Pearls of cataract surgery in long & short eyes

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High Myopia

- Preoperative Evaluation
- Intraoperative Considerations
- Postoperative Care
PREOPERATIVE EVALUATION

• In the case of high axial myopia, the surgeon must pay particular attention to the fundus exam.

• High myopia is associated with a higher risk of both peripheral and macular retinal pathologic conditions.

• Measurement of macular visual potential is important if there is disturbance of the pigment epithelium or evidence of atrophy or neovascularization from the choroid.
Peripheral retina exam

- A careful preoperative peripheral retinal examination is mandatory.
- However, visualization of the peripheral retina, even with aggressive scleral depression, may not reveal preexisting peripheral retinal pathologic conditions because of impaired visualization caused by the cataract.
Biometry, postoperative refractive goal determination, and IOL power calculation

- The other primary challenge facing the cataract surgeon preoperatively, in the presence of high myopia, is determination of the intraocular lens (IOL) power.
- First, the accuracy of the A-scan biometry and the subsequent calculation of the IOL power are subject to more variability in high myopia than in patients with a normal-sized eye.
- If the axial myopia is accompanied by a posterior staphyloma, the precise determination of the axial length at the fovea is often imprecise.
Biometry, postoperative refractive goal determination, and IOL power calculation

- Even with an accurate determination of the axial length, the IOL power formulas have less accuracy in the more extreme ranges.
- Studies have indicated that the SRK-T formula is more accurate in high axial myopia than other formulas.
INTRAOPERATIVE CONSIDERATIONS
Risk of retrobulbar/peribulbar anesthetic injection

- High axial myopia poses a high risk of complication with retrobulbar or peribulbar anesthesia.
- The larger and longer globe fills more of the orbit, and the passage of a needle posteriorly is more prone to inadvertently penetrating the sclera.
- Moreover, the sclera in high axial myopia is thinner, resulting in less resistance to penetration by an anesthetic injection needle.
Intraoperative Tips

- Make the incision a little more peripheral than usual.
- Through and vigorous hydrodissection.
- Use more phaco power during sculpting than would expect based on the brightness of the red reflex. These cataracts are more dense than they appear.
Increased anterior-chamber depth

- High myopes typically have deeper anterior chambers and less residual formed vitreous than the average patient.
- Therefore, the surgeon may face excessive anterior chamber deepening on introducing the phacoemulsification tip and irrigation.
- If so, the height of the infusion bottle should be lowered.
Reduced nuclear support

- There may also be more mobility of the nucleus, related both to zonular laxity and the lack of vitreous support.
- The vitreous body is frequently more liquefied than in a similar-aged emmetrope.
- As a result, the surgeon should expect to face a deeper anterior chamber and more anteroposterior movement of the crystalline lens and capsule in the course of the phacoemulsification.
- Moreover, there is less vitreous support for the posterior capsule, and many surgeons have observed that the posterior capsule has the potential for rupturing during surgery at a higher rate in high axial myopia.
• Furthermore, if the posterior capsule does rupture, the liquefied vitreous will not provide normal resistance to posterior migration of nuclear fragments.
• The patient is, therefore, at higher risk for loss of nuclear fragments into the deep vitreous and against the retina.
• Should this complication occur, the anterior-segment surgeon should obtain the assistance of a skilled vitreoretinal surgeon in the safe removal of the nuclear fragments.
• If a vitreoretinal surgeon is available, this can be done immediately in the course of the cataract surgery. If not, then the cataract surgeon should complete the anterior cleanup and obtain an immediate postoperative consultation to schedule the patient for an expeditious removal of the posterior lens fragments by the vitreoretinal surgeon.
In the presence of this complication, a frequently debated issue is whether the cataract surgeon should place the IOL primarily or whether the patient should be left in an aphakic state.

If the nuclear fragments that remain are quite large and dense, a vitreoretinal surgeon may choose to bring the fragments up through the pupil and deliver them through a limbal incision, rather than attempt a posterior ultrasonic fragmentation of a very large and dense nucleus.

If the nuclear fragments are reasonably small, however, the vitreoretinal surgeon will usually feel comfortable with posterior ultrasonic fragmentation of the remaining nucleus.

In that case, the presence of an IOL will not impede the vitreoretinal surgeon's maneuvers.

Ideally, a cataract surgeon should develop a good working relationship with a vitreoretinal surgeon and explore the vitreoretinal surgeon's preferences regarding IOL placement under these circumstances.
• High axial myopia presents one other challenge for a surgeon who wishes to perform surgery through a corneal scleral incision rather than a limbal or fully clear corneal incision.

• In true high axial myopia, the sclera may be markedly thinned.

• The surgeon needs to anticipate that dissection should be more shallow than usual to avoid inadvertent penetration through the sclera onto the ciliary body while attempting to dissect a scleral tunnel incision.
POSTOPERATIVE CARE

- Maintaining the integrity and clarity of the posterior capsule is generally regarded as important in reducing the frequency of vitreoretinal complications.
- In addition, a broad area of clear posterior capsule and a large optic assist in the examination of the patient's retina postoperatively.
- Therefore, the cataract surgeon should use a meticulous technique with a centered capsulorrhexis, thorough cortical cleanup, and great care to maintain the integrity and clarity of the posterior capsule. The choice of IOL should be influenced by these considerations.
• A large optic, either 6 or 6.5mm, is preferable to a smaller optic.

• Using an IOL optic material that will interfere least with subsequent vitreoretinal surgery, if needed, and an IOL optic edge that is configured to inhibit posterior capsule opacification is recommended.

• Currently, the lens of choice in this circumstance has a square or modified square edge.
Surveillance for peripheral retinal breaks/early detection of retinal detachments

- it is advisable to carefully examine the peripheral retina with wide dilation and scleral depression with indirect ophthalmoscopy early postoperatively, such as several weeks, but also to perform such an examination at more frequent intervals.
- Many postoperative detachments do not occur for many months or years after the surgery.
- If there is difficulty in visualization of the peripheral retina or a question about the advisability of “prophylactic” laser treatment of suspicious peripheral lesions, consultation with a vitreoretinal surgeon is recommended.
• If the posterior capsule opacifies to the point of functional visual impairment, then Nd:YAG laser posterior capsulotomy may be indicated.

• To minimize the disturbance to any residual formed vitreous and to maintain as much integrity of the barrier function of the capsule–IOL complex, the surgeon is advised to use the lowest amount of energy necessary to open the posterior capsule and to keep the size of the capsular opening smaller than the optic.
SHORT EYE
**Nanophthalmos, Relative Anterior Microphthalmos, and Axial Hyperopia**

**CLASSIFICATION AND TERMINOLOGY**

- **Microphthalmos** – the result of developmental arrest of ocular growth during gestation – usually occurs **sporadically**, but can be inherited in an **autosomal-dominant or recessive pattern**.
- It is often associated with **systemic diseases**, including genetic or environmental disorders, or those of unknown causes.
- Evaluation of microphthalmic patients should be interdisciplinary, with special attention given to the history of the disease and examination of other family members.
- Because microphthalmos is a heterogeneous condition, with many possible and overlapping presentations, the authors prefer to use an **anatomic classification for these eyes, based on anterior chamber depth and total axial length**.
<table>
<thead>
<tr>
<th>Anterior chamber depth</th>
<th>Axial length</th>
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<td>Deeper</td>
<td>Shorter</td>
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<td></td>
<td>Nanophthalmos = Simple Microphthalmos</td>
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<td>Colobomatous Microphthalmos</td>
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<td>Axial Hyperopia</td>
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SHORT ANTERIOR CHAMBER DEPTH WITH SHORT AXIAL LENGTH: NANOPHTHALMOS, COLOBOMATOUS, AND COMPLEX MICROPHTHALMOS

- Duke-Elder in 1964 described three categories of microphthalmos: simple microphthalmos, or nanophthalmos, which is a short eye with no other associated morphologic anomalies; colobomatous microphthalmos, related to incomplete closure of embryonic fissure; and complex microphthalmos, not related to closure of the fissure, but associated with systemic anomalies and other anterior and posterior malformations of the eye.
Nanophthalmos (Simple Microphthalmos)

Nanophthalmos is a rare condition characterized by a total axial length that is at least two standard deviations below the mean for age or less than 20.5 mm. There are no systemic or other ocular morphologic abnormalities.

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<tr>
<th>Short axial length</th>
<th>Moderate to high axial hyperopia</th>
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<tr>
<td>Small cornea</td>
<td>Thick sclera</td>
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<td>Shallow anterior chamber</td>
<td>Thickened choroid</td>
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<td>Marked iris convexity</td>
<td>Angle closure glaucoma</td>
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<td>Normal or increased lens thickness</td>
<td>Uveal effusions</td>
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<td>High lens/eye volume ratio</td>
<td>Exudative retinal detachment</td>
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Nanophthalmos.
Eyes deeply set with narrow palpebral fissures
NANOPHTHALMOS

- Eyes with small corneal diameters and refractive errors of greater than 8 diopters (D) of hypermetropia, and axial lengths of less than 20.5 mm, should be evaluated for other features of nanophthalmos before intraocular surgery is performed, and special attention should be given to evaluation of potential nanophthalmic glaucoma.
The eyes are uniformly small, usually about two-thirds of the normal volume, but have an increased crystalline lens to total eye volume ratio.

The crystalline lens can be normal or can have a slightly increased anteroposterior length.

Nanophthalmos is typically associated with microcornea, with corneal diameters between 9.5 and 11 mm.

The central and peripheral anterior chamber depths are also very shallow, from less than 1 mm to 2.7 mm.

Pupils usually dilate poorly, and eyes have a wide amplitude of intraocular pulse pressure, the mechanism of which is unknown.

The disproportion between lenticular and ocular volume contributes to the shallowing of the central anterior chamber and to the marked peripheral convexity of the iris, and is responsible for the appearance of “Vesuvio iris”.

Early in life, the angle can remain wide open despite the central shallowing of the anterior chamber, but later the peripheral anterior chamber progressively shallows and closes the filtration angle.

High hypermetropia with a range between +7.25 and +20.00 typifies this condition. Depending on the corneal and lens refractive power, nanophthalmic patients can have lower degrees of hyperopia or, very rarely, myopia.
COLOBOMATOUS AND COMPLEX MICROPHTHALMOS

- In both cases, the final visual acuity is extremely variable and depends on the grade of disorganization of ocular tissues and integrity of the visual pathway.
- The presence of congenital cataracts is common in both diseases and is usually associated with poorly developed or defective retinal and optic nerve structures that will further compromise the visual prognosis.
- For these reasons, cataract surgery is not always indicated in these patients.
- In children, the health and systemic prognosis of the child should be carefully considered, and the pediatrician should perform a thorough evaluation before the decision to perform cataract surgery is made.
In viable eyes with some expectation of visual acuity improvement, some surgeons recommend using corneal diameter measurements to determine surgical planning as follows:

- Eyes with corneal diameters of less than 5 mm probably should not have cataract surgery unless the cataracts are bilateral. In such cases, surgery without an intraocular lens (IOL) is indicated. Surgery should be performed in the eye with the largest cornea and longest axial length or the one presenting the most normal ocular structures. The correction of aphakia in these cases should be done with spectacles.

- If the corneal diameter is between 6 and 9 mm, a rigid gas-permeable contact lens with a reduced diameter could be adapted.

- In complex microphthalmic eyes with corneal diameters greater than 9 mm, a posterior chamber IOL should be considered.
**RELATIVE ANTERIOR MICROPHTHALMOS**

- Indications for cataract extraction in eyes with relative anterior microphthalmos are **the same as for normal eyes**.
- Auffarth et al. found that **lens removal alone leads to a significant IOP reduction** and a decrease in the number of glaucoma medicines in eyes with RAM.
- **The main complication after cataract surgery in these eyes is iridovitreal block.**
- Because of the increased incidence of cornea guttata, **transitory or permanent corneal edema can occur following cataract surgery.**
- Another risk factor for cataract surgery in this group is the **increased incidence of the pseudoexfoliation syndrome.**
Phacoemulsification surgery in high hyperopic patients is carried out using the standard surgical technique.

In addition to cataract extraction, clear lensectomy for refractive correction in the absence of significant opacity of the lens may be another indication for phacoemulsification.
• Refractive lensectomy for high hyperopia may have several advantages over other refractive techniques.
• It has the ability to correct higher refractive errors, offers a higher predictability of refractive outcome, does not cause irregular astigmatism, and it is less likely to result in regression hyperopia.
• The risks of retinal detachment, loss of accommodation, and of endophthalmitis, in addition to the difficulty in obtaining an optimal IOL selection without using a piggyback IOL implantation, have prevented the widespread acceptance of this treatment for high hyperopia.
INTRAOCULAR LENS ASSESSMENT IN EYES WITH EXTREMELY SHORT AXIAL LENGTH

AXIAL LENGTH MEASUREMENT

- Minor error in axial length measurement can lead to a large and unexpected refractive error.
- An accurate axial length determination can be a challenge in these eyes because most ultrasound biometry devices are calibrated with the average velocities of normal-sized eyes, and some still have limitations of axial length range, not measuring values of less than 21.5 mm.
- Because of the short axial length, the posterior wall echo can be of great intensity, sometimes making it necessary to reduce the gain to obtain a clear echo.
- Any flattening of the corneal surface during applanation biometry can also account for significant IOL calculation errors.
- Immersion biometry and/or optical biometry with partial coherence interferometry (PCI) (IOL Master, Zeiss Humphrey Systems) may be useful in these cases to obtain more accurate results.
Current third-generation formulas (SRK/T, Holladay II, Hoffer Q, and Haigis) that take into account variables such as anterior chamber depth, corneal diameter, and lens thickness, have improved refractive predictability.

Theoretical formulas have been shown to be more accurate than empirical ones in microphthalmic eyes.

In a study of IOL calculations, Inatomi et al. demonstrated that all of the formulas tested still showed a tendency for residual hypermetropia.

A recent study of short eyes (axial length below 22 mm) showed that the Hoffer Q formula was significantly more accurate than the SRK-T in determining the correct IOL power.

Until newer and more accurate formulas are available, calculations for eyes with an axial length of <22 mm should be made using more than one formula for comparison and should be weighted toward the results of the Hoffer Q formula.
**implant choice**

- Rigid polymethylmethacrylate (PMMA) IOLs with a power greater than +45.0 D and foldable lenses greater than +40.0 D are not available.
- Piggyback implantations later proved to offer better optical quality and cause less spherical aberration than a single lens with such a high dioptic power.
- Acrylic lenses are most suitable for the higher power IOL that is implanted posteriorly in planned piggyback implantation, because the high refractive index of acrylic lenses allows them to be thinner and flatter than PMMA or silicone lenses.
- To avoid interlenticular membrane formation from the growth of lens epithelial cells between the IOLs, many surgeons advocate that the anterior piggyback IOL should have a silicone optic, be of low power, and be placed in the sulcus.
• Gills and Cherchio calculate the lens power by dividing the total power equally between the two lenses, whereas others prefer to place two-thirds of the lens power in the more posterior lens and one-third anteriorly.

• This last option offers more advantages. By placing the more powerful lens posteriorly within the bag, spherical aberrations can be reduced.

• Inserting the least powerful lens in the sulcus facilitates access to the lens in case an exchange for a different power lens is necessary at a later date.
MODIFICATIONS IN CATARACT SURGERY TECHNIQUE IN MICROPHTHALMIC EYES

- Standard large-incision extracapsular cataract extraction in eyes with increased IOP results in a sudden drop in pressure to atmospheric values, which can lead to dilation of the choroidal vascular bed increasing the risk of intrachoroidal effusion, suprachoroidal or intrachoroidal hemorrhage, or expulsive hemorrhage.

- This technique is dangerous in eyes with short anterior-chamber depth, and specifically in nanophthalmic eyes, in which the inelasticity of the sclera makes these complications more likely.
• When performing phaco surgery, these eyes should be carefully prepared and the IOP lowered to normal levels preoperatively.

• If topical medications and mechanical pressure-lowering devices (e.g., Honan's balloon) are not sufficient to lower the pressure to less than 25 mm Hg, 20% mannitol IV, 1–2 mL/kg body weight, should be employed 15–30 min before surgery.

• In rare cases, the surgery can be performed under general anesthesia with controlled hypotension, resulting in a reduction in arterial pressure, thus decreasing the risks associated with a dramatic pressure drop.
• **Topical and intracameral anesthesia may have some advantage** over peribulbar and retrobulbar anesthesia, as local infiltration causes an increase in orbital volume, which may precipitate an increase in posterior pressure and vortex vein congestion.

• **Clear corneal incisions** in eyes with shallow anterior chamber depths offer the surgeon a better anatomic approach to the lens and allow the employment of smaller and safer incisions.

• **A shorter and more anterior corneal tunnel** will help to prevent iris prolapse and facilitate manipulation of the nucleus.

• **A temporal approach is especially useful** in these microphthalmic eyes which are typically deeply set in a normal-sized orbit.
- Maximal control over intraocular fluid dynamics is critical, and the new technology phaco machines offer great advantages over older ones.
- Paracentesis should be done carefully and gradually, avoiding the iris and anterior capsule.
- Intraoperative hypotony should be avoided as much as possible.
- In severely hyperopic eyes, RAM, and nanophthalmic eyes, the shallow anterior chambers limit the distance between the anterior capsule and the corneal endothelium resulting in limited workspace for phacoemulsification.
- These eyes often have low endothelial cell counts and risk corneal decompensation following cataract extraction.
- The Arshinoff soft-shell technique using a cohesive viscoelastic in the center of the anterior chamber and a dispersive viscoelastic above it, may better stabilize the eye, decrease iris prolapse, and protect the endothelium.
- **Posterior synechiae and pupillary membranes**, if present, should be dissected off the anterior capsule with an iris spatula.
- A 30-gauge needle can also be placed on the viscoelastic syringe to perform viscodissection while using the cutting edge of the needle to facilitate this process.
- If viscoelastic substance and pharmacologic agents (including 10% phenylephrine) fail to increase the pupil size, mechanical dilation of the pupil or sphincterotomies may be needed.
• The size of capsulorrhesis should be selected in accordance with the IOL plan.
• For a single implant 5–6 mm is adequate.
• Generous use of viscoelastic is recommended to hyperinflate and maintain the anterior chamber depth, despite the posterior vitreous pressure. This will help depress and flatten the anterior capsule, thus preventing radial extension of the capsulorrhesis.
• For piggyback implantation, a larger (6.5–7 mm) capsulorrhesis is preferred so that the border of the anterior capsule does not cover the edge of the IOL
The use of a Kelman–Mackool phaco tip may facilitate surgical manipulation as its tip is bent downward toward the cataract.

It is important to remember to enter the eye with the phacoemulsification handpiece in the irrigation position.

Chilled balanced salt solution (BSS) may help to prevent incision burns in these shallow, anterior chambers.

The anterior epinucleus should be removed before phacoemulsification of the nucleus to allow more space for working in the anterior chamber.

During nucleus removal, a chopping technique with high vacuum and short pulses of ultrasound may be helpful.

The surgeon should start with a lower phaco power and increase it, as dictated by nuclear density, up to an efficient rate.

Working in the nucleus at the level of the iris plane or in the posterior chamber avoids the endothelium and helps maintain the integrity of the incision.
• The risk of a posterior capsular rupture is increased in these eyes because of the frequent presence of significant posterior pressure, weakened zonules, and floppy capsules.

• To reduce the incidence of this complication, vacuum should be decreased during the removal of the last pieces of nucleus, and a second instrument should be used to protect the posterior capsule.

• Automated irrigation–aspiration should be done thoroughly to prevent interlenticular opacification in the case of piggyback implantation.
If a single IOL is planned, there are no changes in the technique.

In the case of piggyback implantation, the first lens should be placed in the bag, with the haptics oriented vertically.

The second lens should then be inserted into the sulcus vertically with forceps, while maintaining downward pressure on the optic through the side port with the second instrument.

The haptics of the two lenses should remain perpendicular to each other, increasing the separation between the optics and perhaps decreasing the incidence of interlenticular opacification.

Special attention should be given to viscoelastic removal from behind and between the two lenses.

The incision should be closed with a 10-0 nylon suture to protect against wound leakage and hypotony in the postoperative period, which could lead to a disastrous outcome, especially in nanophthalmic eyes.
POSTOPERATIVE MONITORING

- Careful observation is required following any anterior segment surgery in microphthalmic eyes.
- Some surgeons re-evaluate the patient 4–6 hours after surgery for IOP and anterior-chamber-depth evaluation.
- Cataract extraction can dramatically improve the IOP in many cases with narrow angles (e.g., RAM).
- After surgery, eyes with persistent IOP elevation can be treated with laser trabeculoplasty because their angles are now more accessible.
- In patients who undergo piggyback IOL implantation, a dilated exam is recommended every 4–6 months for evaluation of interlenticular opacification.
COMPLICATIONS OF SURGERY

- Many complications that arise during and after surgery in microphthalmic eyes are the same as those observed in the routine phacoemulsification of normal-sized eyes.
- However, they tend to occur with much higher frequency, depending on the disproportion between anterior and posterior chamber depths.
- Microphthalmic eyes are predisposed to positive vitreous pressure and iris prolapse resulting in technically more challenging cases.
CORNEAL BURNS

- Microphthalmic eyes with shallow anterior chambers are at greater risk of corneal burns given the proximity of the endothelium to the phacoemulsification tip.
- The use of chilled BSS has been shown to reduce the incidence of this complication.
- Inserting the phaco handpiece in the irrigating position with careful positioning of the tip in the anterior chamber prior to phacoemulsification also reduces this complication.
RUPTURE OR DISINSERTION OF POSTERIOR CAPSULE

- The posterior capsule is thin in microphthalmic eyes and very susceptible to ruptures that can extend dramatically because of the positive vitreous pressure present in these small eyes.
- Surgery may lead to partial or total zonular dialysis.
- There is no consensus on the best course of action when implantation of a posterior chamber IOL is not feasible due to lack of capsular support.
- An anterior chamber IOL is difficult to implant in a shallow anterior chamber and, if implanted, carries with it a high risk of subsequent corneal decompensation.
- Immediate or subsequent scleral fixation of the implant is an extremely risky maneuver associated with uveal effusions and hemorrhage. This is especially true for nanophthalmic eyes, which are most susceptible to these complications.
UVEAL EFFUSIONS/HEMORRHAGES

- Uveal effusions in this group of patients can occur spontaneously or may be precipitated by cataract extraction, glaucoma surgery, argon laser trabeculoplasty, and even prophylactic laser iridotomy.
- Any eye surgery can precipitate or worsen a previous effusion by inflammatory increase of protein leakage or by reduction of transcleral hydrostatic pressure during intraoperative and/or postoperative hypotony.
- The effusions can be intrachoroidal, suprachoroidal, or both.
- Suprachoroidal hemorrhage is more common in nanophthalmic patients.
- The sudden decompression of the eye during surgery may lead to choroidal engorgement that cannot be handled because of the inelastic sclera.
- In case of sudden uveal effusion or hemorrhage, surgery must be interrupted, and tight closure of wounds must be performed. No further intervention is advised until the problem is resolved.
**RETINAL DETACHMENTS**

- **Exudative retinal detachment** can occur in isolation after surgery or following postoperative uveal effusion if treatment of the latter is delayed or fails.
- Treatment of exudative retinal detachment consists of performing multiple sclerectomies.
ANGLE-CLOSURE GLAUCOMA

- Many nanophthalmic and RAM eyes have narrow angles with crowded anterior chambers; therefore, the surgeon should be guarded to the possibility that a strong preoperative dilation on the day of surgery may induce a primary angle closure attack in the most susceptible eyes.

- Secondary angle closure can be caused by sudden peripheral uveal effusion and/or exudative retinal detachment, which causes a forward rotation of the ciliary body, forward movement of the peripheral iris, and pseudophakic pupillary block.
Malignant Glaucoma

- If the aqueous is misdirected to the vitreous instead of to the posterior chamber, **malignant glaucoma** can occur.
- **Cycloplegic and mydriatic therapy** should be initiated, together with steroids, and Nd:YAG laser to the anterior hyaloid face through a patent iridectomy may be attempted.
- If suprachoroidal effusion is also present, surgical drainage of fluid may be required.
- **Posterior vitrectomy should be kept as a last resort for treatment of this complication.**
INTERLENTICULAR OPACIFICATION

- Also known as interpseudophakos opacification or interpseudophakos Elschnig pearls, this late complication of piggyback IOL implantation recently became the subject of diverse studies and research.

- It is characterized by the ingrowth of lens epithelial cells in the space between the two IOLs and results in a hyperopic shift in these patients.

- It occurs most commonly 1–3 years following the piggyback IOL implantation.
This complication appears to be related to the border apposition of the anterior capsule toward the surface of the anterior lens.

To avoid this problem, the authors recommend the use of a larger capsulorrhexis and the insertion of one lens in the bag and the other in the sulcus, instead of inserting both lenses into the bag.

Thorough cleaning of epithelial cells from the remaining anterior and posterior capsule should be performed.

In patients with microphthalmos and narrow angles, both lenses may be inserted into the bag, as this maximizes the anterior chamber depth and angle dimensions.

Some surgeons believe that interlenticular cellular ingrowth is minimized when the optic of the anterior IOL is silicone.

If an interlenticular opacity develops, treatment varies from the use of Nd:YAG in the borders of anterior capsulorrhexis to an IOL exchange.

If a lens exchange is necessary due to interlenticular opacification, the surgeon should base the IOL calculation on previous measurements because a hyperopic shift may have occurred.
THANK YOU
FOR
YOUR ATTENTION