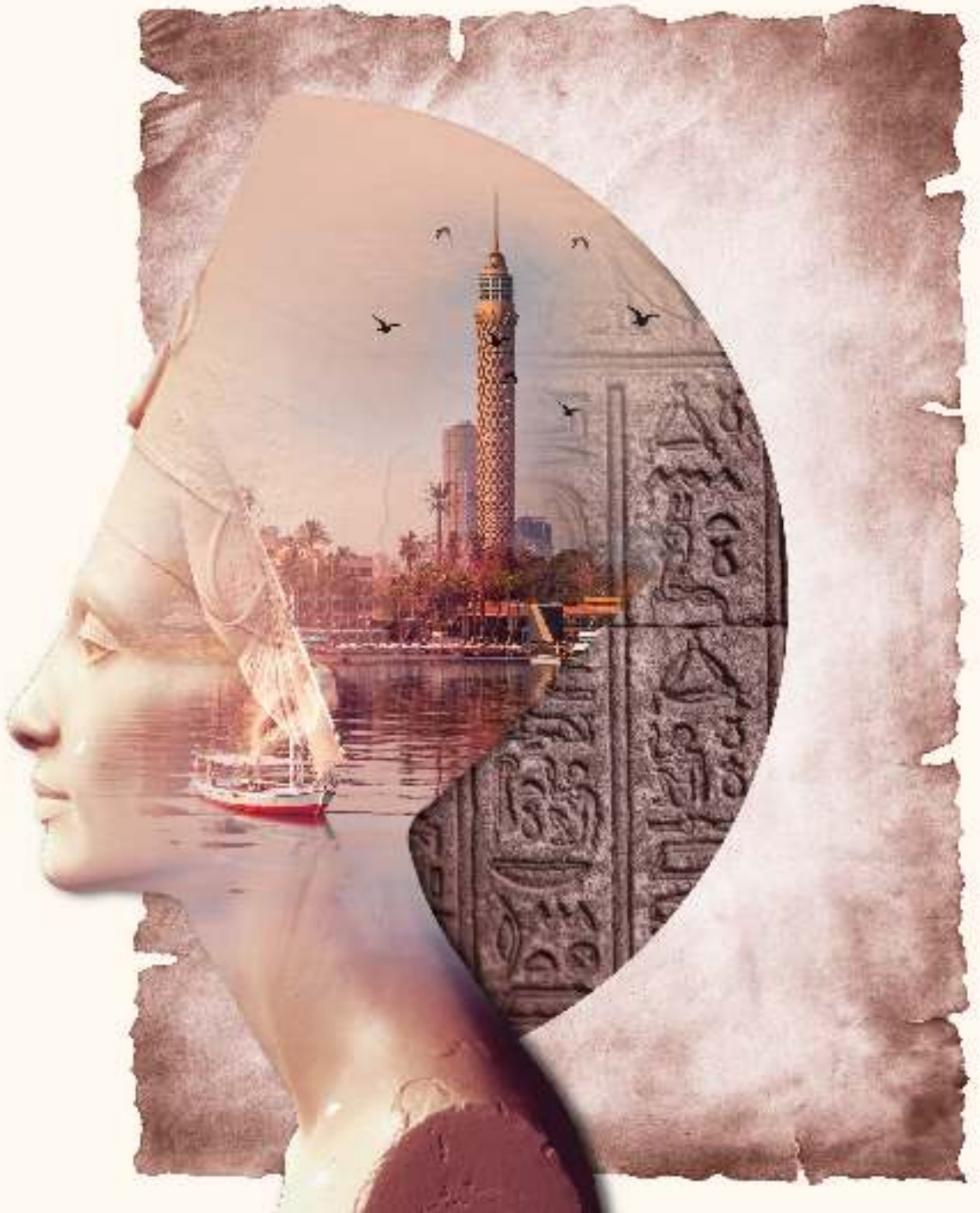
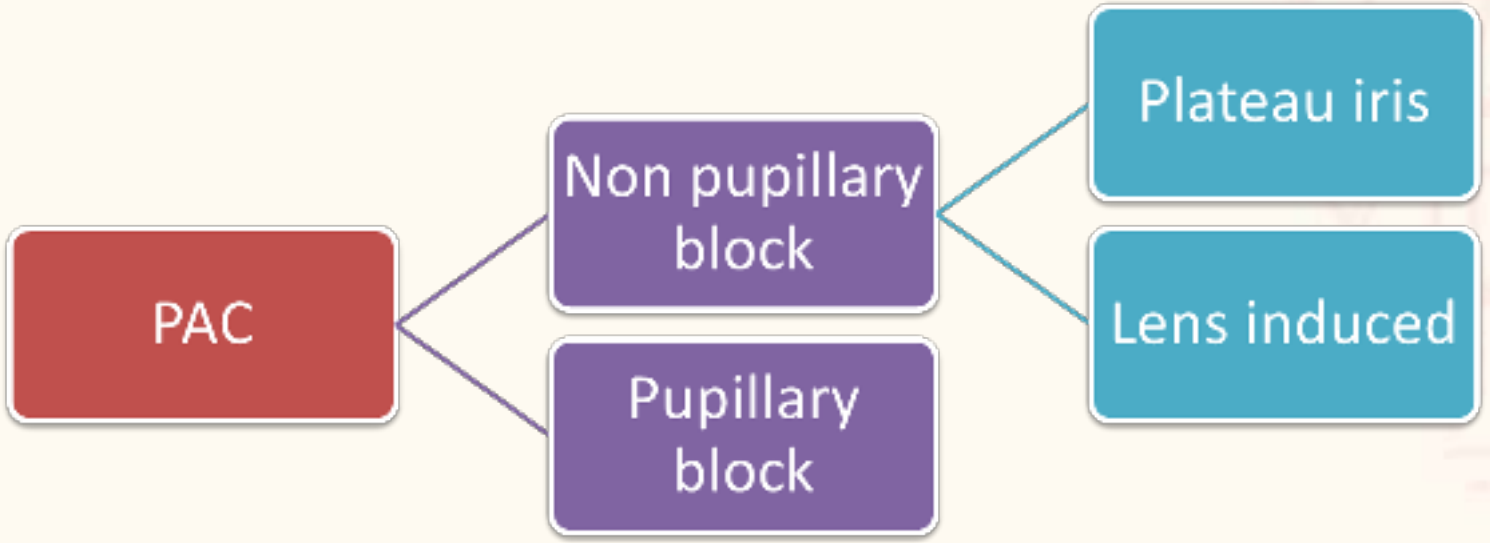


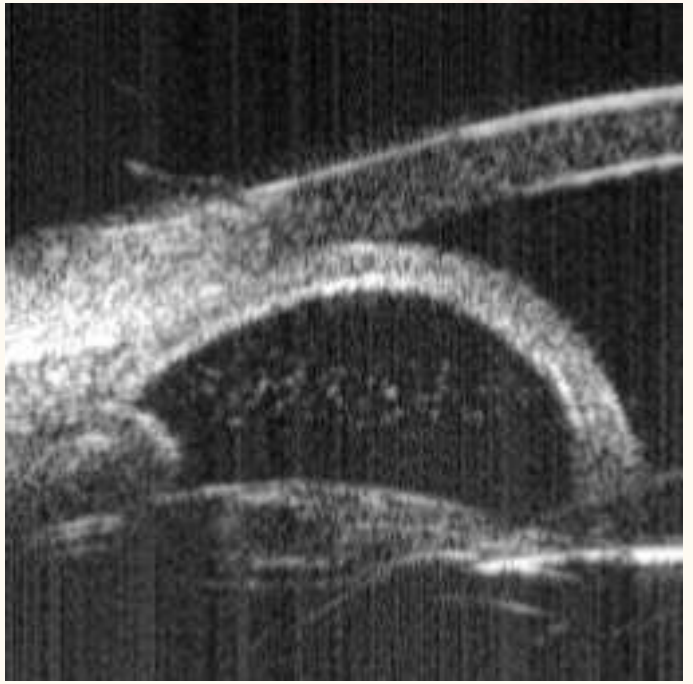
Role of Laser in Angle Closure Glaucoma

- Conventional
  - Laser PI
  - Laser iridoplasty
  - CPC
- Unconventional
  - SLT
  - CPC for APAC



Peripheral Iridotomy

- Indications
  - APAC
  - Fellow eye of APAC
  - Narrow angle of PACS
  - PACG
  - Miscellaneous PIS, PDG, phacomorphic, aq. misdirection



Peripheral Iridotomy

1. Can LPI resolve APAC?

2. Is LPI of value in PACS?

3. Does LPI prevent progression of PAC/G?

Peripheral Iridotomy

1. Can LPI resolve APAC?

Am J Ophthalmol. 2001 Jan;131(1):7-12.

Acute primary angle-closure: long-term intraocular pressure outcome in Asian eyes.

Aung T[1], Ang LP, Chan SP, Chew PT

Eye (2019) 33:110–119
https://doi.org/10.1038/s41433-018-0278-x

REVIEW ARTICLE

Acute primary angle closure–treatment strategies, evidences and economical considerations

Poemen P. Chan[1,2] · Jason C. Pang[1] · Clement C. Tham[1,2,3]

Resolution of attack in 110/111

58.1% elevated IOP & ttt at 5yr FU

32.7% needed trab

Peripheral Iridotomy

2. Is LPI of value in PACS?

Longitudinal Changes of Angle Configuration in Primary Angle-Closure Suspects

The Zhongshan Angle-Closure Prevention Trial

Lancet. 2019 Apr 20;393(10181):1609-1618. doi: 10.1016/S0140-6736(18)32607-2. Epub 2019 Mar 14.

Laser peripheral iridotomy for the prevention of angle closure: a single-centre, randomised controlled trial.

He M[1], Jiang Y[2], Huang S[3], Chang DS[4], Munoz B[4], Aung T[5], Foster PJ[6], Friedman DS[4].

2019
RCT
889
72m follow up
Limited benefit LPI
NOT recommended

Peripheral Iridotomy

3. Does LPI prevent progression of PAC/G?

NOT PROTECTIVE AGAINST PAC, PACG

Chronic Angle-closure with Glau ds Damage

Long-term Clinical Course in a N erican Population and Comparison wit ian Population

Mohamad Roman, MRCSEd (Ophth), MMed (Ophth),[1-2] Tin Aung, FRCS (Ed), FRCOphth,[1] Leonard P. K. Ang, FRCS (Ed),[1] Paul T. K. Chew, FRCS (Ed), FRCOphth,[1-3] Jeffrey M. Liebmann, MD, FACS,[4-5] Robert Ritch, FACS, FRCOphth[4-5]

Conclusions: Despite the presence of a patent LPI, most eyes with CACG presenting with elevated IOP and having both optic disc and visual field damage in both populations required further treatment to control IOP. Results in the American population are similar to that reported in Asian patients. *Ophthalmology 2002;109: 2227–2231 © 2002 by the American Academy of Ophthalmology.*

Peripheral Iridotomy

Machine Nd:YAG OR Argon

Lens Abraham

Follow up

Technique

Site: crypt

Peripheral 1/3

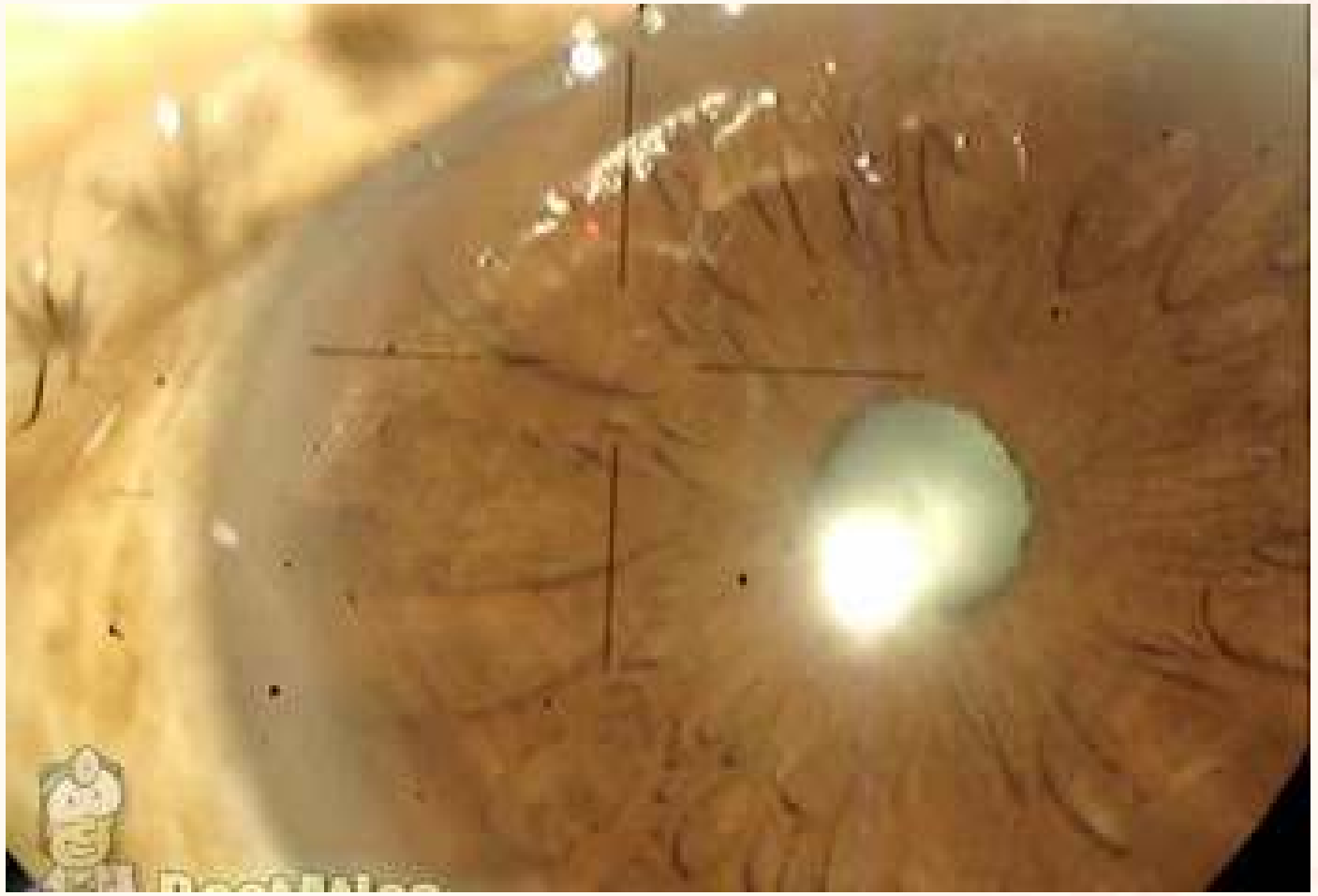
200-500 µ

YAG 4-8mJ

fixed spot size

pulse 1-3

End point



Peripheral Iridotomy

- Complications
  - IOP spike
  - Hyphema
  - Inflammation
  - Focal cataract
  - Visual symptoms (haloes, glare, diplopia)
  - Corneal decompensation

Laser Iridoplasty

- low energy burns applied to the peripheral iris to widen the AC angle and/or break PAS

- Indications
  - Failure of/initial ttt in APAC
  - Initial ttt of PACD
  - PIS
  - Phacomorphic AC

  - Contraction burns
    - 500 µm spot size
    - 0.5–0.7 s duration
    - Power 240 mW
    - 24 spots over 360°

Laser Iridoplasty

- For plateau iris

Review

BMJ Open Ophthalmology

Iridoplasty for plateau iris syndrome: a systematic review

Hugo Bourdon,[1,2] Vittoria Aragno,[1,2] Christophe Baudouin,[1,3] Antoine Labbé[1,3]

Decrease IOP & meds
Widen angle
No current evidence of long-term efficacy (2019)

Ophthalmology. 2004 Jan;111(1):104-8. doi: 10.1016/j.ophtha.2003.05.001.

Long-term success of argon laser peripheral iridoplasty in the management of plateau iris syndrome

Robert Ritch [1], Clement C Y Tham, Dennis S C Lam

23 eyes
FU 79 m
The angle in 20 eyes (87.0%) remained open.
Gradual re-closure of angle in 3 eyes (reopened with single repeat)

SLT for ACG

Comparative Study > J Glaucoma. 2016 Mar;25(3):e253-8. doi: 10.1097/IJG.0000000000000282.

Selective Laser Trabeculoplasty in Primary Angle-closure Glaucoma After Laser Peripheral Iridotomy: A Case-Control Study

Research

Original Investigation | CLINICAL TRIAL

Efficacy of Selective Laser Trabeculoplasty in Primary Angle-Closure Glaucoma
A Randomized Clinical Trial

Arun Narayanaswamy, MMed; Christopher K. Leung, FCOphth; Donny V. Istiantoro, SpM; Shamira A. Perera, FRCOphth; Ching-Lin Ho, FRCS(Ed); Monisha E. Nongpiur, MD; Mani Baskaran, DNB; Hla M. Htoon, PhD; Tina T. Wong, FRCOphth; David Goh, FRCOphth; Daniel H. Su, FRCS(Ed); Michael Belkin, MD; Tin Aung, FRCOphth

Postop IOP reduction in the PAC/PACG and POAG was not significantly different (P=0.66).

The success rate; IOP drop of 20% or more, or stopping of 1 or more medications was 85% in the PAC/PACG group and 80% in the POAG group (P=0.47).

96 patients
SLT vs PGA 6 m
NO sig diff in mean reduction (4 vs 4.2) & % reduction (16.9 vs 18.5)

SLT for ACG

iovs
Vol. 62, No. 8
Abstract Issue 2021
June 2021
Volume 62, Issue 8

OPEN ACCESS

ARVO Annual Meeting Abstract | June 2021

Angle-Closure Glaucoma Treated with Selective Laser Trabeculoplasty. Report of Efficacy and Safety after One-Year.

Sara Aurora Garcia y Otero Sánchez; Jose A Paczka; Fabiola Garcia y Otero; Julio Moreno-Nava; Luz America Paczka-Giorgi

+ Author Affiliations & Notes

Investigative Ophthalmology & Visual Science June 2021, Vol.62, 2573. doi:

26 patients prior deep AC
Sig. drop of anti glaucoma meds and Mean IOP
Success rate 65%

Eye (2018) 32:1710–1716
https://doi.org/10.1038/s41433-018-0166-5

The ROYAL COLLEGE of OPHTHALMOLOGISTS

ARTICLE

Efficacy of selective laser trabeculoplasty in primary angle closure disease

Srishti Raj[1] · Basavraj Tigari[1] · T. T. Faisal[1] · Natasha Gautam[1] · Sushmita Kaushik[1] · Parul Ichhpujani[2] · Surinder S. Pandav[1] · Jagat Ram[1]

34 patients prior deep AC
Post-SLT IOP reduction 9 - 46% at 1 year.
Mean IOP in both PAC and PACG groups was comparable at all visits

Cyclophotocoagulation for ACG

- Indications
  - CACG with uncontrolled high IOP
  - Patients refusing/unfit for surgery
  - 1750 -2000 mW, 2 ms, pop, 270^{o}, 6 shots
- Side effects
  - Uveitis
  - Hyphema
  - Hypotony/ phthisis
  - Scarred conj

Cyclophotocoagulation for ACG

- In managing unresolved APAC

Liu et al. BMC Ophthalmology (2020) 20:209
https://doi.org/10.1186/s12886-020-01483-0

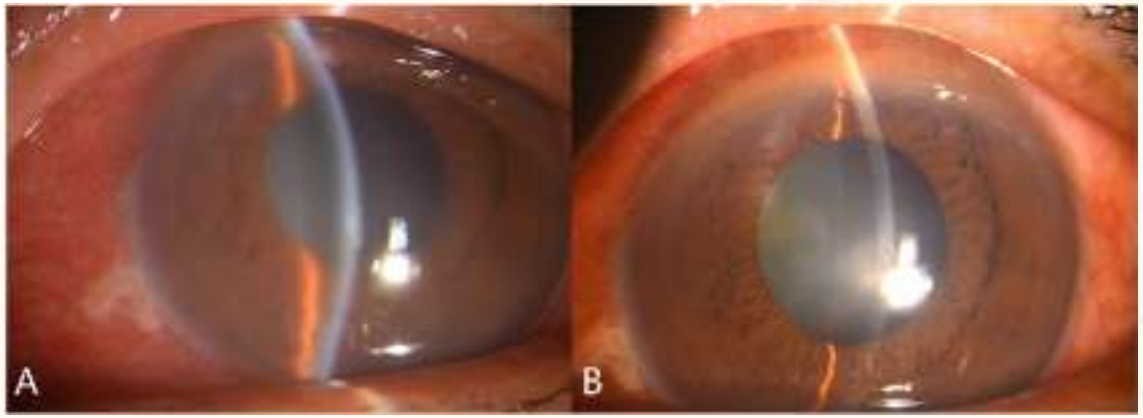
BMC Ophthalmology

RESEARCH ARTICLE Open Access

Transscleral cyclophotocoagulation followed by cataract surgery: a novel protocol to treat refractory acute primary angle closure

Wei Liu[1,2†], Luning Qin[1†], Chenjia Xu[1], Dandan Huang[1], Ruru Guo[1], Jian Ji[1*] and Nomdo M. Jansonius[2]

13 prospective case series
Compared to phacotrab
CPC 2000mW, 2000ms,20, inferior
IOP drop from 51.5 to to 16.4 mmHg 1 day post CPC
No diff in IOP, BCVA, meds, ACD, angle opening at 6 m



Take home message

- Lens removal is the mainstay treatment of ACD
- Role of prophylactic PI is limited
- SLT can be used in eyes with visible TM with good outcome, yet no long term results
- CPC may be used in unresolved acute attacks as a preparatory step before surgery