

1

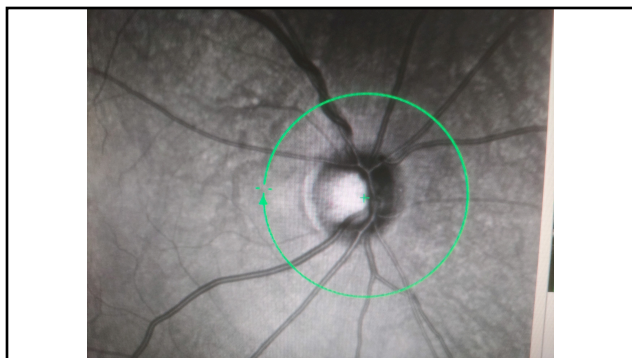
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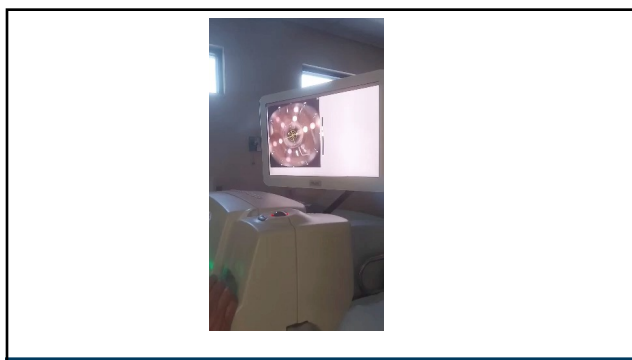
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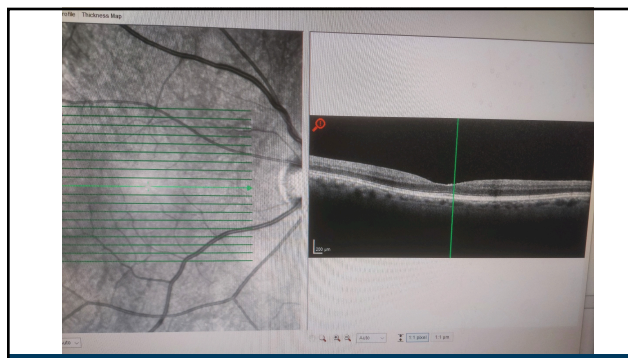
### Cataract video

10

### Day 1 Post-OP

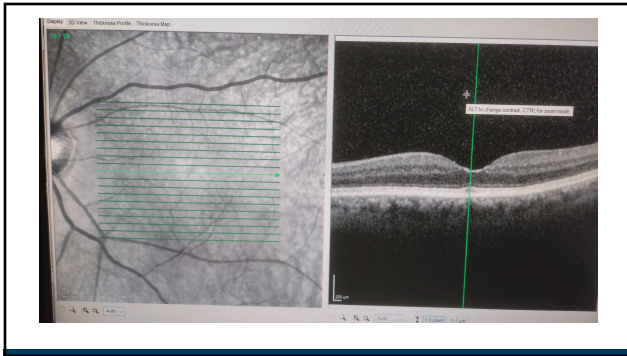
- Post-op Cataract OD
- Uncomplicated
- 20/100
- Patient Unhappy

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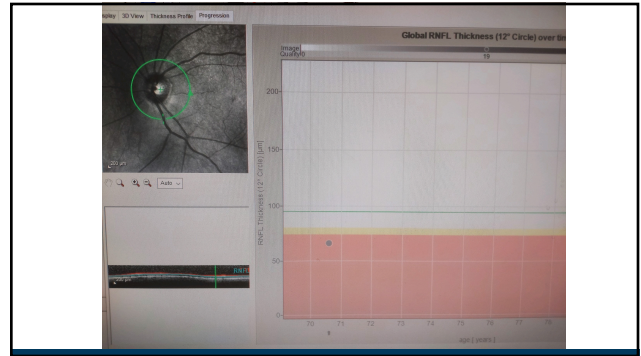


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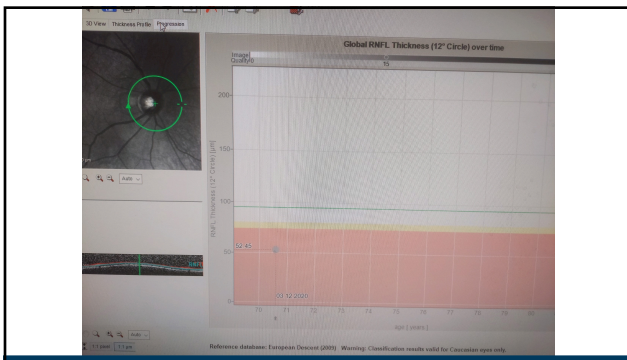




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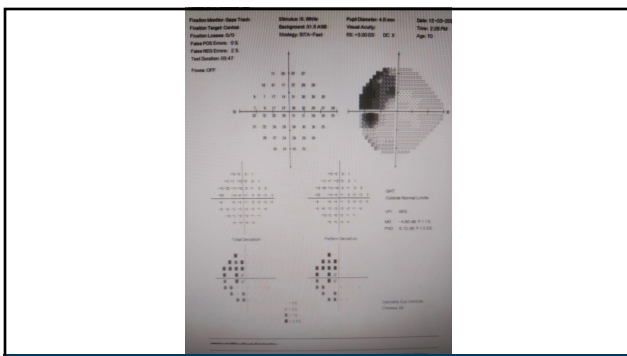


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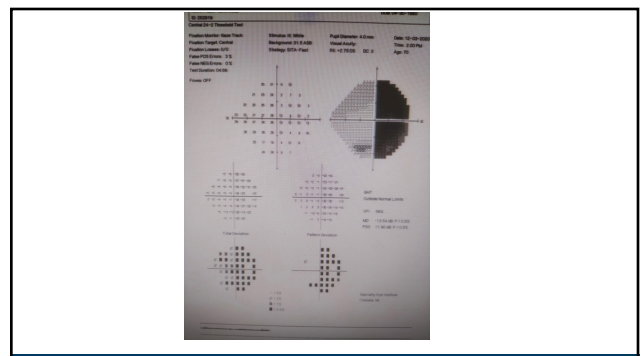
### What to do now?

- Review of systems completely negative
- Had return tomorrow for visual field

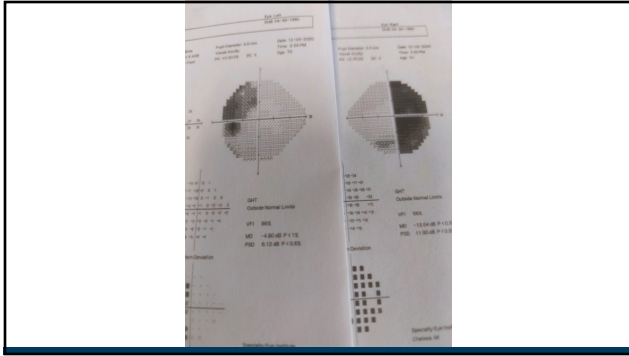
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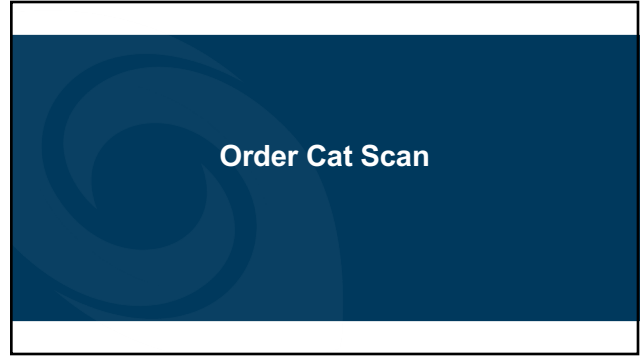
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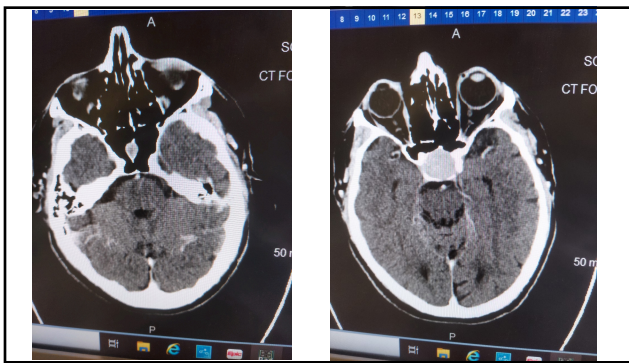
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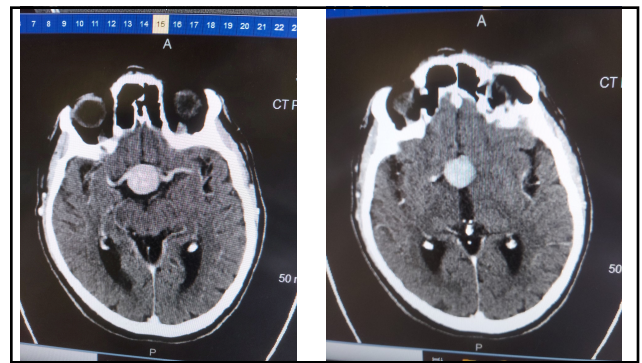
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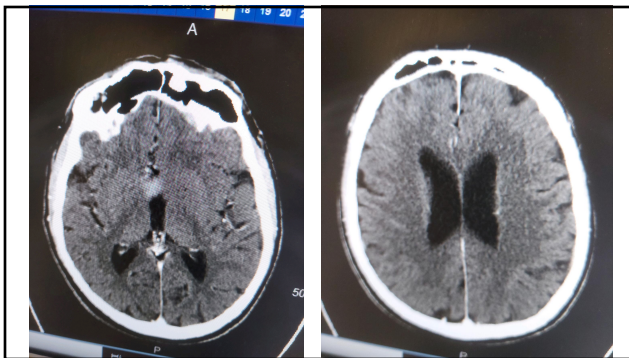
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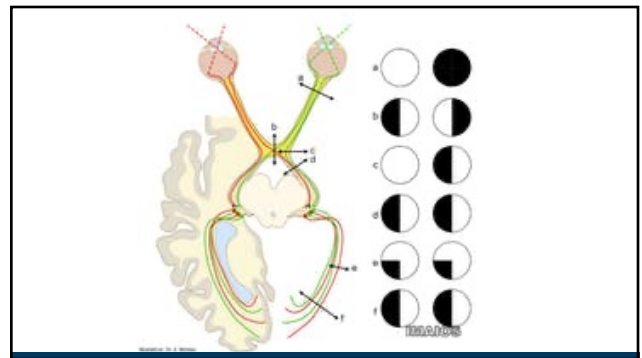
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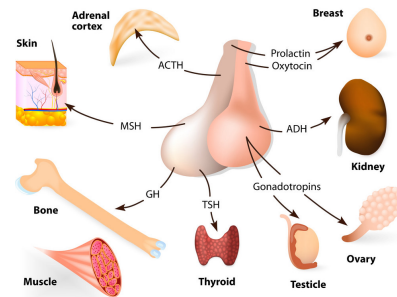
24

## Pituitary Tumors

- Functioning
  - Make Hormones
- Non-Functioning
  - Growth causes pressure which cause damage

25

## PITUITARY GLAND



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## Pituitary Tumor

- Hormone Producing
  - ACTH Tumors
    - Stimulate adrenals to make hormone cortisol
    - Cushing Syndrome
  - Growth Hormone Secreting tumors
    - Acromegaly
    - I.e. Lurch, Andre the Giant
  - Prolactin
    - Female – Menstrual irregularity, breast milk discharge
    - Male – ED, loss of sex drive, breast
  - TSH – Thyroid secreting hormone tumors
    - Hyperthyroidism
    - Weight loss, tachycardia, sweating

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## Pituitary Tumor

- Hormone Producing
  - ACTH Tumors
    - Stimulate adrenals to make hormone cortisol
    - Cushing Syndrome
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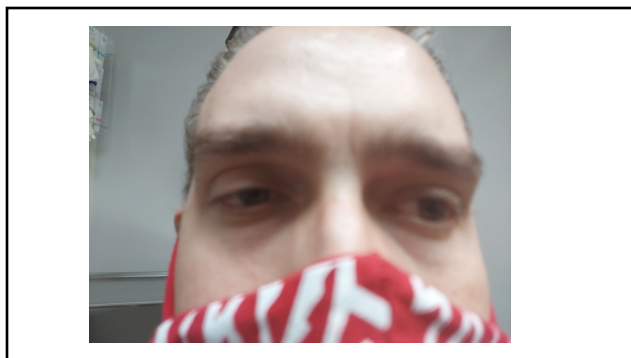
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- 67 year old, White Female
  - referred for SLT and YAG
    - She also complains of eyes more pronounced
    - Husband confirms
  - Order Ct scan
    - Enlarged Extraocular muscles

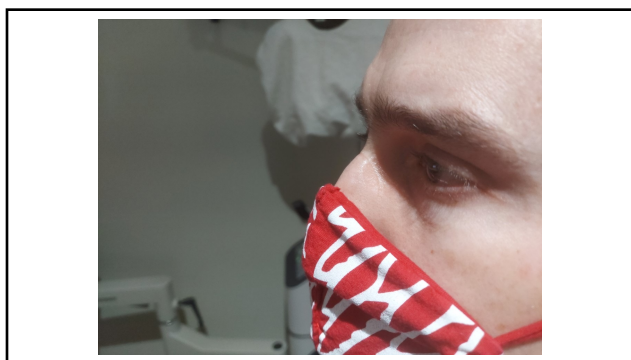
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### **Always look at your patient**

- Patient referred for cataract evaluation

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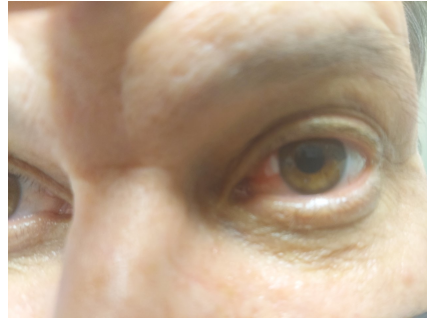
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- Patient said her right eye has been like that for 10 years
- She knows its from her Thyroid
- She didn't know it could be treated
- Referred for treatment

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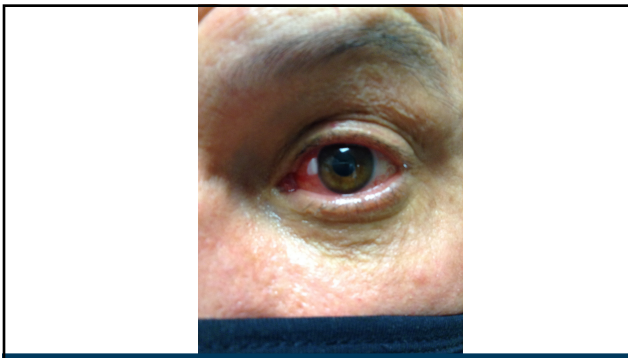
### Growth on Eye

- 60 y.o. w.m. hit with a tree branch in March 2020
- Eye was red but got better
- Fall 2020
  - Noticed spot on eye, started to get bigger
- I saw him in March 2021

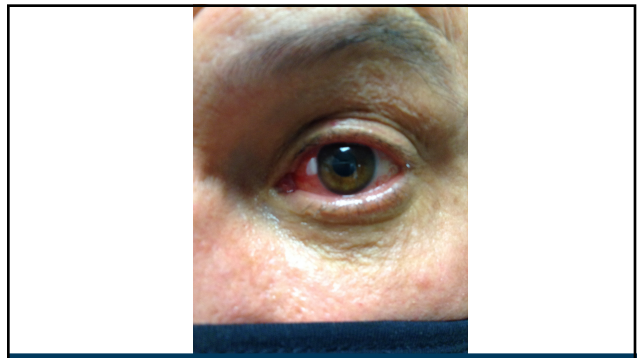


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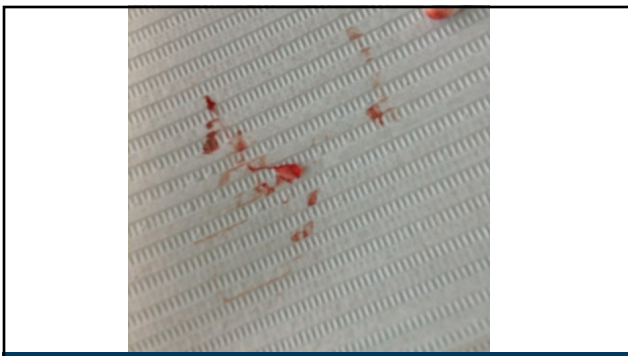
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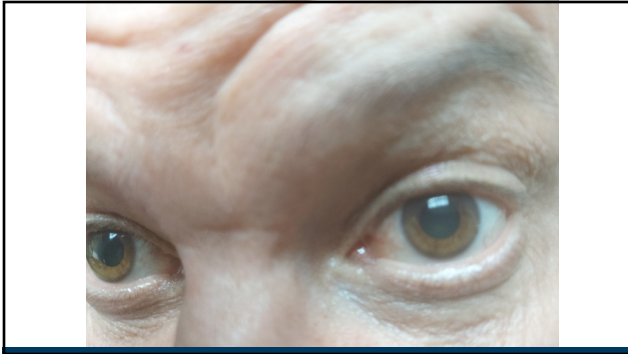


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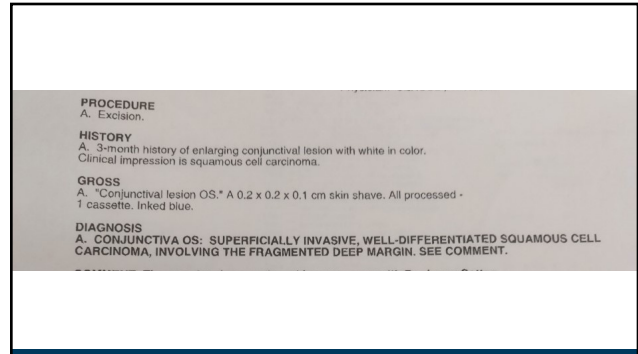
### Excisional Biopsy

48





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### Unusual Conjunctivitis?

- 54 y.o. w.m. went to ER for 1 week of tearing in left eye
- Given antibiotic and allergy drop and is improving
- Sent to me for follow-up
- Patient reports his left eye is about 50% better
- Slit lamp showed moderate papillary conjunctivitis

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### Unusual Conjunctivitis

- Since he was getting better, I decided to add steroid drops
- Then I took a closer look

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### Unusual Conjunctivitis

- Patient reports left eye has always been lower
- Something didn't seem right
- Patient is a professor who told to listen to my gut instinct
- Ordered cat scan

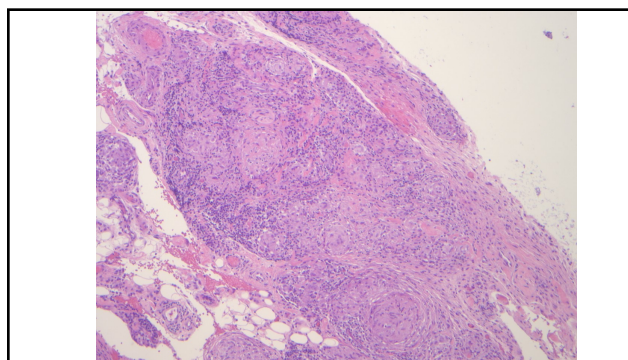
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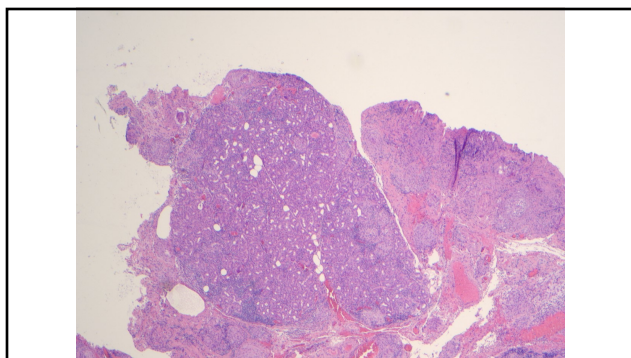
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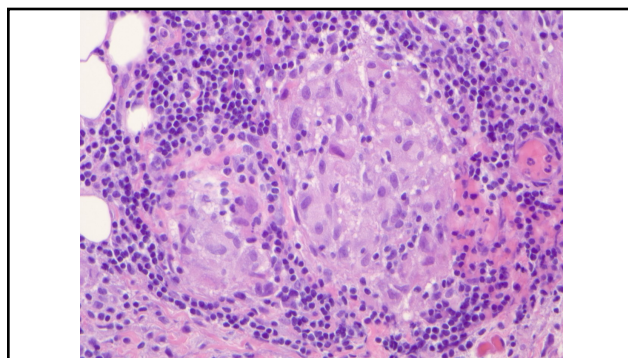
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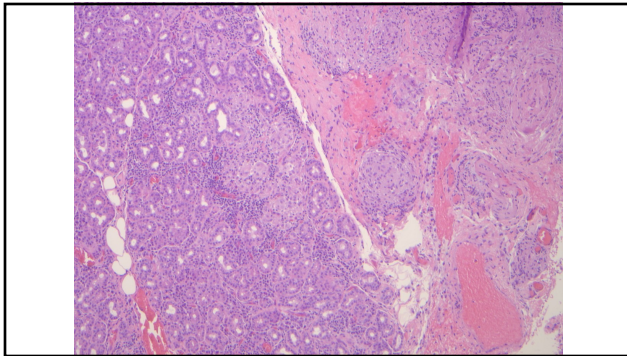
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## LASIK Update

- iDesign Refractive Studio
- Myopia up to -11.00 D and -5.00 D astigmatism
- Mixed Astigmatism -1-5 Diopters
- Hyperopia 4.00 D and Astigmatism 0-2D

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### WAVEFRONT-GUIDED LASIK

- Highly precise map of the eye is generated, detailing all higher and lower refractive errors
- This accurate assessment allows the surgeon to tailor the treatment that's 100% personalized

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YOUR LASIK PROCEDURE JUST GOT SMARTER

## Technology Overview

February 5, 2015 4

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### iDESIGN SYSTEM INDICATIONS

The **STAR S4 IR**® Excimer Laser System and **iDESIGN** System is indicated for wavefront-guided laser assisted in situ keratomileusis (LASIK) in patients:

- with myopia as measured by the **iDESIGN** System up to -11 D spherical equivalent with up to -5 D cylinder
- with agreement between manifest refraction (adjusted for optical infinity) and **iDESIGN** System refraction of:
  - Spherical Equivalent: Magnitude of the difference is less than 0.625 D
  - Cylinder: Magnitude of the difference is less than or equal to 0.5 D
- 18 years of age or older
- with refractive stability (a change of  $\leq 1.0$  D in sphere or cylinder for a minimum of 12 months prior to surgery)

February 5, 2015 5

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### YOUR LASIK PROCEDURE JUST GOT SMARTER

- The only vision correction procedure that uses a unique process to map the eye's entire visual pathway making it 100% personalized
- With over 15 million procedures, *iLASIK* technologies have given people better vision, hassle free from glasses or contact lenses\*



\*You may need reading glasses after laser surgery even if you did not wear them before.

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### THE *IDESIGN* SYSTEM – SMART TECHNOLOGY

- Captures more data about the imperfections of the eye than ever before\*
  - Over 1,200 data points from each eye
  - More data for outstanding treatment accuracy
- Uses a high-definition sensor that has **5x** the resolution of previous technology\*
- 100% personalized treatment plan is based on this large amount of high-quality information



As compared to the WaveScan System

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### THE *IDESIGN* SYSTEM RESULTS IN CLEARER, SHARPER VISION YOUR PATIENTS WILL ENJOY

- 99% of people were not limited in active sports or outdoor activities after surgery<sup>1</sup>
- 99% of people had little to no difficulty with the clarity of their vision after surgery<sup>1</sup>
- 97% of people were satisfied with their vision after surgery<sup>1</sup>
- 93% of people had little to no difficulty driving at night after surgery<sup>1</sup>
- Majority of people achieved 20/16 or better vision after surgery<sup>1</sup>

1. Clinical Studies submitted to FDA: P99006/S044

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YOUR LASIK PROCEDURE JUST GOT SMARTER

### *iDESIGN* System Overview

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### REFRACTIVE MEASUREMENT



**Phoropter (Manifest) Method of Refraction**  
One single data point



**WaveFront Method of Refraction**  
Over 1,200 data points



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### HOW THE *IDESIGN* SYSTEM WORKS

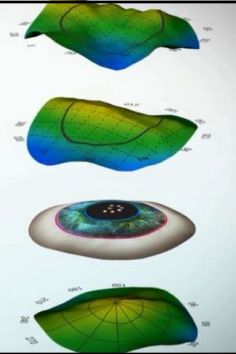
- It shines a light into the eye of the patient
- The light travels as a bundle of rays which pass through the cornea, lens, vitreous and to the retina
- The light rays then travel back out of the eye, through a set of tiny lenses, called a **Hartmann-Shack lens array**, and into a camera



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### 5 MEASUREMENTS WITHIN A SINGLE CAPTURE SEQUENCE

- Wavefront refraction
- Wavefront aberrometry
- Corneal topography
- Keratometry
- Pupillometry



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### THE *IDESIGN* SYSTEM...

Next-generation technology – working as a smarter brain – collecting more data about the imperfections of the eye than ever before

Corrects nearsightedness up to -11 D, with up to -5 D of astigmatism

Clearer, sharper vision for an improved visual well-being after surgery

Backed by most trusted name in laser vision correction



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### iDESIGN® vs. WaveScan®

How does the iDESIGN® System stack up against its predecessor the WaveScan®? See below to experience the incredible technology that iDESIGN® represents.



- Approved to treat patients 18 years and older
- Pupil capture range: 4mm to 9.5mm
- Maximum wavefront diameter: 6.5mm
- Can treat up to -5 D of astigmatism
- Higher resolution Hartmann-Shack lens array
- Captures up to 1,257 micro refractions
- Corneal Topography measurement
- Higher contrast image for Iris Registration



- Approved to treat patients 21 years and older
- Pupil capture range: 5mm to 7mm
- Maximum wavefront diameter: 7mm
- Can treat up to -3 D of astigmatism
- Includes Hartmann-Shack lens array
- Captures up to 240 micro refractions
- No Corneal Topography measurement
- Lower contrast image for Iris Registration

Data courtesy of Johnson & Johnson Vision

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## Behind the Scenes Improvements from 2020ish

Kevin T. Lavery, MD

1

## DMEK; DORC tube

2.2 vs 2.75mm incision

Better wound closure

Less induced astigmatism

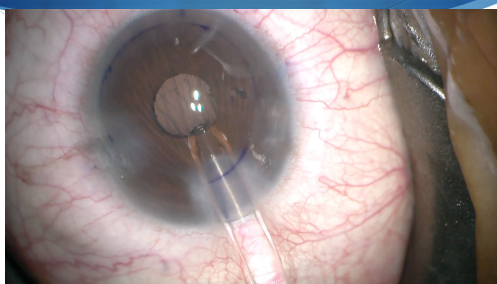
Less ejection of tissue

Faster surgery



2

## DORC tube



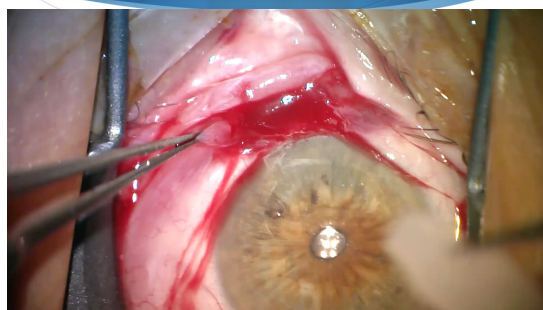
3

## Pterygium Surgery with Mitomycin C

- ◆ Less recurrence
- ◆ Less expensive surgery
- ◆ Faster surgery
- ◆ No need for tissue grafts and amniotic membrane grafts with fibrin glue or surgery

4

## Pterygium; reducing recurrence with Mitomycin



5

## Glaucoma drop therapy; greater availability

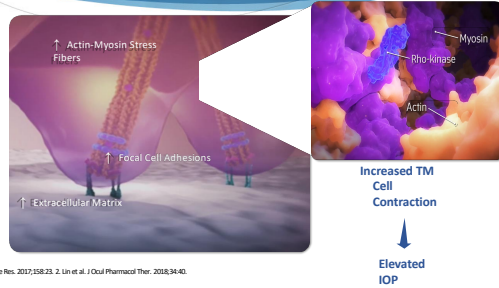
Three Criteria for a Medication

- ◆ Efficacy
- ◆ Tolerability
- ◆ Affordability

6

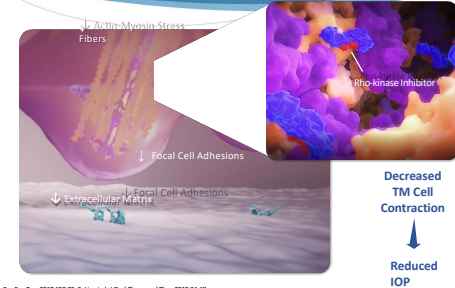


## Elevated Rho-kinase activity in TM cells increase cell contraction and stiffness<sup>1,2</sup>



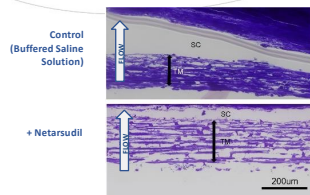
7

## Rho-kinase inhibitors relax TM cells and reduce fibrosis<sup>1,2</sup>



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## Netarsudil Causes Expansion of TM in Donor Eyes, Opening Spaces for Increased Outflow



Light microscopy showed that netarsudil-M1 (active metabolite of netarsudil) caused expansion of the trabecular meshwork tissue

Morphology of the TM in perfused human donor eyes was examined using light microscopy. Images were taken using a 20x objective along the inner wall of the SC. TM, trabecular meshwork; SC, Schlemm's canal.  
Rao R, et al. Invest Ophthalmol Vis Sci. 2016;57(14):4347-4358.

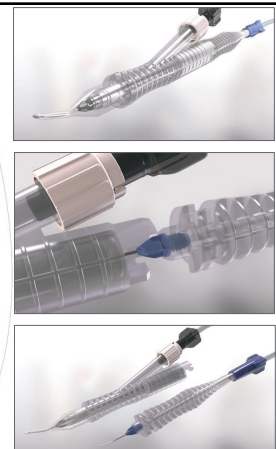
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## The Transformer = Cleaner Capsules

The safety of a polymer tip; capsular friendly

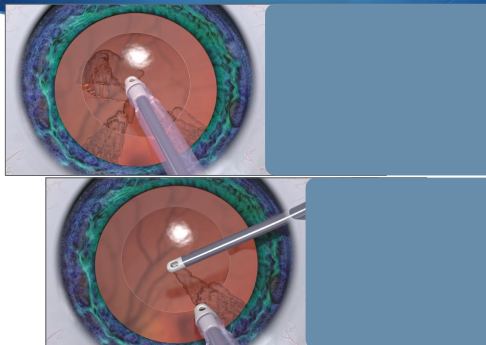
The control of bimanual I&A

New frontiers in capsular polishing



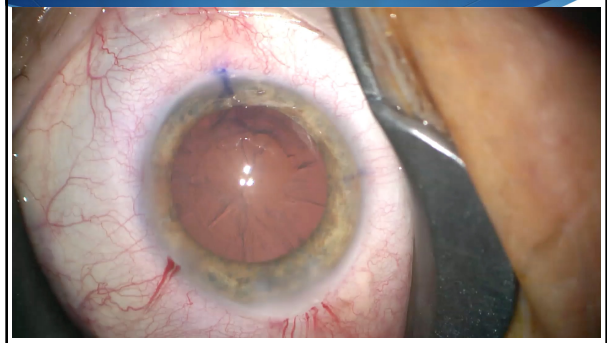
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## The Transformer



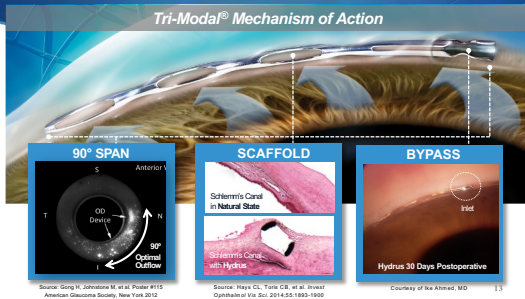
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## Bimanual Irrigation and Aspiration with the "Transformer"



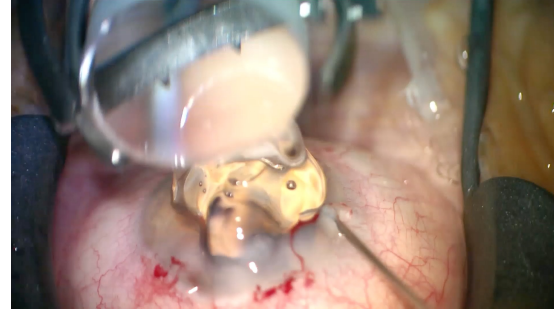
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## Hydrus Microstent: *Ab interno* Canal-based MIGS



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## Hydrus; Insertion made easier



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## ACRYSOF VIVITY It is the Real Deal

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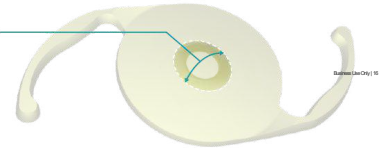
## SMOOTH SURFACE TRANSITION ELEMENTS:

SIMULTANEOUSLY STRETCH and SHIFT the WAVEFRONT WITHOUT SPLITTING IT

X-WAVE™ TECHNOLOGY CONSISTS OF 2 SMOOTH SURFACE TRANSITION ELEMENTS

### SURFACE TRANSITION 1:

Slightly elevated smooth plateau (~1 µm) stretches the wavefront, creating a continuous extended focal range



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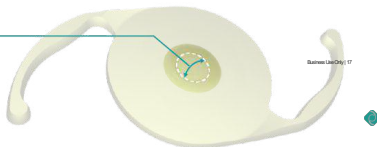
## SMOOTH SURFACE TRANSITION ELEMENTS:

SIMULTANEOUSLY STRETCH and SHIFT the WAVEFRONT WITHOUT SPLITTING IT

X-WAVE™ TECHNOLOGY CONSISTS OF 2 SMOOTH SURFACE TRANSITION ELEMENTS

### SURFACE TRANSITION 2:

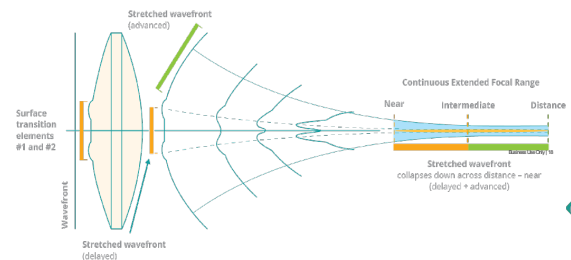
Small curvature change (across the ~2.2 mm region) shifts the wavefront to utilize all available light energy



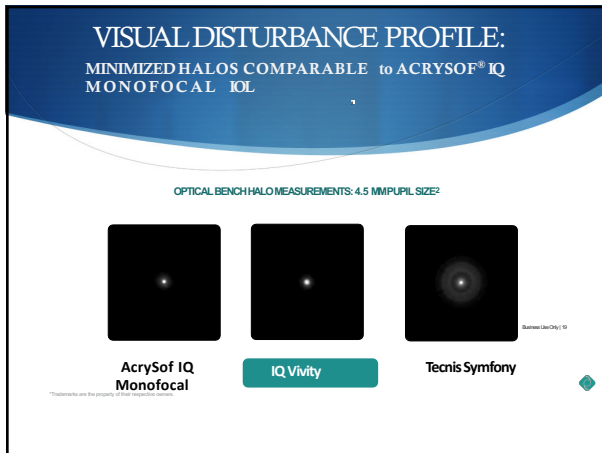
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## X-WAVE™ TECHNOLOGY

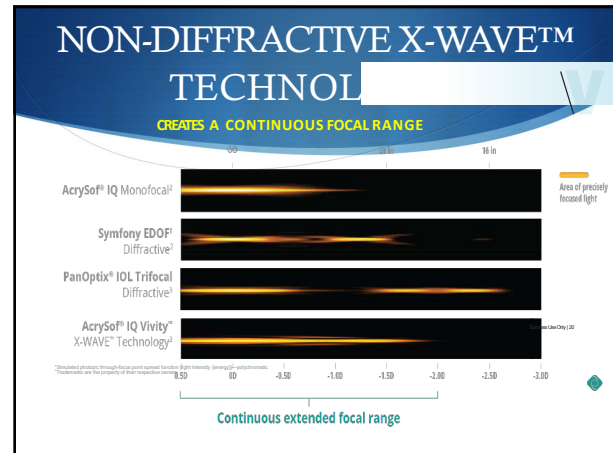
SURFACE TRANSITION ELEMENTS ALTER THE EMERGING WAVEFRONT



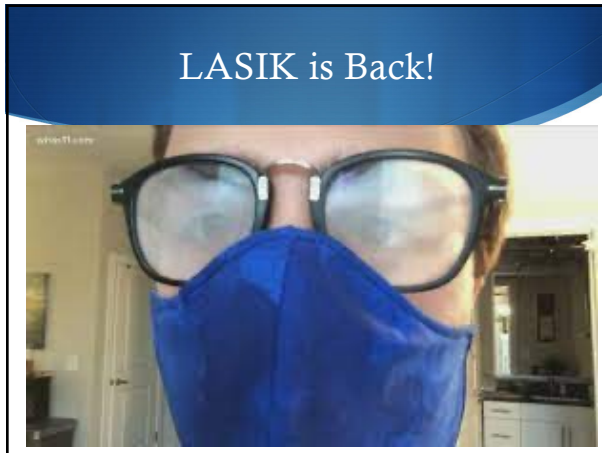
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### iDESIGN Replaces WaveScan

Better "Fingerprint of the eye"  
5 times as many spots tested  
(1257 vs 240 micro refractions)

Pupil capture range 4-9.5mm  
vs 5-7mm

More patients achieving  
20/15!

Better Iris Registration

Fingerprint-of-the-eye  
custom, laser vision correction

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### iDESIGN® vs. WaveScan®

How does the iDESIGN® System stack up against its predecessor the WaveScan®? See below to experience the incredible technology leap iDESIGN® represents:

<ul style="list-style-type: none"> <li>Approved to treat patients 18 years and older</li> <li>Pupil capture range: 4mm to 9.5mm</li> <li>Maximum wavefront diameter: 8.5mm</li> <li>Can treat up to -3 D of astigmatism</li> <li>Higher resolution Hartmann-Shack lens array</li> <li>Captures up to 1,257 micro refractions</li> <li>Corneal Topography measurement</li> <li>Higher contrast image for Iris Registration</li> </ul>	<ul style="list-style-type: none"> <li>Approved to treat patients 21 years and older</li> <li>Pupil capture range: 5mm to 7mm</li> <li>Maximum wavefront diameter: 7mm</li> <li>Can treat up to -3 D of astigmatism</li> <li>Includes Hartmann-Shack lens array</li> <li>Captures up to 240 micro refractions</li> <li>No Corneal Topography measurement</li> <li>Lower contrast image for Iris Registration</li> </ul>
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Data courtesy of Johnson & Johnson Vision

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### Xengel; Mechanism of Action

- Creates a permanent channel through the sclera allowing flow of aqueous humor from the anterior chamber into the subconjunctival space<sup>1,2</sup>
- Low and diffuse outflow into intact tissue anatomy

Main Steps of the Xen 45 Gel Stent Procedure:

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Allergan

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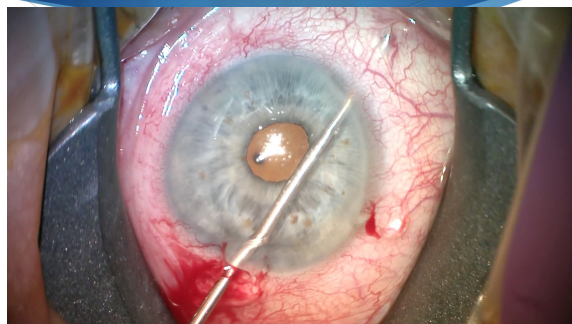


## Xengel

- ◆ Highly Effective but failures due to scarring
- ◆ Usually pretreat with Mitomycin
- ◆ Treat reduced flow with ocular massage and "needling" of the bleb

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## Xengel Pre "needling" with MMC



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## Midwest Vision Partners

- ◆ Handling of Covid Crisis
- ◆ Better Processes (phone room, scheduling, etc.)
- ◆ Better staff training
- ◆ Upgrading systems (EMR, practice management software, billing software etc)
- ◆ Recruitment of doctors

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