


CHALLENGES IN MODERN CATARACT SURGERY

- ▶ Complications
- ▶ Patient Expectations
- ▶ Premium Services
- ▶ Astigmatism
- ▶ Pharmaceuticals
- ▶ Retail Cataract Surgery

BRIEF HISTORY OF CATARACT SURGERY




Sanskrit manuscripts from the 5th century B.C. describe the earliest type of cataract surgery known as couching

Cataractous lens displaced away from the pupil to lie in the vitreous cavity

Needling (29 A.D.)

Breaking lens into smaller particles to facilitate their absorption



Man restrained for eye surgery
from "Aegleusius"
by C. Bartolich (1535-1606)

- ▶ In 1748, Jacques Daviel of Paris introduced a type of cataract surgery where the cataract was actually removed from the eye
- ▶ 1753 – Samuel Sharp of London introduced concept of cataract surgery by using pressure with his thumb to remove the entire lens intact through an incision
- ▶ 1795 – first attempts to place a glass lens inside the eye

- ▶ 1840s – General Anesthesia
- ▶ 1884 – Topical Anesthetics – Cocaine
- ▶ 1949 – Harold Ridley of England introduced the intraocular lens (polymethylmethacrylate or PMMA)
- ▶ 1957 – Barraquer of Spain used alpha-chymotrypsin to dissolve the zonules for removal of lens
- ▶ 1961 – Krawicz of Poland introduced cryo-surgery
- ▶ 1967 – Charles Kelman of New York introduced phacoemulsification

- ▶ 1970s – introduction of operating microscopes
- ▶ 1960s/70s/80s – ICCE -> ECCE -> PHACO
- ▶ 1990s – Phacoemulsification becomes primary surgical technique
- ▶ Evolution of lens
 - ▶ Ridley 1949
 - ▶ Shearing Late 1970s – IOL in the bag
 - ▶ Acrylic and Silicone lens 1980s/1990s
 - ▶ Early 2000s – injectable lens
 - ▶ 1998 Toric lens

- ▶ Multifocal IOLs
- ▶ Extended depth of focus IOLs
- ▶ Toric IOLs
- ▶ Laser assisted cataract surgery
- ▶ Intraoperative aberrometry
- ▶ Dropless cataract surgery
- ▶ Advanced phacoemulsification technologies
- ▶ MIGS

2018

- ▶ Endophthalmitis
- ▶ Ruptured posterior capsule
- ▶ Dropped or retained lens material
- ▶ Corneal Edema
- ▶ CME
- ▶ Elevated IOP
- ▶ Choroidal Hemorrhage
- ▶ Retrobulbar Hemorrhage
- ▶ Refractive surprises – The LASIK effect
- ▶ IFS

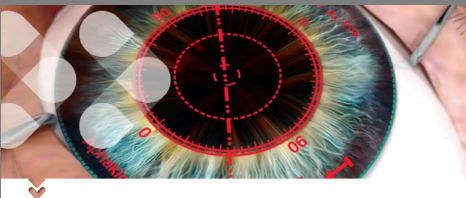
COMPLICATIONS

- ▶ IOL power calculation relies on three measurements: axial length, corneal power and anterior chamber depth
- ▶ Corneal power calculations rely on determining the radius of curvature of the anterior cornea in meters (r), which is converted into a dioptric power (P) using an index of refraction (n) utilizing the following formula:
 - ▶ $P = (n-1)/r$
- ▶ Lasik changes both "n" and "r"

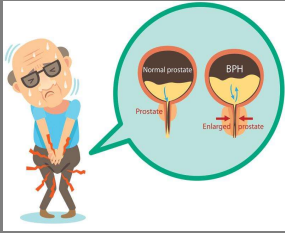
THE LASIK EFFECT

- ▶ After excimer keratectomy the anterior corneal surface changes but the posterior corneal surface remains unaltered.
- ▶ Changing the anterior-posterior power alters the cornea's effective refractive index in direct relation to the amount of keratectomy
- ▶ Because excimer laser selectively removes anterior stromal layers and leaves the posterior stroma intact, it changes the cornea's total refractive index

THE LASIK EFFECT



ORA




INTRAOPERATIVE FLOPPY IRIS SYNDROME

According to an online survey, most members of the American Society of Cataract and Refractive Surgery believe that tamsulosin makes cataract surgery more difficult (95%) and increases the risks of surgery (77%). Ninety-one percent believe that physicians prescribing α_1 -antagonists should become better educated about IFIS, and 59% would recommend a pretreatment ophthalmic evaluation for patients with cataracts or decreased vision. If they themselves had mildly symptomatic cataracts, 64% of respondents would avoid taking tamsulosin or would have their cataract removed first.

J Cataract Refract Surg 2008; 34:1201-1209 Q 2008 ASCRS and ESCRS

- ▶ In 2005, David Chang, MD – IFIS associated with Flomax
- ▶ Flomax (tamsulosin)
 - ▶ Alpha blocker that relaxes smooth muscle in bladder neck and iris dilator
- ▶ Hytrin (terazosin)
- ▶ Cardura (doxazosin)
- ▶ Mianserin (antidepressant)
- ▶ Labetalol
- ▶ Saw palmetto

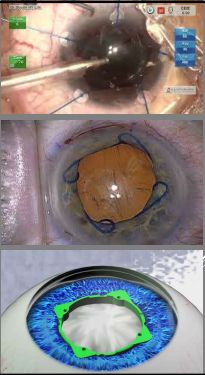


INTRAOPERATIVE FLOPPY IRIS SYNDROME

- ▶ Will stopping Flomax help?
- ▶ This strategy is not generally recommended, especially since more reliable techniques can be used without inconvenience to the patient.
- ▶ Reports of IFIS after only 2 weeks of treatment with Flomax
- ▶ The Tamsulosin Study Group in 2007 established that prior knowledge of the patient's drug history significantly reduced the risk of complications by allowing the surgeon to intervene at the appropriate time.


INTRAOPERATIVE FLOPPY IRIS SYNDROME

- ▶ Atropine, Shugarcaine
- ▶ Well constructed corneal incisions (LENSX)
- ▶ Low fluidics (Centurion, LENSX)
- ▶ Iris retractors
- ▶ Malyugin ring/iRing
- ▶ Stopping Flomax generally not recommended



MANAGEMENT OF IFIS

- ▶ Centurion Cataract System
- ▶ LENSX
- ▶ NSAIDS



TECHNOLOGY MATTERS

•Active Fluidics™ Technology, an automated system that optimizes anterior chamber stability by allowing surgeons to proactively set and maintain target intraocular pressure (IOP) within the eye during the cataract removal procedure. This provides enhanced IOP control during the procedure in comparison to gravity fluidics and fixed pressure irrigation; reduces surges due to occlusion breaks; increases IOP efficiency at lower, more natural settings; and eliminates the need to manually adjust fluid pressure.

• Balanced Energy™ Technology enhances phacoemulsification efficiency through proven OZil® Intelligent Phaco and the INTREPID® Balanced Tip probe. This increases efficiency and control, while reducing energy levels, and accommodating surgeon settings for aspiration and vacuum by keeping the fragmented lens material at the shearing plane for emulsification.

CENTURION – INTELLIGENT PHACO

- ▶ Capsulotomy
- ▶ Lens Fragmentation
- ▶ Astigmatic correction
- ▶ Incisions

LASER ASSISTED CATARACT SURGERY

- ▶ USING LESS ENERGY TO REMOVE HARDER CATARACTS
- ▶ MAKING A VERY PRECISE AND CENTERED CAPSULORRHESIS
- ▶ IN CERTAIN COMPLICATED CASES (I.E., DISLOCATED LENS AND HYPERMATURE CATARACT CAPSULORRHESIS).

FLACS IS SUPERIOR

- ▶ Overall BCVA
- ▶ Overall Complication Rate

FLACS IS EQUIVALENT

- ▶ ADDING EXPENSE
- ▶ ADDING TIME
- ▶ INCREASING INTRAOCULAR PROSTAGLANDIN LEVELS AND MAYBE CME
- ▶ CONTROVERSIAL -- INCREASING THE LIKELIHOOD OF ANTERIOR AND POSTERIOR CAPSULAR TEARS

FLACS IS WORSE

- ▶ PHACO A MATURE TECHNOLOGY
- ▶ FLACS RAPIDLY EVOLVING
- ▶ SAME WAS SAID FOR PHACO
- ▶ LATEST NOT STUDIED YET

ARE COMPARISONS FAIR

One week after surgery I was seeing 20/15, a very good result

PATIENT EXPECTATIONS

After her laser surgery, Alice was able to reap barcodes without an optical scanner.

- ▶ The psychologists Filip and Ferrig introduced a classification scheme that can be applied to cataract surgery. In this scheme, patients are categorized into one of four groups based on their measured and subjectively rated visual outcomes.
- ▶ **Fortunate:** patients with good visual acuity and good subjectively rated vision.
- ▶ **Unfortunate:** patients with poor visual acuity and poor subjective rating.
- ▶ **Satisfaction paradox:** patients with poor visual acuity but good subjective rating; and
- ▶ **Dissatisfaction dilemma:** patients with good visual acuity but poor subjective rating.

- ▶ Toric IOL
- ▶ Presbyopia correcting IOLs
 - ▶ Restor
 - ▶ Tecnis Multifocal
 - ▶ Crystalens
- ▶ LENSX
- ▶ Istent

PREMIUM SERVICES

- ▶ Patient expectations
- ▶ Cost
- ▶ Significantly increased chair time
- ▶ New complications
- ▶ Who is a candidate?


WHY ARE PREMIUM SERVICES A CHALLENGE?

- ▶ History
 - ▶ Decreasing vision OU over the past year
 - ▶ No longer driving at night due to vision
 - ▶ Never worn prescription glasses
- ▶ Exam
 - ▶ 20/40 OU
 - ▶ 2+ PSC OU
 - ▶ MRX
 - ▶ OD: -0.50 + 0.25 x 90 20/40
 - ▶ OS: -0.50 sph 20/40-
 - ▶ Ks
 - ▶ OD: 43.00/44.00 x 85
 - ▶ OS: 43.25/44.00 x 90

"I don't want to wear prescription glasses after surgery"

"I want to see the details on the mountains like I could before my cataracts developed"

THE ASTIGMATISM CONUNDRUM



PHARMACEUTICALS

	WALMART	WALGREENS	STAPLEY'S
VIGAMOX	\$160.58 (3ml)	\$154.99	\$160.00
PREDNISOLONE	\$79.08	\$95.99	\$119.49
KETOROLAC	\$78.74	\$110.99	\$115.00
ILEVRO	\$227.00	\$240.99	\$227.00

COST

- ▶ Preoperative topical antibiotics reduce the bacterial load on the ocular surface, but there are no studies proving that they effectively prevent endophthalmitis.
 - ▶ The aim of achieving therapeutic concentrations in the anterior chamber of the eye is probably of little use, as most of the antibiotic is washed out once surgery starts.
 - ▶ There is growing concern that topical antibiotic use may select resistant strains
 - ▶ As with preoperative topical antibiotics, there is no scientific evidence to justify the use of postoperative topical antibiotics
 - ▶ The only measure to date shown by scientific evidence to reduce the rate of endophthalmitis after cataract surgery is the use of preoperative povidone-iodine
- MAY 2014 CRST
- NECESSITY

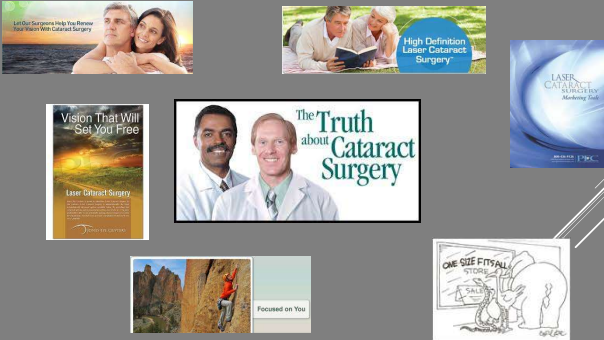
- ▶ Are steroids and NSAIDs both necessary?
 - ▶ Fourth Generation antibiotics versus older generations?
 - ▶ Duration?
 - ▶ Dropless Cataract Surgery
- NECESSITY



I just so happen to have the perfect car for you on my lot right now.

Perfect for Everyone!

“RETAIL CATARACT SURGERY”



Let Our Customers See You Better

High Definition Laser Cataract Surgery

Vision That Will Set You Free

The Truth about Cataract Surgery

LASER CATARACT SURGERY

Focused on You

ONE SIZE FITS ALL

- ▶ I will apply, for the benefit of the sick, all measures [that] are required, avoiding those twin traps of overtreatment and therapeutic nihilism.
 - Hippocratic Oath
- ▶ This premium surgery package will definitely benefit ~~me~~ you.
- ▶ Who does the treatment really benefit?
 - ▶ The Patient?
 - ▶ The Surgeon?
 - ▶ Both?
- ▶ One size does not fit all

THE SLIPPERY SLOPE



