

Intravitreal Avastin:

- Phil Rosenthal MD:
- SANA study: Intravenous avastin for bilateral CNV
- 50% of patients improved vision (33% = 3 or more lines)

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- Over 30,000 patients world-wide treated

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- \$50-70/dose (vs \$2000)

Disadvantages to Avastin:

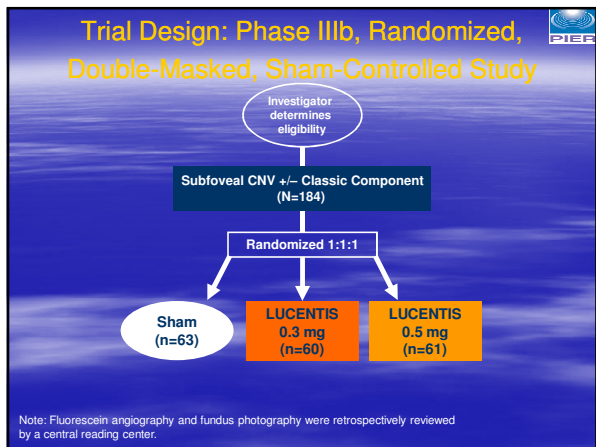
- Off-label treatment
- Un-known long term sequelae
- Possible increased risk of CVA/MI
- 1/400 the systemic dose

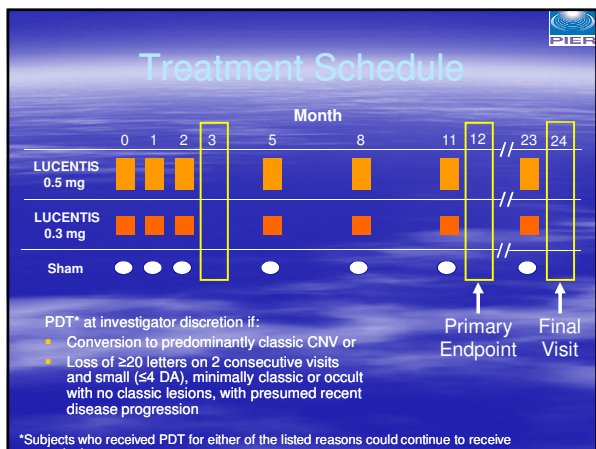
Another Problem with Lucentis:

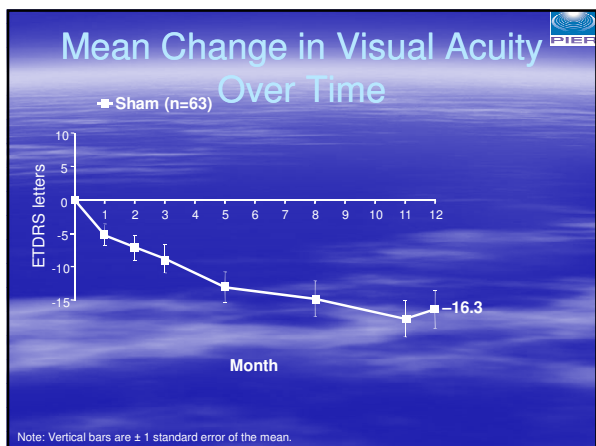
- 24 injections in 24 months
- ? tolerability

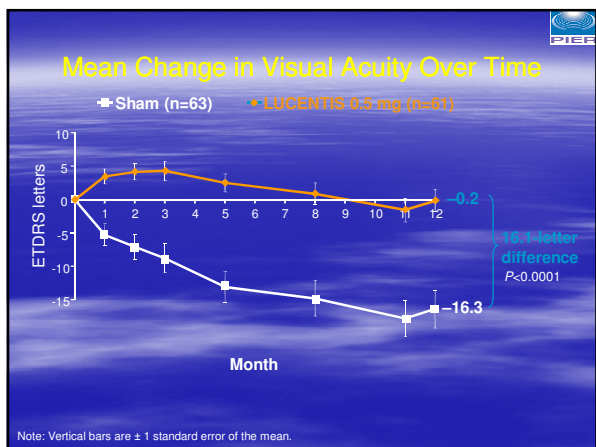


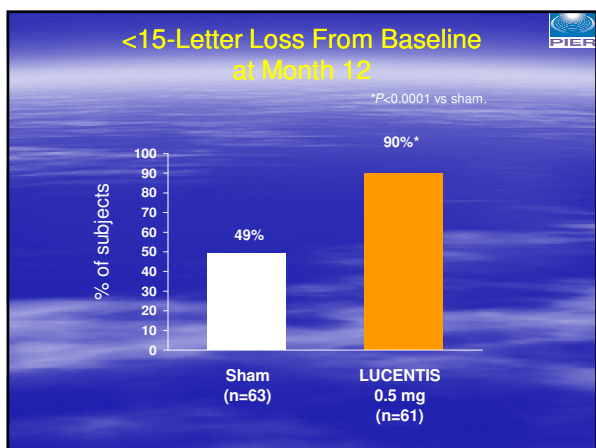
A Phase IIIb Study of LUCENTIS
(ranibizumab injection) in Neovascular
Age-Related Macular Degeneration
— Year 1 Results —

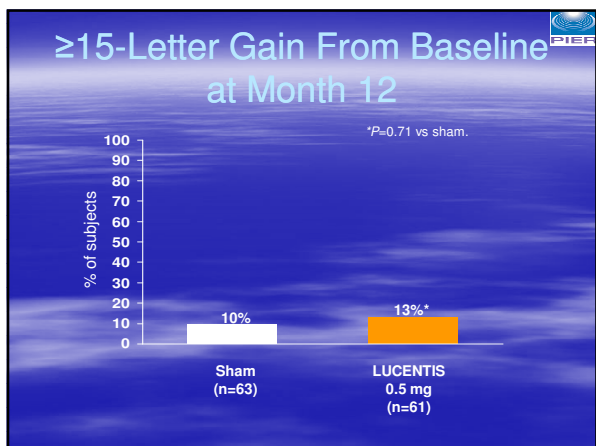












Intravitreal Lucentis:

- Patients treated with 24 injections over 24 months had a 30-35% chance of improving 3 lines of VA (? tolerable)

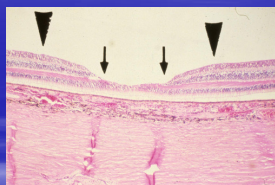
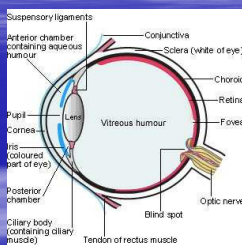
Intravitreal Lucentis:

- Patients treated with 24 injections over 24 months had a 30-35% chance of improving 3 lines of VA (? tolerable)
- Treatment with fewer than monthly injections results in lower "effect"

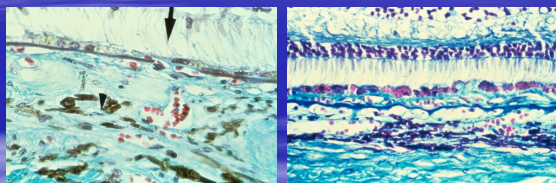
Intravitreal Lucentis:

- Patients treated with 24 injections over 24 months had a 30-35% chance of improving 3 lines of VA (? tolerable)
- Treatment with fewer than monthly injections results in lower "effect"
- Possible "more" local drug delivery

Choroidal anatomy:



Early Choroidal neovascularization



iScience
SURGICAL

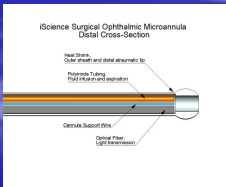
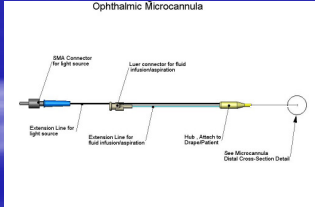


Tom Chang MD FRCS MHS
Retina Institute of California

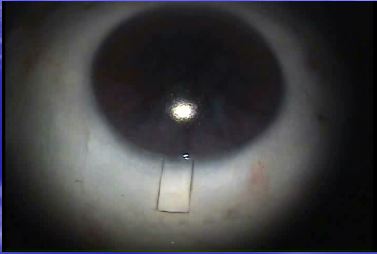
Ophthalmic Microcatheter

Microcatheter Design Features:

- 200 micron diameter, composite multi-element design
- Atraumatic fiber optic tip for maneuvering in tissue spaces
- Delivery lumen for tools, materials, energy



Schlemm's Canal Access

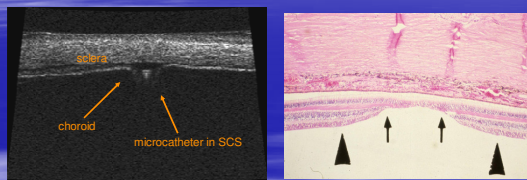


Microcatheter with Beacon Light Tip Placed in Schlemm's Canal of Cadaver Eye from Limbal Flap

Supra-choroidal access:



Suprachoroidal Space Access



Supra-choroidal drug delivery:

- 2 patients enrolled to date (phase 1 trial)
- All MUST have failed conventional treatments

Patient #1:

- 79 yo WF
- "fifth opinion"
- Failed PDT, Kenalog, and Avastin

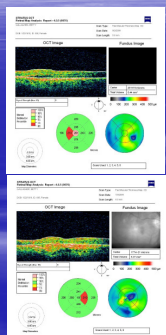
- Recent VA loss from 20/50 – 20/300
20/300 - CF
- Other eye is HM (AMD)

Patient #1

VA = CF

VA = 20/300

*Able to recognize faces



Summary:

- Rapid changes in technology in Retina

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- Rapid changes in Optometry

Summary:

- Rapid changes in technology in Retina
- Rapid changes in Optometry
- Continuing Education

"Eye on 2006" (Sat Aug 19, 2006)

- 6 lecturers (plastics, lasik, Cat, glauc,retina)
- 3.5 hours of OD CE credits
- Registration waived (\$75)
- Huntington Hospital (Pasadena, CA)

Retina Institute of California:

- Started Nov 05
- Tom Chang MD and Adam Martidis MD
- Mission: To raise the bar for the level of patient care provided in the field of Retina.
 - *Technology*
 - *Patient care*
 - *Education/research*

Retina Institute of California:

- Offices in: Pasadena
Hacienda Heights
Claremont (*Jan 07)

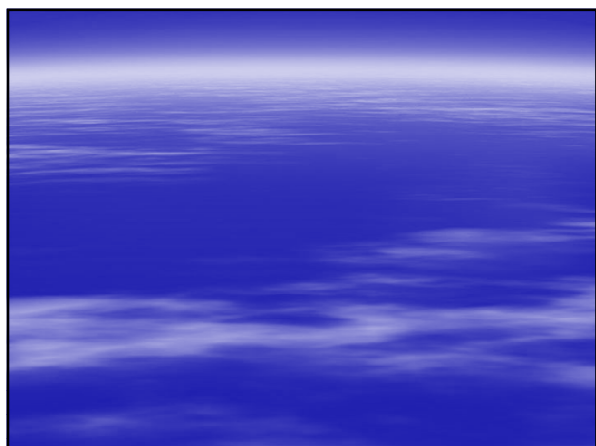
Retina Institute of California:

- **Visit surgery center** (Vitreotomy surgery)
 - 25 gauge surgery
 - teaching microscope
 - LCD viewing screen
- **Visit our Office** - Teaching scopes
 - Technology on steroids

Retina Institute of California: Visitor information

- Visit surgery center (Vitreotomy surgery)
- Electronic Medical Records
- Clinical trial patients (failed all other treatments)
- www.retinainstitute.ca.com
- retina911@yahoo.com

Thank You!



Reason #3: Retinal detachment

- Pathogenesis
- Treatment options
- Information for the VR surgeon
- Common myths
- Pearls

Reason #3: Retinal detachment: Pathogenesis

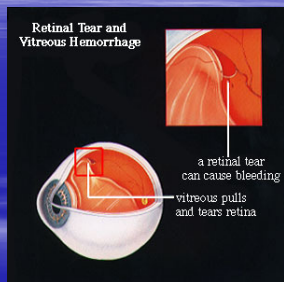
- Liquefaction of vitreous (loss of HA "glue")
 - Age
 - Myopia
 - Cataract surgery
 - YAG capsulotomy
 - Inflammation

Reason #3: Retinal detachment: Pathogenesis

- Liquefaction of vitreous
- Posterior Vitreous Detachment
 - Flashes and floaters
 - Presence of Weiss' ring
 - 3 week window of "activity"
 - Look for pigment in vitreous

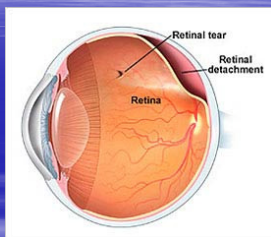
Reason #3: Retinal detachment: Pathogenesis

- Liquefaction of vitreous
- Posterior Vitreous Detachment
- Retinal Tear formation
 - Traction
 - "photopsia" HINT
 - Time



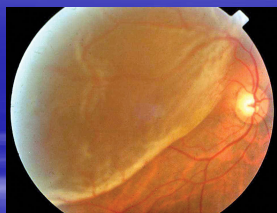
Reason #3: Retinal detachment: Pathogenesis

- Liquefaction of vitreous
- Posterior Vitreous Detachment
- Retinal Tear formation
- Retinal Detachment
 - Progressive Sub-retinal fluid accumulation
 - Development of scars (PVR)



What to do when a patient presents with a retinal detachment:

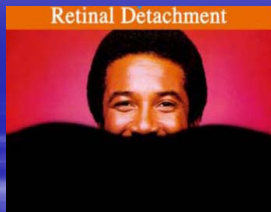
- Determine mac-on vs mac-off



How to Determine if the Macula is off/on?

- **Macula ON**

- Decreased vision (CF or worse)
- Visual Field
- Direct Examination



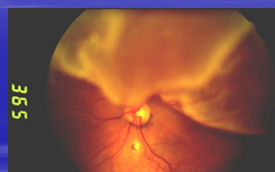
Macula "on" RD

- Inferior vs Superior
- Speed of progression of VF loss
- Nasal detachments



"macula-off" retinal detachment

- Step 1: Establish "when" central acuity declined (Day for day, hour for hour)
- Step 2: Status of other eye (8% will have hole/RD)



Last Question to ask before making the referral:

- NPO status
- Do not stop between your office and Retina office



How do you repair a retinal detachment?

- Pneumatic retinopexy
- Vitrectomy
- Scleral buckle

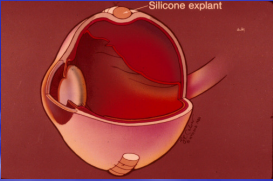
Scleral Buckle Step 1:

- Localize all retinal tears
- Treat with cryopexy
- Less = more



Scleral Buckle Step 2:

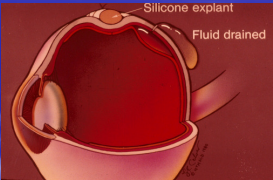
- Place buckle element to support break(s)
- Circumferential
- More = More



The diagram shows a cross-section of the eye with a silicone explant being positioned against the sclera. The explant is a small, circular, light-colored object. The eye's internal structures, including the retina and vitreous, are visible in shades of red and pink.

Scleral Buckle Step 3:

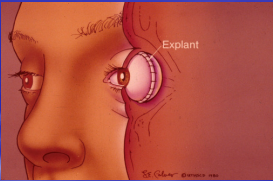
- Drain fluid
- Cut down thru sclera, choroid, RPE
- Risk of Sub-ret heme (ASA, coumadin)



The diagram shows the eye with a silicone explant in place. A small incision is shown in the sclera, with a label 'Fluid drained' indicating the removal of vitreous fluid. The explant is labeled 'Silicone explant'.

Scleral Buckle:

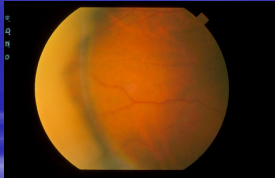
- Permanent buttress
- Myopic shift
- 98% successful



The diagram shows a human eye with a scleral buckle explant visible on the sclera. The explant is a small, circular, light-colored object. The eye's internal structures, including the retina and vitreous, are visible in shades of red and pink.

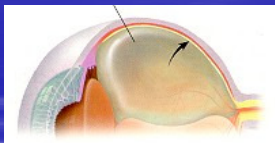
Scleral Buckle: Disadvantages

- Pain
- Time off work
- Myopic shift
- Lasik flap



Pneumatic Retinopexy:

- Office procedure
- No myopic shift
- Comfortable/less traumatic
- 85% success



Vitrectomy for Retinal Detachment:

- Advantages:
 - Less painful
 - Rapid visual rehabilitation (25 Gauge)
 - No effect of refractive error (ie LASIK pts)

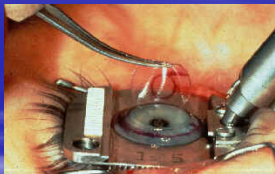
Freq Asked Questions:

- Role of trauma:



Freq Asked Questions:

- Will refractive surgery accelerate retinal detachment formation?



Things to communicate to the Retinal surgeon:

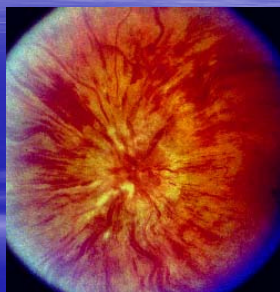
- Mac-on vs Mac-off
- Duration of mac-off
- Status of lens
- Status of other eye
- NPO*

Things to communicate to the Patient:

- Day for day, hour for hour
- NPO and ASAP
- Re-dilate
- Refractive error

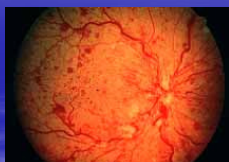
Reason #5:

- Central Retinal Vein Occlusion



Central Retinal Vein Occlusion

- Second most prevalent retinopathy behind diabetic disease
- Strongly associated with systemic disease
- Prominent morbidity and mortality



Anatomy

- Central retinal vein & artery – share common sheath
- Exit nerve head narrow opening – lamina cribrosa
- Central Retinal Vein – drains the retina through 4 tributaries

Normal Disc

The diagram shows a cross-section of the optic disc. Labels include: Sclera, Choroid, Retina, Lamina cribrosa, Short posterior ciliary artery, Central retinal artery, Central retinal vein, Dura mater, and CSF space.

Pathophysiology

- Arteriosclerosis
 - CRA impinges on CRV
 - Hemodynamic disturbances
 - Endothelial damage
 - Thrombus formation
- Hypercoaguable States
 - Deficiency of thrombolytic factors
 - Increase in clotting factors
- Compression of Vein
 - Increased IOP
 - Glaucomatous cupping
 - Swelling of optic nerve head.
 - Orbital tumors
 - Cavernous sinus thrombosis
 - Retrobulbar injection

Clinical Signs

- Dilated, tortuous veins
- Deep and superficial hemorrhages
- Disc edema
- Collateral vessels
- Macular edema
- Neovascularization

The image shows a fluorescein angiogram of the retina, highlighting areas of neovascularization and leakage of dye, characteristic of retinal vein occlusion.

Warning signs:

- Age: Between 30 and 45
- History of Vein occlusion in fellow eye
- History of Deep Vein Thrombosis, Repeated spontaneous Miscarriages

Special Tests

- **Flourescein Angiogram**
 - Non-Ischemic CRVO
Diffuse capillary leakage
Prolonged venous filling time
 - Ischemic CRVO
Widespread capillary nonperfusion (greater than 10 DA)
More pronounced prolonged venous filling time
- **ERG**
 - Ischemic CRVO
Diminished b:a wave amplitude ratio < 1.0

CRVO: Disease Course

- Non-Ischemic 80%

- Ischemic 20%

CRVO: Disease Course

- **Non-Ischemic**
 - 75-80% of CRVO
 - Mild-Moderate decreased VA or transient obscuration
 - Anterior segment neovascularization, < 2%
 - 34% progress to ischemic within 3 years, 15% within 4 months (CVOS)
 - 48% completely resolve, 30% partially

