Nanophthalmos

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Terminology

- Microphthalmos
- Small Eye
- Nanophthalmos
- Dwarf Eye
- Axial Length 16-20 mm.
- Corneal Diameter 8-10 mm
- Diopters Hyperopia +7 to +13
Nanophthalmos

- Bilateral
- Small Eye, Normal Crystalline Lens
- Predisposition:
  - Uveal Effusion
  - Suprachoroidal Hemorrhage
  - Iris Prolapse

Avoid Intraoperative Hypotony

Power Calculations

- IOL formulas create Hyperopic Outcomes
  - AC depth is shortened as a function of short axial length
  - IOL position calculated to be too far anterior

- Holladay, JR. Achieving emmetropia in extremely short eyes 1996 AAO Presentation
Warren Hill, MD


AC Depth

- A Scan

Formula Selection

- Holladay 2 and Holladay Consultant Add the Expected Pseudophakic AC Depth
- SRKT
- Hagis
- Improved Accuracy in Short Eyes

Piggy Back IOL

- IOL in Sulcus in Normal Position
- IOL in Bag pushed More Posteriorly

Gills

- Piggy Back IOL

Figure 3-1: Distribution of anterior segment size by axial length. Note that the majority of short axial length eyes have normal anterior segment sizes. Adapted from Holladay.

Figure 3-2: (Gills) A scan profile of two eyes with near equivalent axial lengths but different anterior segment sizes. (A) The axial length is 20.54 mm, white cornea (blanket) is 11.0 and ACD is 3.3. (B) The axial length is 20.56 mm, but the corneal diameter is 11.0 and the ACD is 3.4. Power for the eye with the larger anterior segment would actually be less accurately predicted using current formulas.
Piggy Back Results

Gills

53% within 0.5 D
52% within 1.0 D

FIGURE 3-7. (Gills) Bar chart illustrating the deviation from emmetropia among the 81 eyes studied. Fifty-three percent were within 0.5 D of emmetropia and 82% were within a diopter of emmetropia.

Compassionate Use

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Please provide a copy of this letter to Zeiss Acti-Tac in Germany and have them include it with their shipping documents.

If you have any questions, please contact me at 301-796-5513 or by email at Cheryl.Reynolds@fsfhealth.com.

Sincerely yours,

Cheryl T. Reynolds
Public Health Adviser
Office of Compliance
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Surgical Technique

- Mannitol
  - 1-2 gm/Kg
- Honan Balloon 30mmHg for 30 min.
- Incision Shorter Length
- Carefully Size
- Lots of OVD
- Healon 5
  - If AC is Too Shallow:
    - Pars Plana Aspiration or Vitrectomy
- Capsulorhexis 5.25 mm

Surgical Technique

- Hydrosteps
  - Carefully with Posterior Wound Depression to Minimize Iris Prolapse
- Epinephrine
  - 1 Part 1:1000 Non preserved (Bisulfate Free)
  - 3 Parts BSS
- Standard Phaco

Surgical Technique

- IOL
  - One in Bag (Most Power)
  - One in Sulcus
- Wait 6 Months and then Piggy Back in Bag (Chang)
- Meticulous Removal of OVD
- Check IOP 6 Hrs. after surgery

Surgical Procedure
Post-OP

- Measure Axial Length and AC Depth
- Use a Few Formulas and Compare
- Soften Eye and/or Vitrectomy
- Iris Prolapse, Be Prepared
- Check IOP Post-Op
- Be Prepared for Enhancement

Conclusion

Thank You
The End