

Glaucoma New Zealand

**A charitable trust
to eliminate
blindness from glaucoma**



Glaucoma NZ aims to eliminate blindness from glaucoma through:

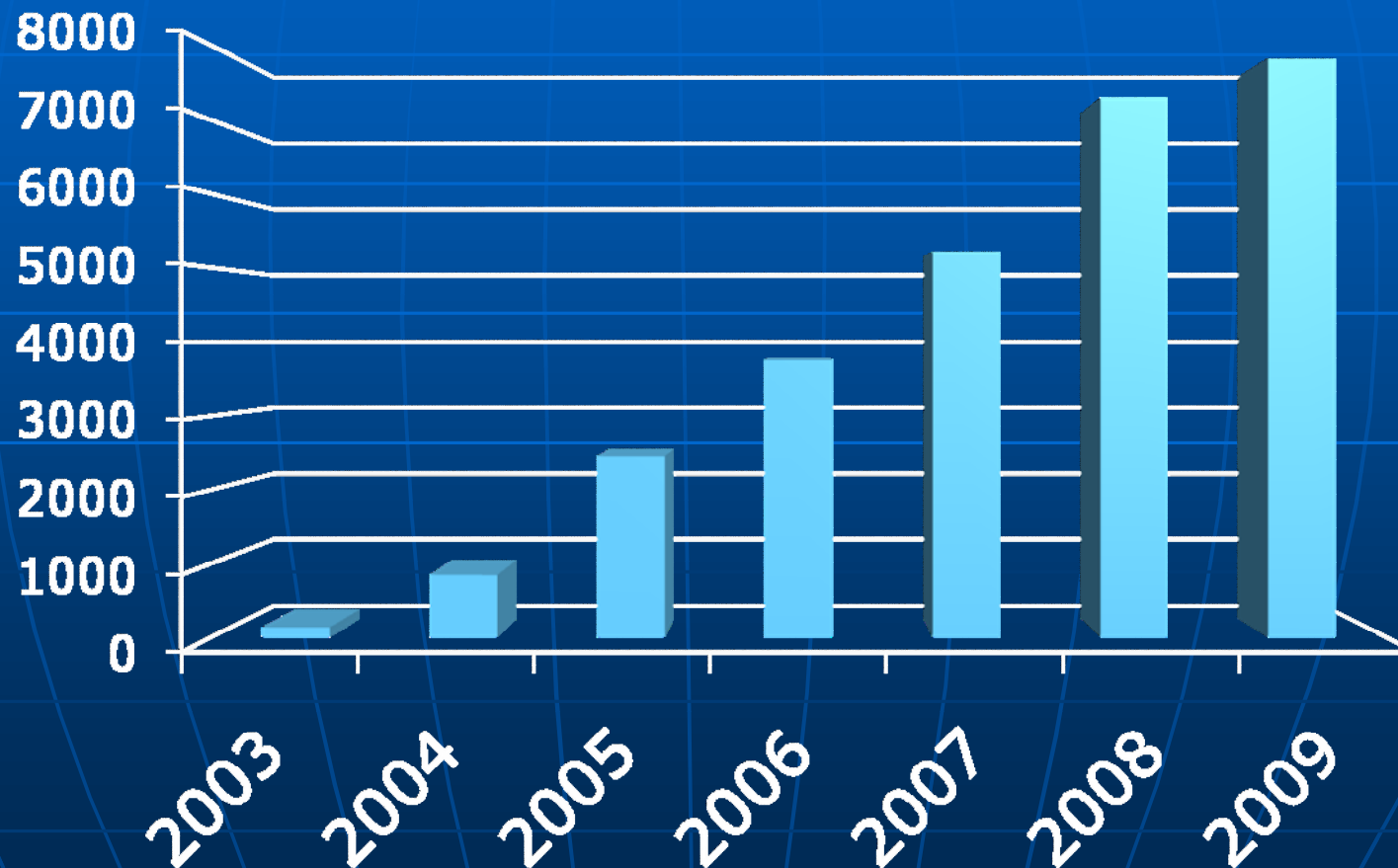
Providing information for patients

Promoting awareness

Participating in education of professionals involved in glaucoma

Supporting research into glaucoma
in NZ

Membership Growth



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Public Meetings



Publications

Eyelights

The Newsletter of Glaucoma NZ

From the Chair of Chairperson

It is my great pleasure to bring you *Eyelights*, the regular Newsletter of Glaucoma NZ. *Eyelights* aims to inform all who are interested about glaucoma: the number one preventable cause of blindness in our community. Topics such as how glaucoma is detected, monitored and treated, how visual loss can be prevented, and how you can

best treat it. Each issue features a guest article and a quiz.

Fact Sheet

Acute Angle Closure Glaucoma (ACG)

In ACG, the fluid inside the front of the eye cannot reach the angle of the eye where the drainage system of the eye is located because the angle becomes blocked by part of the iris, the coloured part of the eye. The build up of fluid inside the eye results in a sudden increase in pressure. This condition is an emergency, requiring immediate treatment to improve the flow of fluid.

Does it produce symptoms?

ACG produces noticeable symptoms because of the rapid build-up of pressure in the eye. Each individual may experience symptoms differently. These include:

- headache or severe pain in or around the eye(s)
- haloes (which may appear as rainbows) around lights
- blurred vision
- nausea and vomiting

Why does it occur?

The trabecular meshwork (or drainage system of the eye) is situated at a place in the eye called 'the angle'. In people with ACG, the angle is narrower than in normal eyes. The ability of fluid to pass out of the eye is compromised causing fluid and hence pressure to build up. If the meshwork becomes completely blocked fluid will continue to be made at a normal rate but will be unable to exit the eye, allowing the pressure in the eye to build up to a harmful level.

Website

www.glaucoma.org.nz

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Related Links

What is Glaucoma

Treatment

Life with Glaucoma

Whats True

Whats Not

Investigations

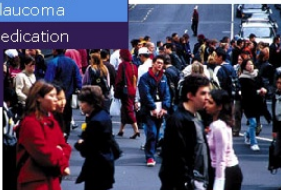
Who has Glaucoma?

►

Diet

Now I Have Glaucoma

Medication




Welcome to Glaucoma New Zealand

Glaucoma is the number one preventable cause of blindness in New Zealand.

From glaucoma can be prevented by early detection and appropriate treatment. Glaucoma [here](#).

Glaucoma NZ is a charitable trust dedicated to preventing blindness from glaucoma. Our aims are:

- to increase awareness about glaucoma in our community
- to inform and educate people about the disease
- to facilitate research into the condition

You can read more about our organisation [here](#), about how to benefit from membership of Glaucoma NZ [here](#), and about our public meetings [here](#).

Support our worthy cause =>

To prevent blindness from glaucoma

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Awareness Campaigns



Don't lose sight of your family...



Glaucoma is a blinding disease

With early detection the blindness can be prevented

Have your eyes

GLAUCOMA



www.glaucoma.org



Information from Glaucoma NZ is FREE Encourage Patients to Enrol



SEE A FUTURE WITHOUT BLINDNESS

Putting In Eye Drops

1. Wash your hands.
2. Start by tilting your head backward while sitting, standing, or lying down. It is a good idea to stand in front of a mirror, or lie down and look directly at the ceiling. With your index finger placed on the soft spot just below the lower lid, gently pull down to form a pocket.
3. Let a drop fall into the pocket.
4. Slowly let go of the lower lid. Close your eyes gently - try not to shut them tight. This may push the drops out of your eye.
5. Gently press on the inside corner of your closed eyes with your index finger for two or three minutes. This will help keep any drops from getting into your system and will keep them in your eye, where they are needed.
6. Blot around your eyes to remove any excess.
7. If you have more than one drop prescribed wait at least 5 minutes before putting in the second one.

For helpful hints see over

GLAUCOMA NZ TO SAVE SIGHT

A Charitable Trust for Education and Research.

Eyelights

GLAUCOMA NZ TO SAVE SIGHT

The Newsletter of Glaucoma NZ
Volume 6 Issue 2 July 2009

July Annual Awareness Appeal
"Don't Lose Sight Of The World You Live In"

Family and friends
A beautiful sunset
The sparkling ocean
Driving your car

Inside:
Glaucoma and Pregnancy
Laser Trabeculoplasty
Bedtime Mantra

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GLAUCOMA NZ TO SAVE SIGHT

The Newsletter of Glaucoma NZ
Volume 6 Issue 3 October 2009

The New York Times
Friday 17th July 2009

A New Understanding of Glaucoma

By Peter Janet

For years, glaucoma was defined as elevated pressure within the eye that affects cognition. Glaucoma leads to vision loss. And for the years experts knew there were glaring gaps in that definition. Many people with abnormally high intraocular pressure never develop glaucoma. As many as one in three people have glaucoma, even low pressure.

As research tried to resolve the contradictions, a paradigm for glaucoma had emerged. Glaucoma is an eye disease, now say, but diagnosed as a disorder of the brain. It's a great product to keep your own sunglasses, glasses, or at a minimum order of 3 for \$10.

Inside:
Sunshine and Eyes
Watch out for your Eyes
Out & About
The Water Drinking Test

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GLAUCOMA NZ TO SAVE SIGHT

The Newsletter of Glaucoma NZ
Volume 7 Issue 1 March 2010

Galileo Had Glaucoma!

It has been 401 years since Galileo first had the idea of pointing his telescope to the heavens.

His interest in telescopes (an invention attributed to a Dutchman) began for their military application and their commercial value. The astronomical science only occurred to him later and he was not the first as an Englishman, Thomas Harriot, drew the contours of the moon in July 1609 but gets no credit as he did not publish his work.

Galileo first found evidence that proved the earth was not the center of the solar system when he found the four larger moons of Jupiter, and that Venus has phases just like our moon. These were seemingly simple things but in 1609 they turned science and the Catholic Church upside down. He did this with a telescope that was of poorer quality and less magnification than a cheap pair of modern binoculars.

Galileo's eyes were not ideal. His left eye was very short sighted and his right eye had less than perfect distance vision which meant they could never see together. His eyes pointed in different directions which is shown in many existing portraits. He was reported to have poor vision, thought to be due to looking at the sun, but his writings show that he was aware of the dangers of this and observed suspects by projecting the sun's image onto a screen. This is a technique still commonly used by astronomers today. His weaker, divergent left eye may have helped him draw Jupiter and Venus as it was focused close to him while his right eye observed the heavens through a telescope.

Experts agree that Galileo had progressive glaucoma. There is a study being undertaken by Paolo Galluzzi, director of the Institute and Museum of The History of Science, in Florence, Italy to undertake glaucoma DNA studies from Galileo's remains that were interred in 1737 (his first grave was that of a pauper due to his being out of

Continued over page...

Inside:
Glaucoma Worldwide
Traumatic Glaucoma
Your Eyes and Bicycle Tyres

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Don't lose sight of your family..



Don't lose sight of your family..

Why?

- Glaucoma is the leading cause of preventable blindness
- 50% of people with glaucoma do not realise they have it
- Early detection is the key to preventing irreversible sight loss.
- If they comply with treatment 98% of glaucoma patients will not go blind

Today's Talk:

1. What is glaucoma?
2. Who is at risk of developing glaucoma?
3. How do we treat glaucoma?
4. Laser treatment for glaucoma
5. Surgery for glaucoma

Not one disease . . .

. . . but many

Glaucoma: the common feature –

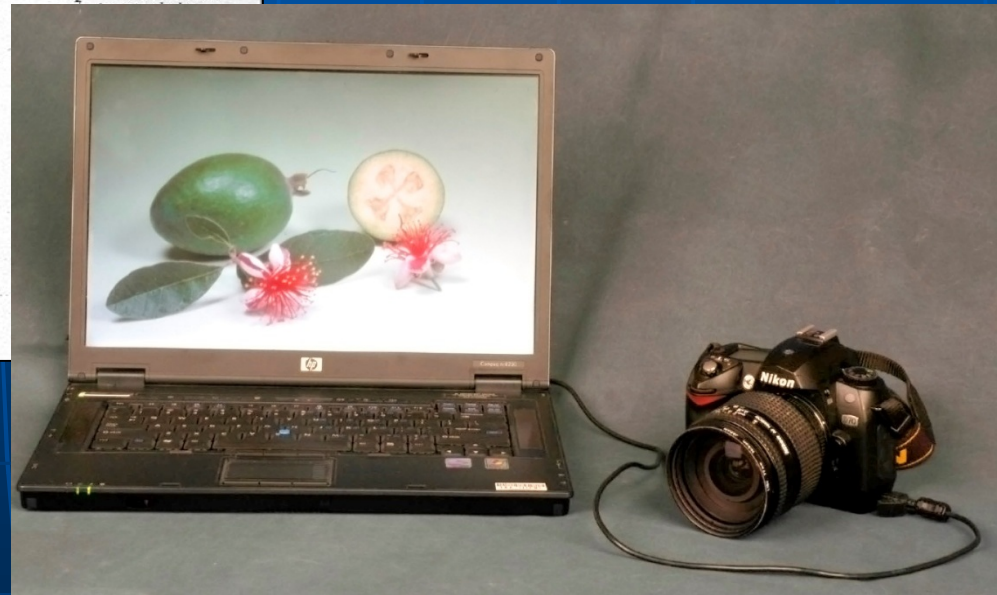
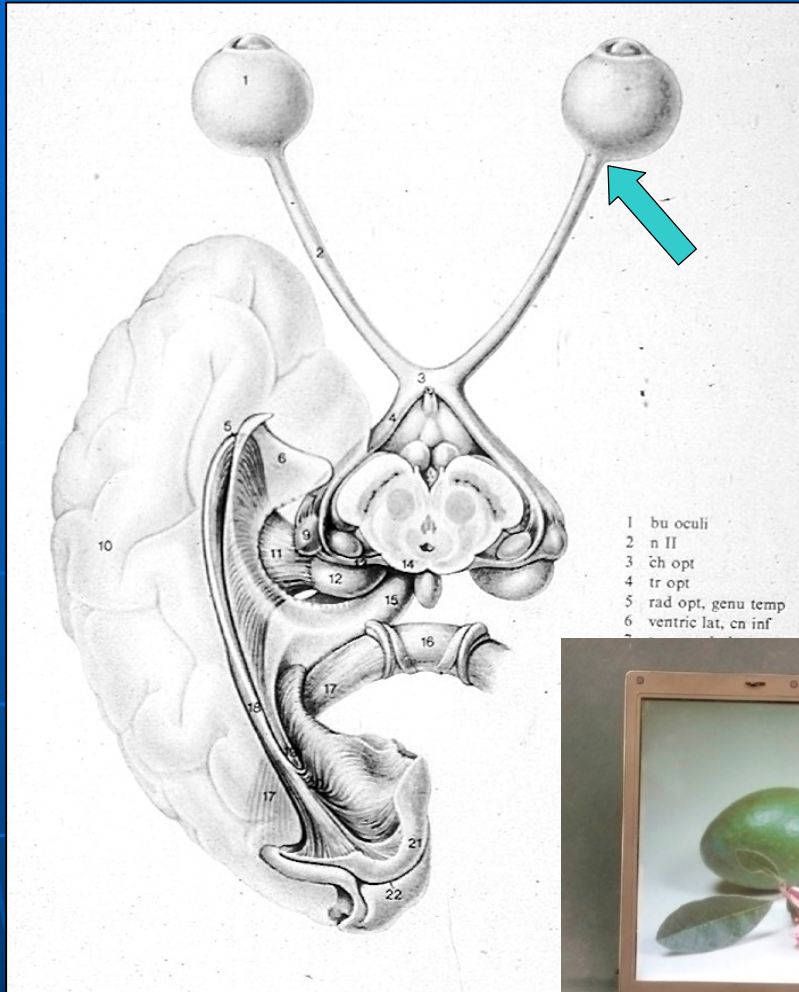
- Characteristic damage to the optic disc,



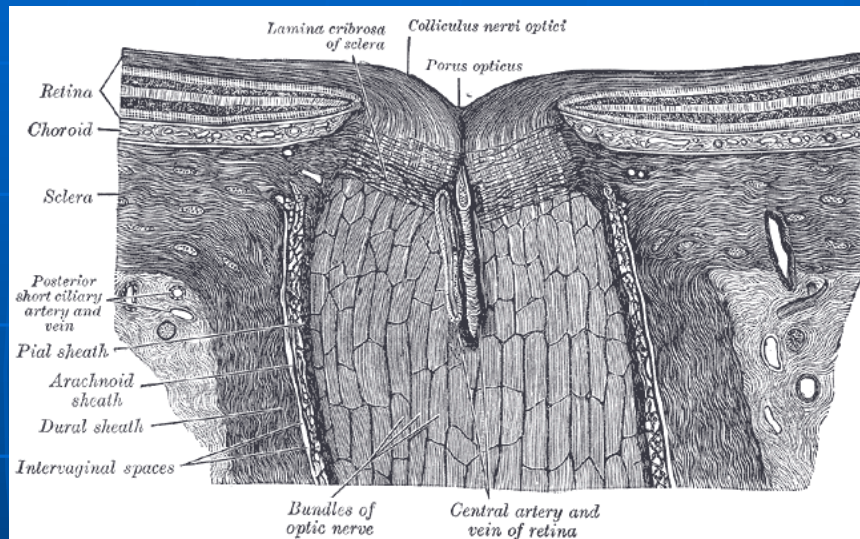
known as
disc “cupping”



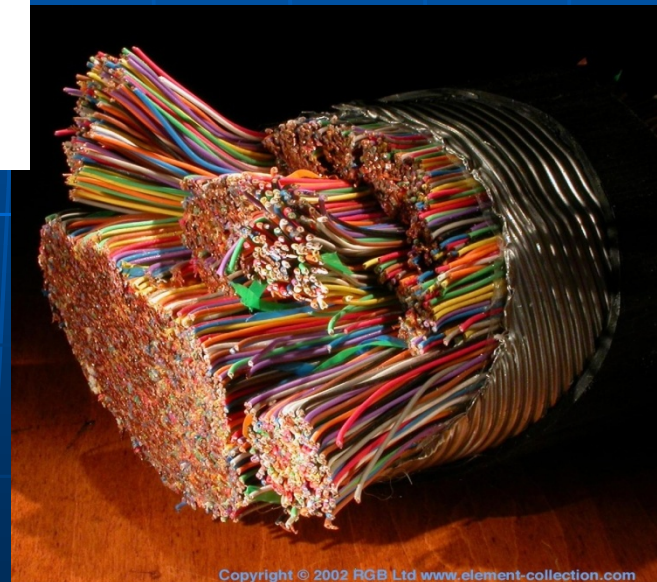
There is more to vision than just the
eye



Optic nerve

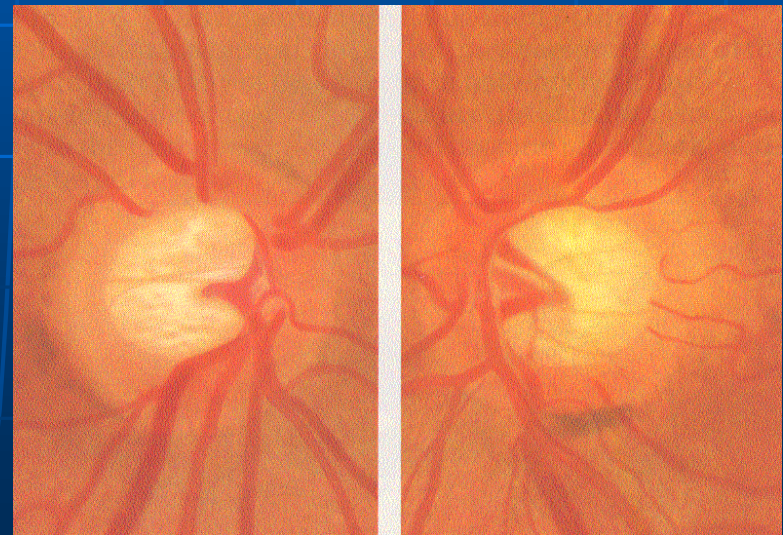
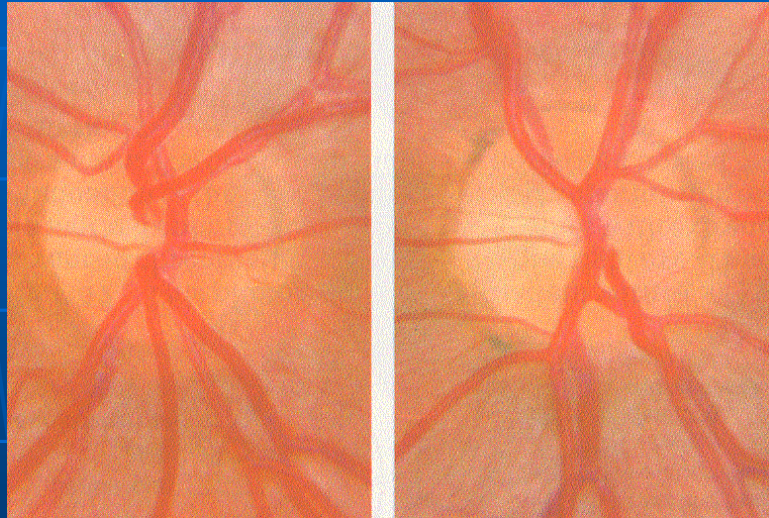


Telephone Cable



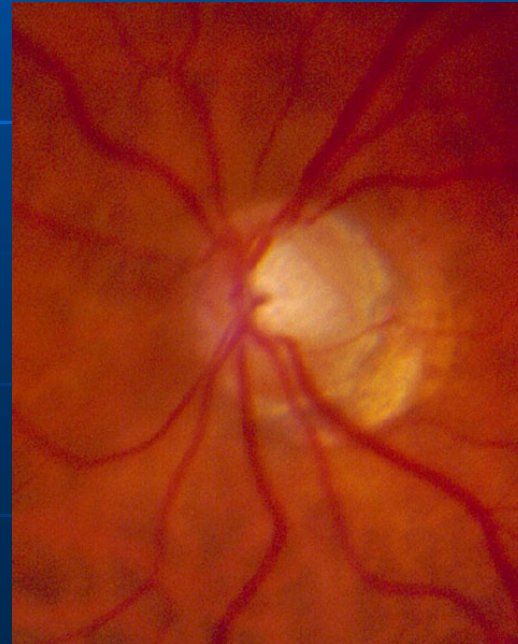
Normal optic discs vary in size, shape and cup size

Discs usually but not always have cups



Cupping from glaucoma has certain features:

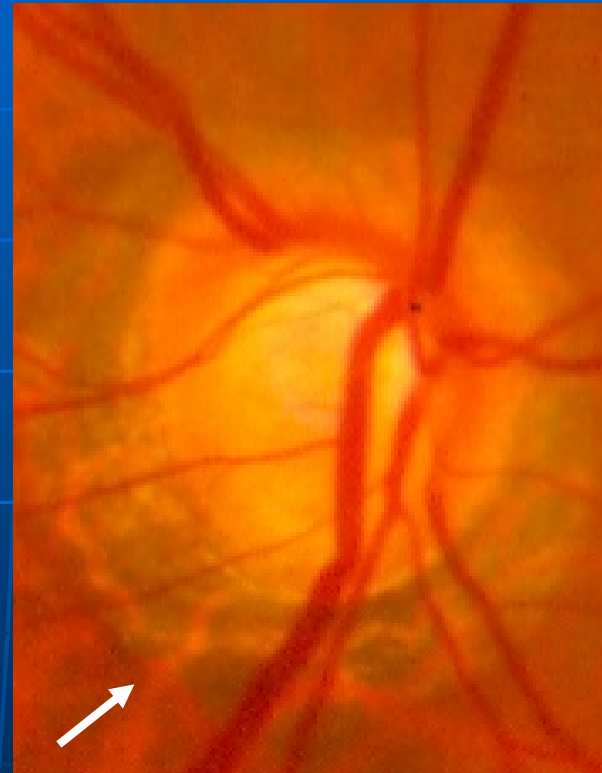
- More pronounced
- Uneven – the remaining nerve tissue thickness varies at different clock hours
- Symmetry between the two eyes is lost



Glaucoma disc cupping:

- Other specific signs:

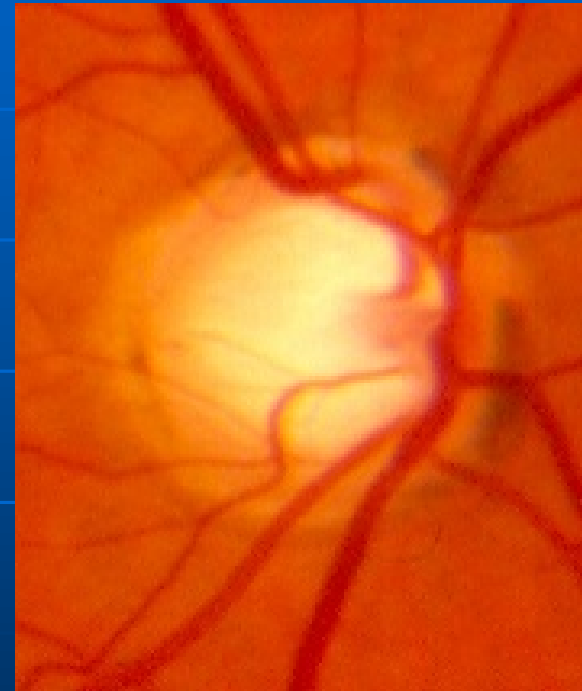
- notching



Glaucoma disc cupping:

- Other specific signs:

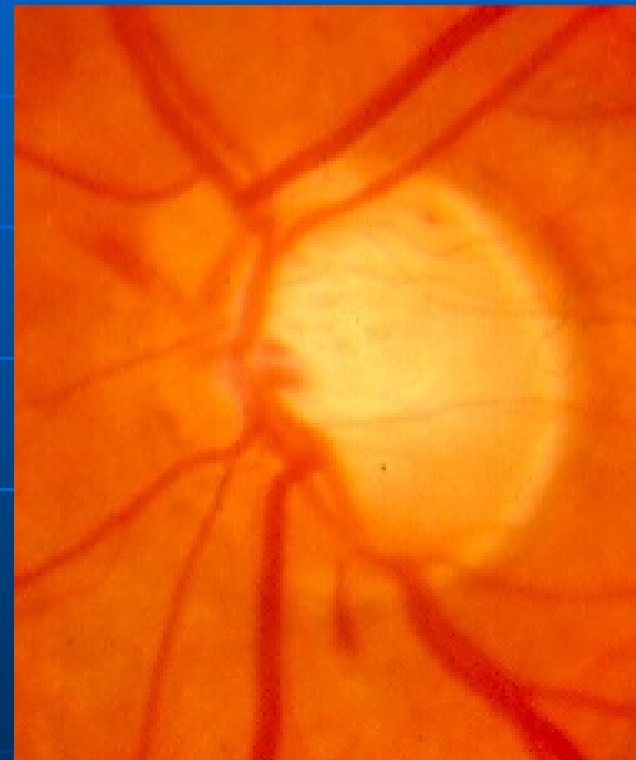
- baring of blood vessels
- under-mining



Glaucoma disc cupping:

- Other specific signs:

- Disc haemorrhages





Normal visual field

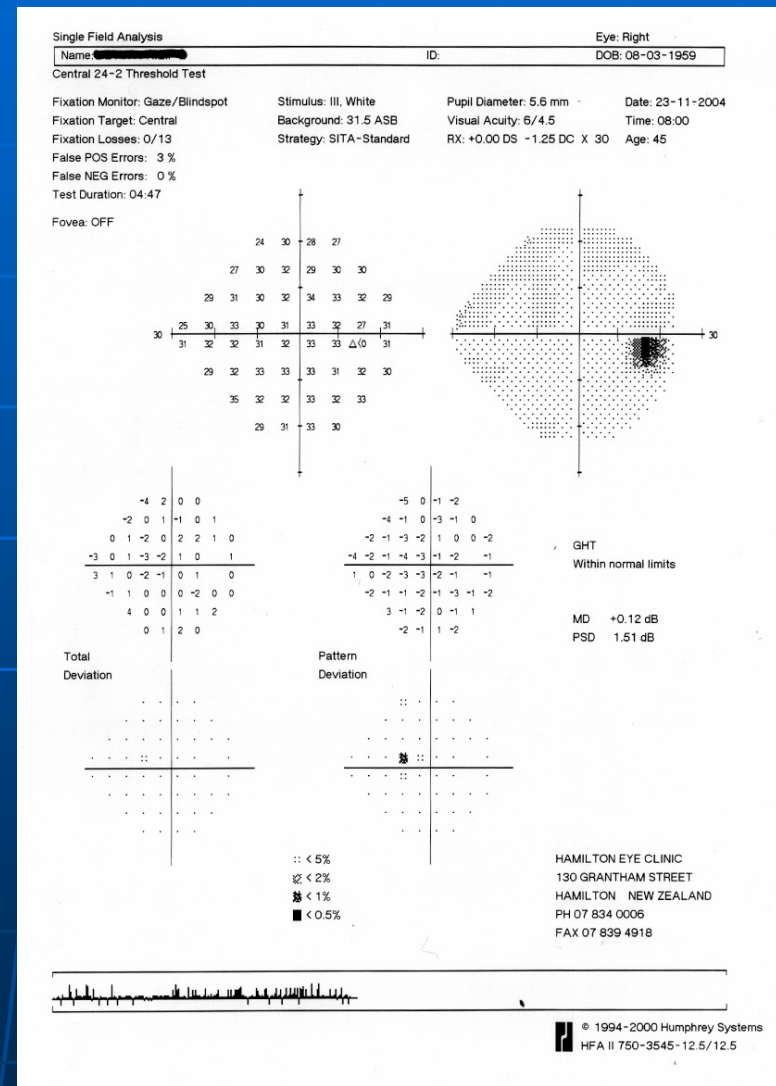
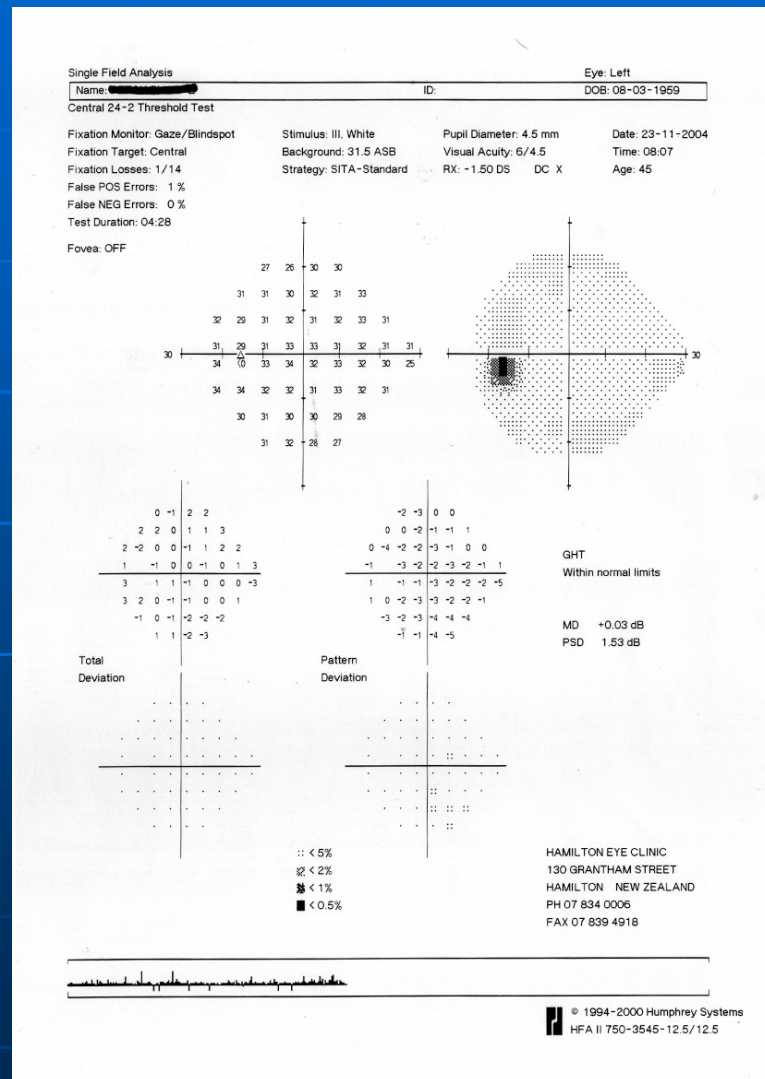


Abnormal visual field

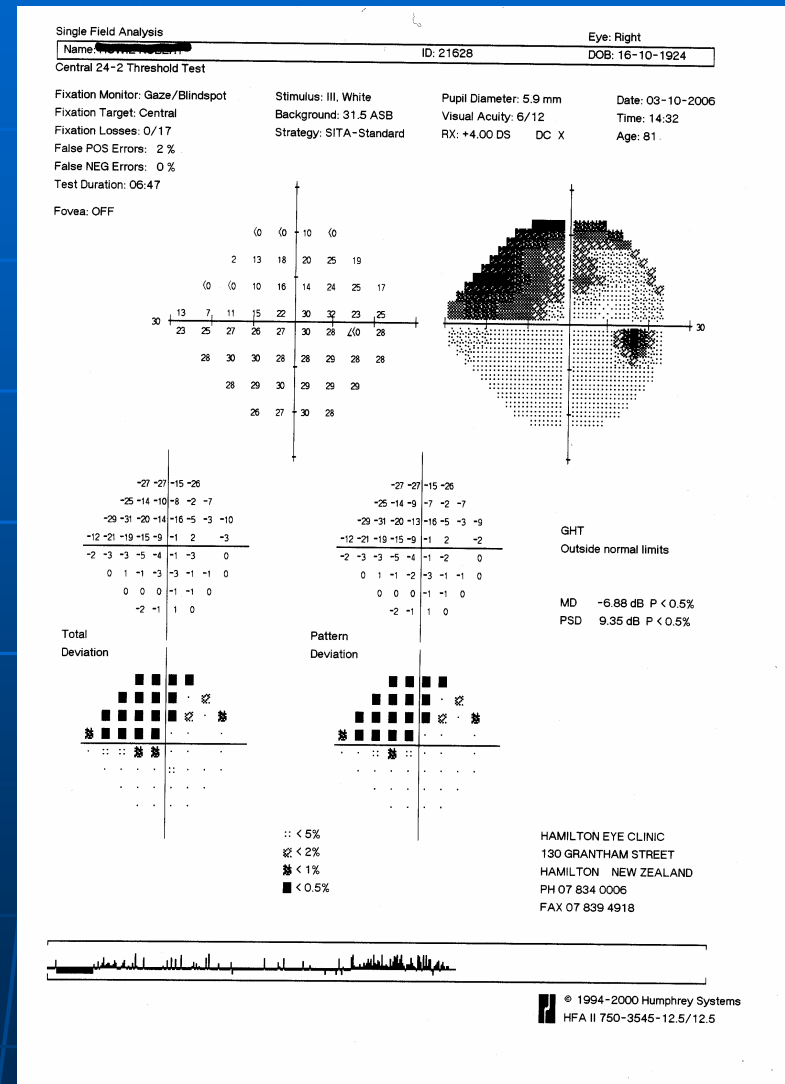
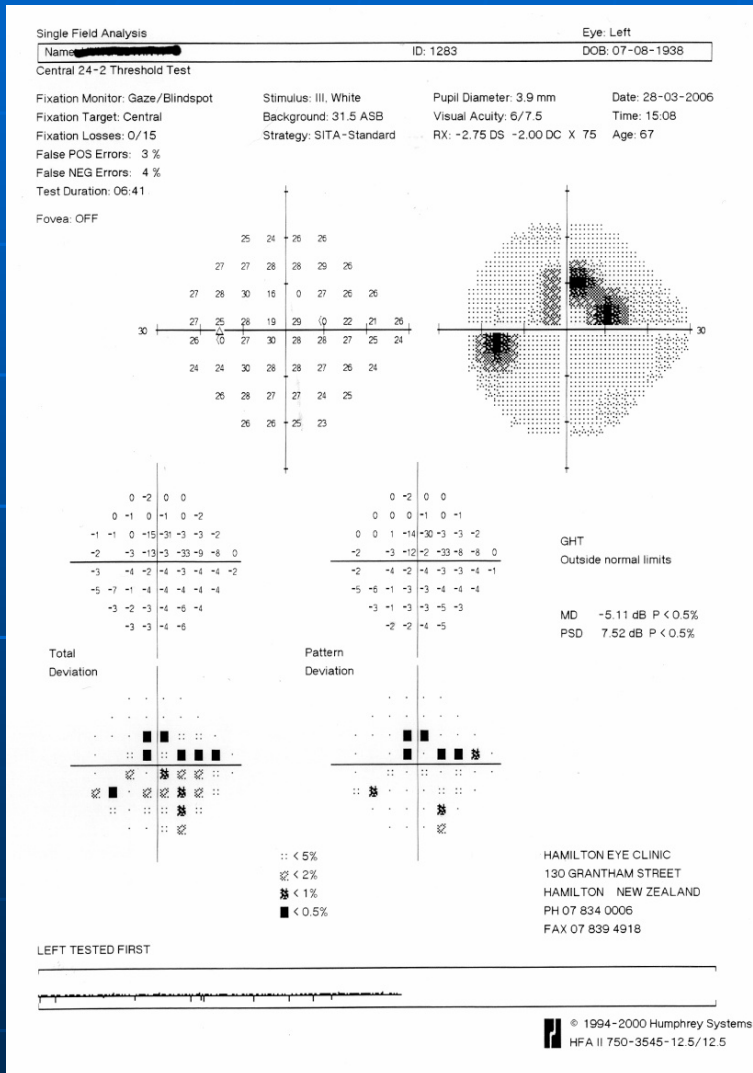


GLAUCOMA - STAGE ONE

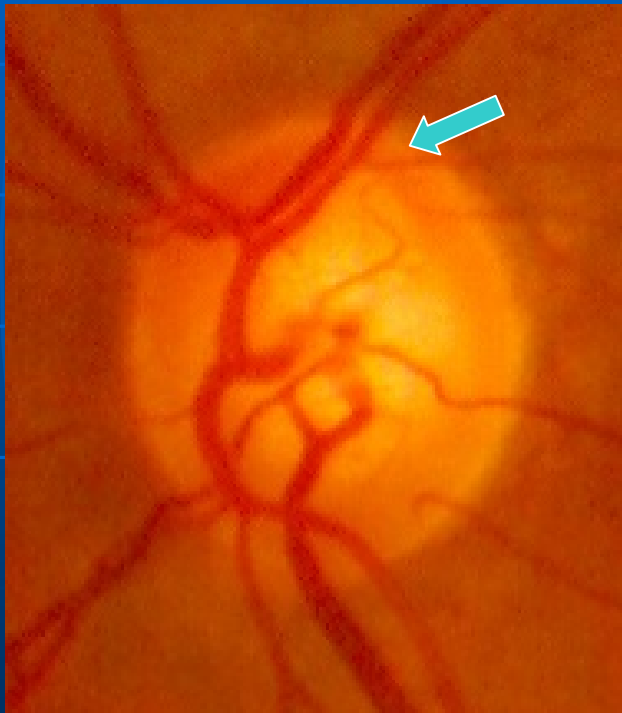
Normal visual field test



Early field loss

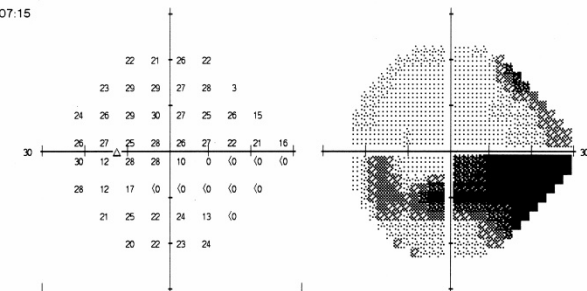


Moderate field loss

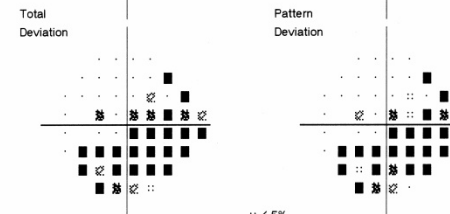


Single Field Analysis
 Name: [REDACTED] ID: 28794 Eye: Left
 Central 24-2 Threshold Test
 Fixation Monitor: Gaze/Blindspot Stimulus: Ill. White Pupil Diameter: 5.0 mm Date: 08-12-2005
 Fixation Target: Central Background: 31.5 ASB Visual Acuity: 6/6 Time: 13:32
 Fixation Losses: 0/17 Strategy: SITA-Standard RX: +2.25 DS DC X Age: 83
 False POS Errors: 2 %
 False NEG Errors: 6 %
 Test Duration: 07:15

Fovea: OFF



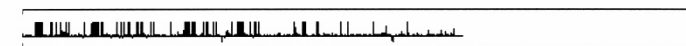
GHT
 Outside normal limits
 MD -11.23 dB P < 0.5%
 PSD 12.96 dB P < 0.5%



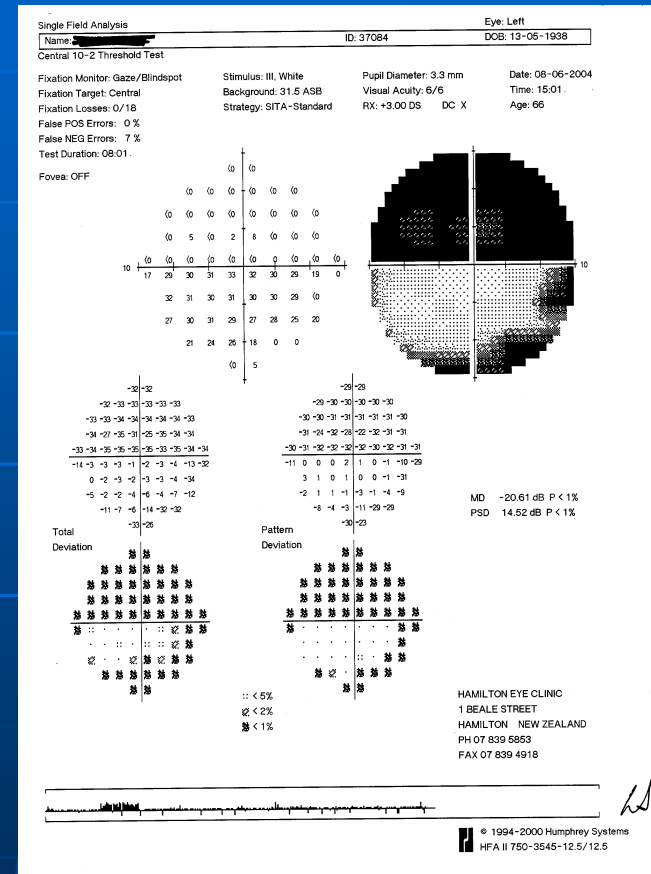
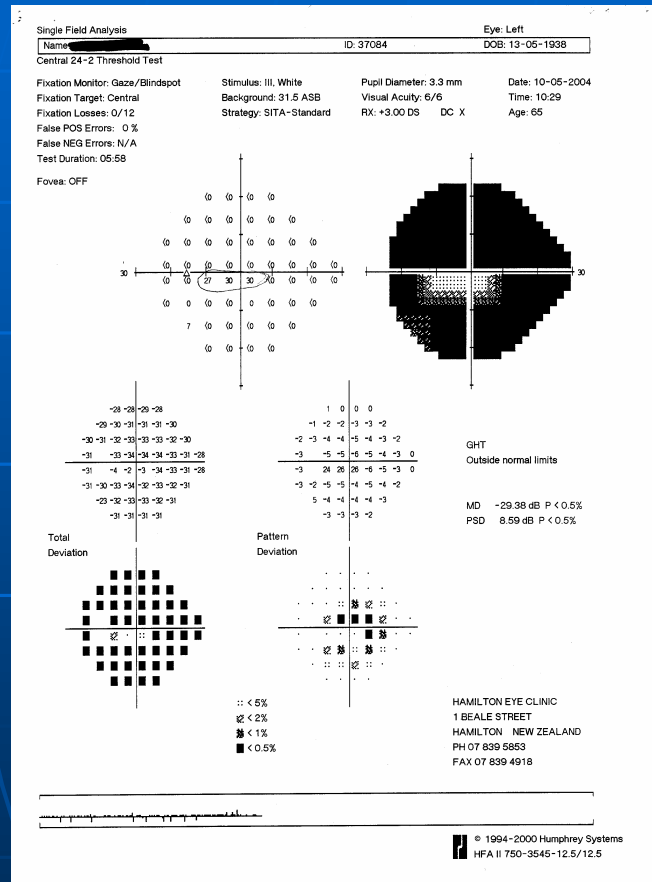
:: < 5%
 < 2%
 < 1%
 < 0.5%

HAMILTON EYE CLINIC
 130 GRANTHAM STREET
 HAMILTON NEW ZEALAND
 PH 07 834 0006
 FAX 07 839 4918

LID TAPED.



Advanced field loss



- Left eye fields – standard, and central “10-2”

Glaucoma: the Sneak Thief of Sight



- Patients only notice loss of vision late in the disease
- This is one of the major reasons people still go blind from glaucoma

Why is vision loss from glaucoma not recognised sooner?

- Vision loss occurs very slowly,
- Usually the peripheral vision is lost first
- Rather than getting messages in the optic nerve that vision is poor, *the brain is just not getting the messages*



- It's a bit like someone intercepting your mail –
you don't know there is a problem till
your TV is repossessed

- In 99 times out of 100,
glaucoma is detected in routine eye
examination

No Symptoms

Glaucoma NZ Recommends:

- Everyone should have an eye examination at the age of 45

Then every 5 years until 60

Then 3 yearly

$$45 + 5$$

Those with risk
factors for glaucoma
need more frequent
examinations

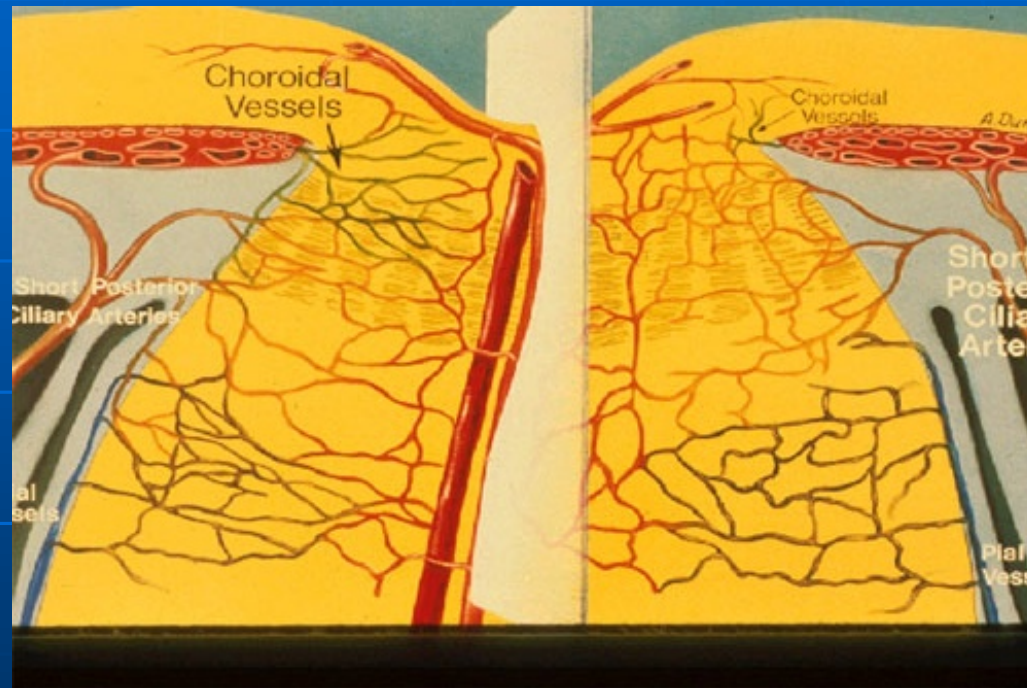
What causes optic disc damage?

1. Raised eye pressure
2. Blood Supply
3. Structure
4. Apoptosis - Cell death

Raised eye pressure:

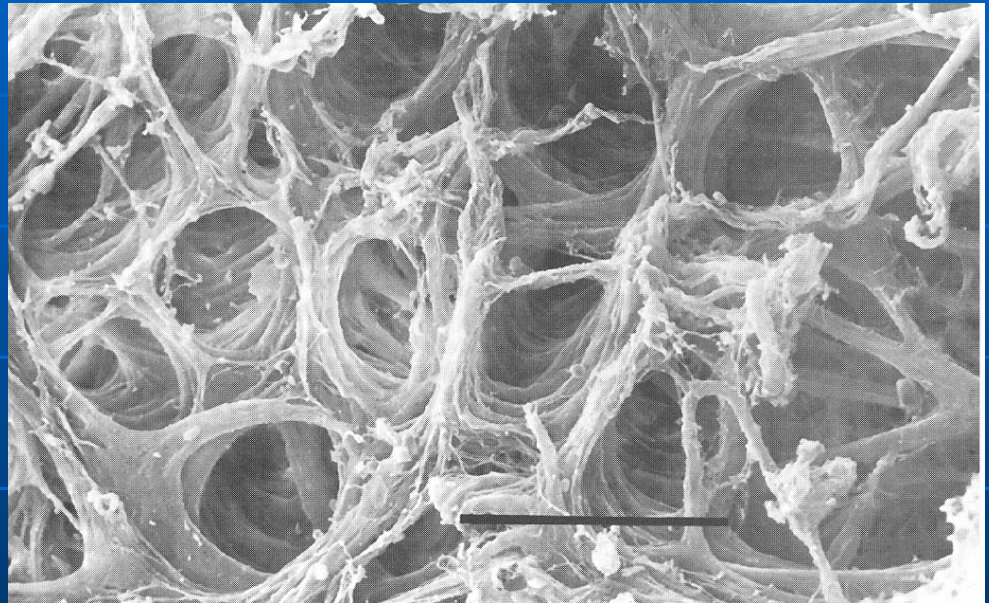
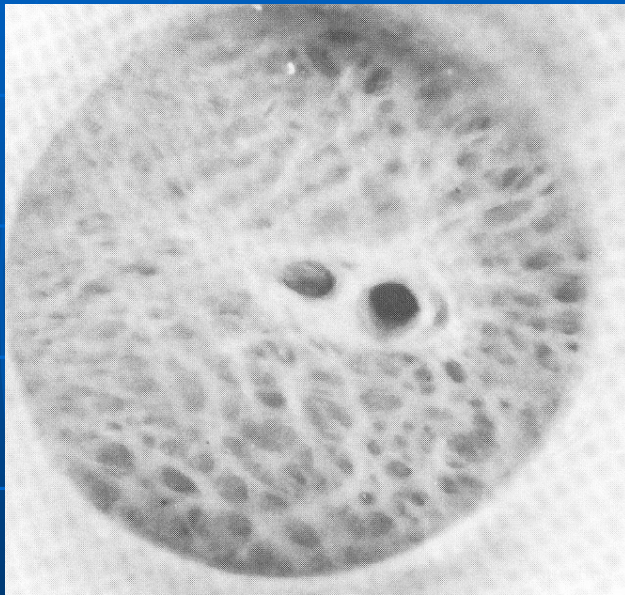
- The whole problem in many cases of glaucoma
- A relevant factor in almost all cases
- *At present, lowering eye pressure is the only way we can treat glaucoma*

Other factors we believe involved in glaucoma:



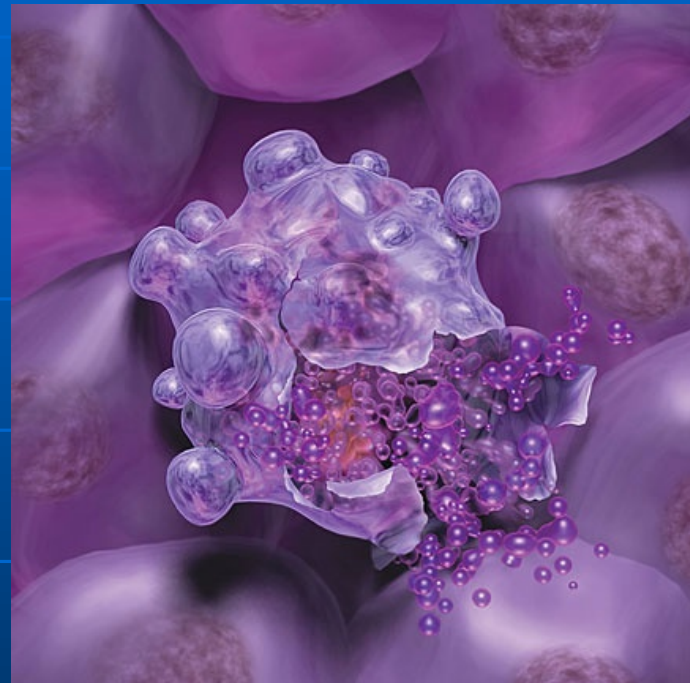
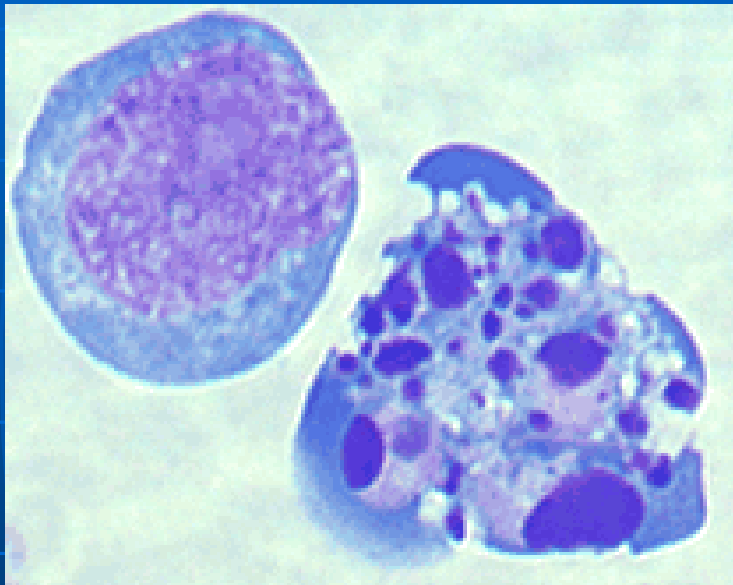
- Problems with blood supply to the optic disc

Other factors we believe involved in glaucoma:



Weakness of the structural support of the disc

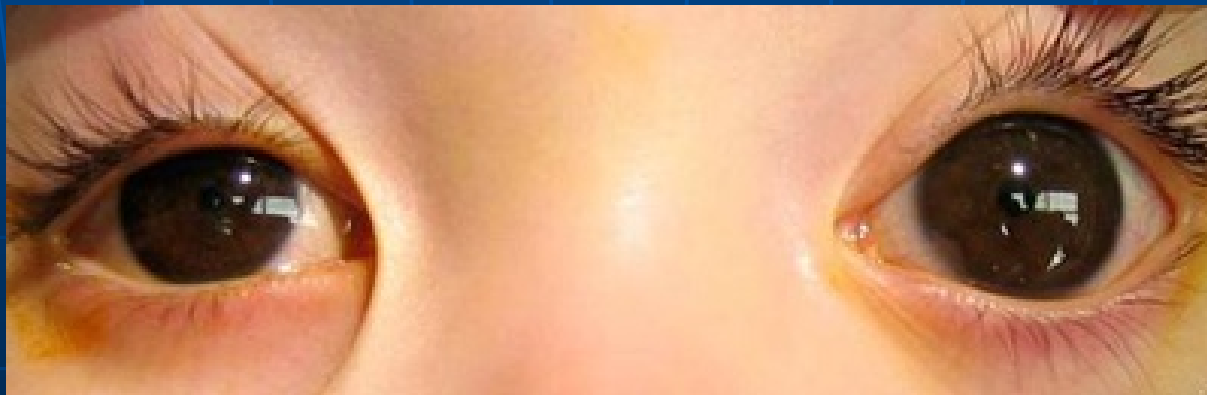
Other factors we believe involved in glaucoma:



“Apoptosis” – self-destruction of the optic nerve

Types of glaucoma

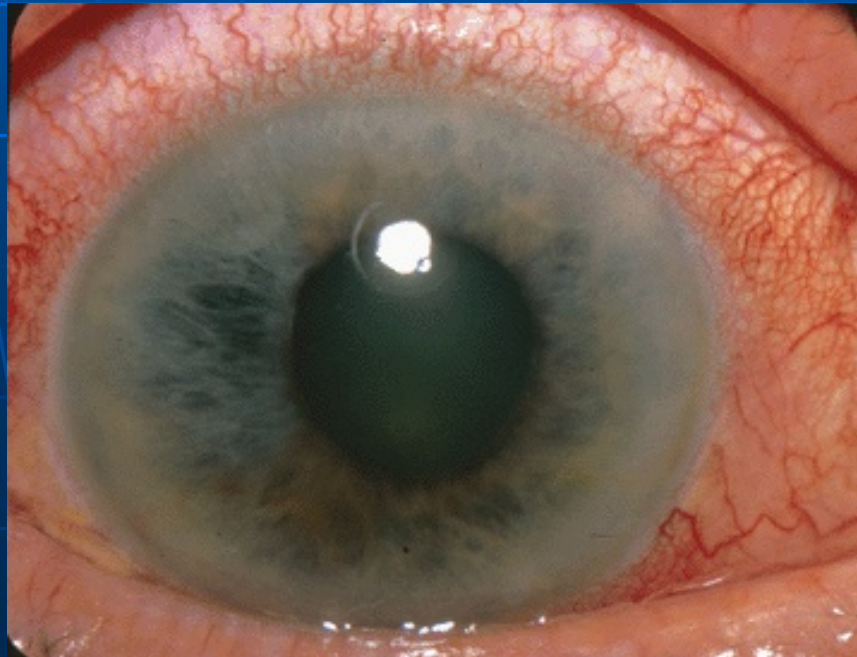
- There are many types of glaucoma
- Glaucoma can occur in babies, children, young adults and older
 - much more common as we get older



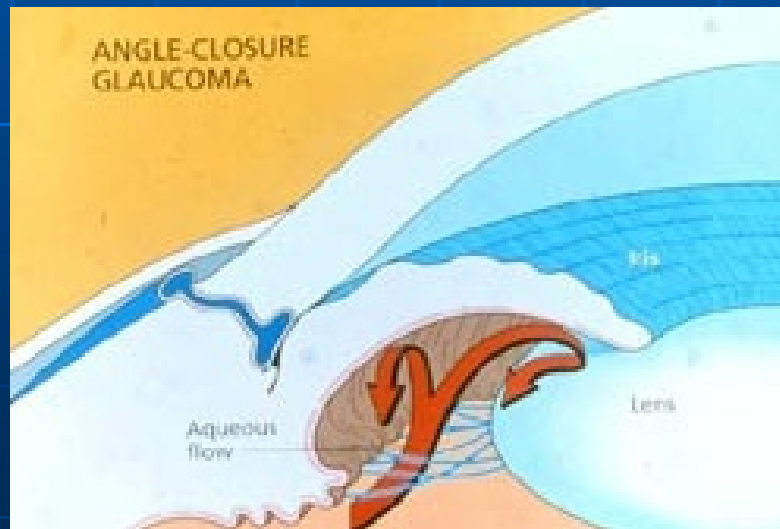
- Glaucoma can be present by itself (“Primary”) or (“Secondary”)



- Glaucoma can occur suddenly and very severely (acute glaucoma)
- Or very gradually (chronic glaucoma – much more common)



- Glaucoma is divided into two broad categories:
 - Open angle glaucoma
 - Closed angle glaucoma

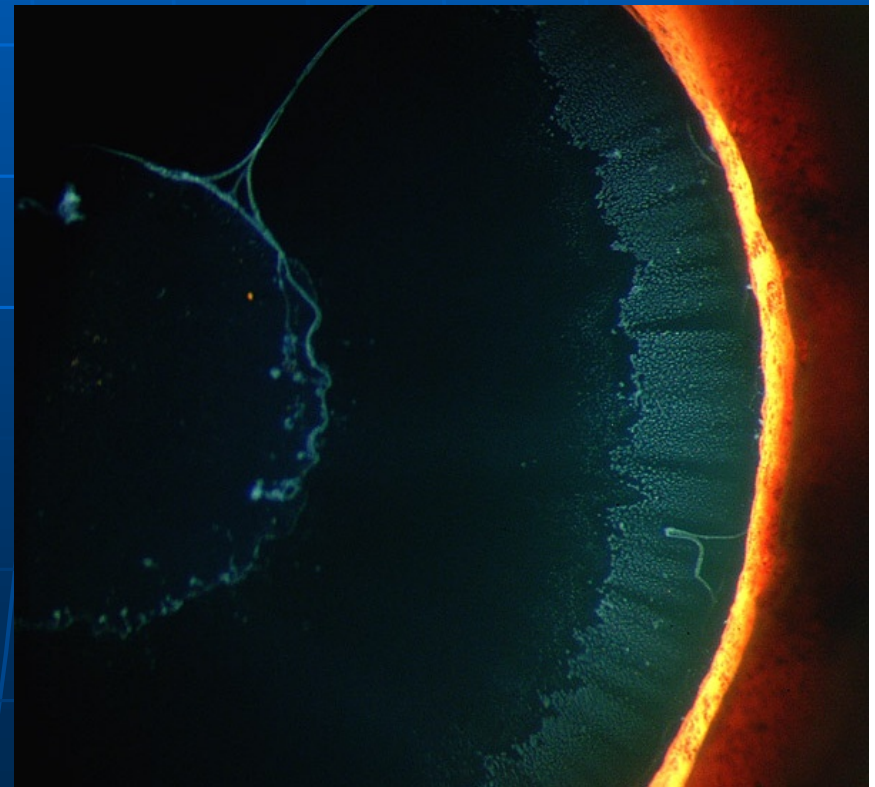


But the vast majority of people have a type of *chronic glaucoma*

which by and large is treated in the same way

Some types of Chronic Glaucoma

- Primary Open Angle Glaucoma
- Low Pressure Glaucoma (LTG)
- Pseudoexfoliation



Who is at risk of
developing glaucoma?

Two types of risk factors for glaucoma

1. Those we all can be aware of
2. Those that can only be found during an eye examination



Risk factors we all can identify

- a) Age
- b) Having glaucoma in your family
- c) Being very myopic
- d) Previous significant eye injury
- e) Being on steroid therapy
e.g. prednisone tablets

Age and prevalence of glaucoma (Blue Mountains Eye Study)

- 1.3% of those in their sixties had glaucoma
- 4.7% in their seventies
- 11.4% of those 80 years and over

There are many risk factors that can be picked up by an eye examination

- For example:
 - High eye pressure
 - Narrow angles
 - Disc cupping
 - Loss of visual field
 - Other eye disease likely to cause glaucoma
 - Thin corneal thickness

However, glaucoma is a common condition...

- You don't have to have a risk factor like family history to get glaucoma
- After reaching 45 we *all* need regular glaucoma checks

How do we treat
glaucoma?

At present, the only way we
can treat chronic glaucoma
is by lowering the eye
pressure

Pressure-lowering treatments:

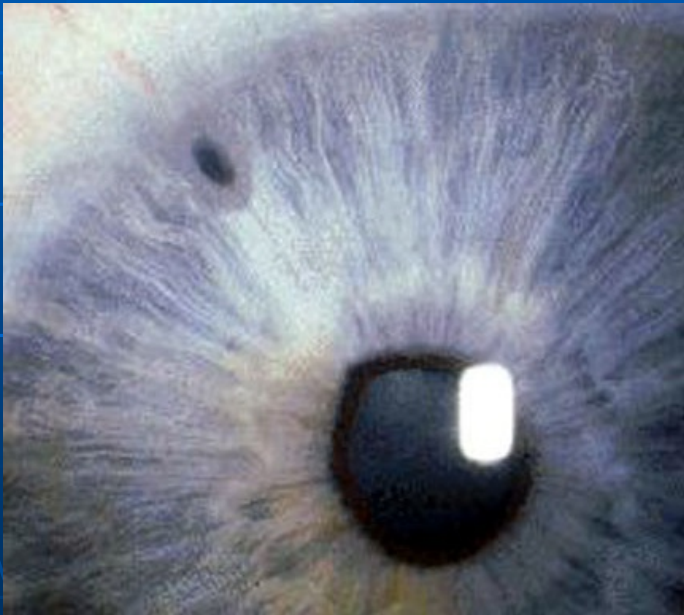
1. Eye-drops
2. Tablets
3. Laser
4. Surgery



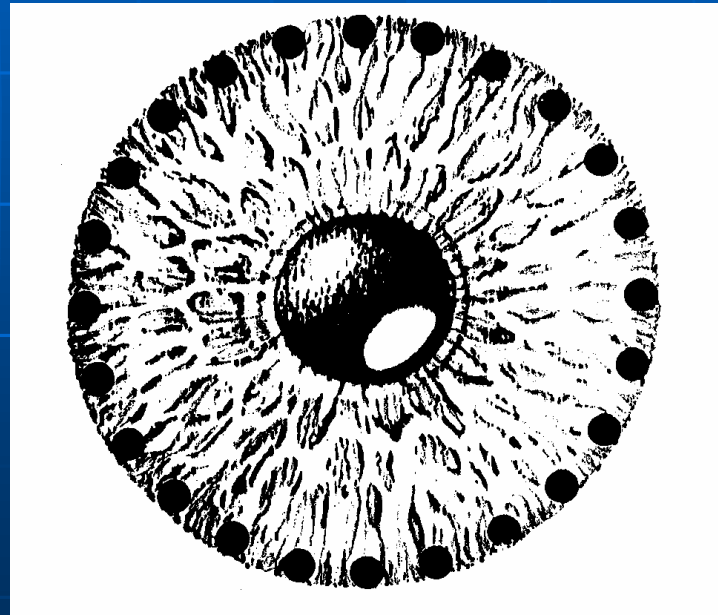
Laser for glaucoma

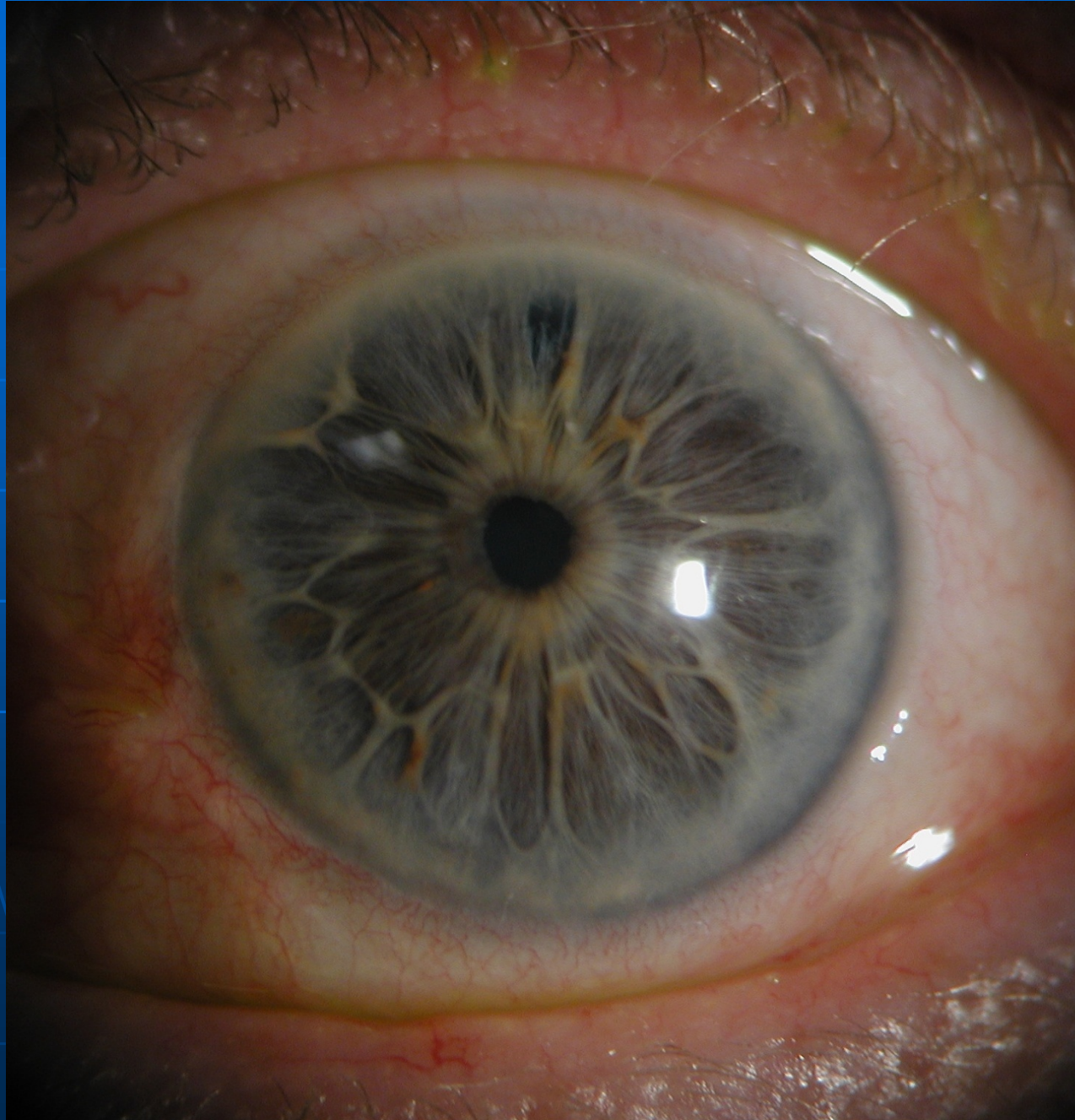
- Laser iridotomy
- Laser iridoplasty
- Laser trabeculoplasty
- Laser cyclo-destruction

Laser iridotomy



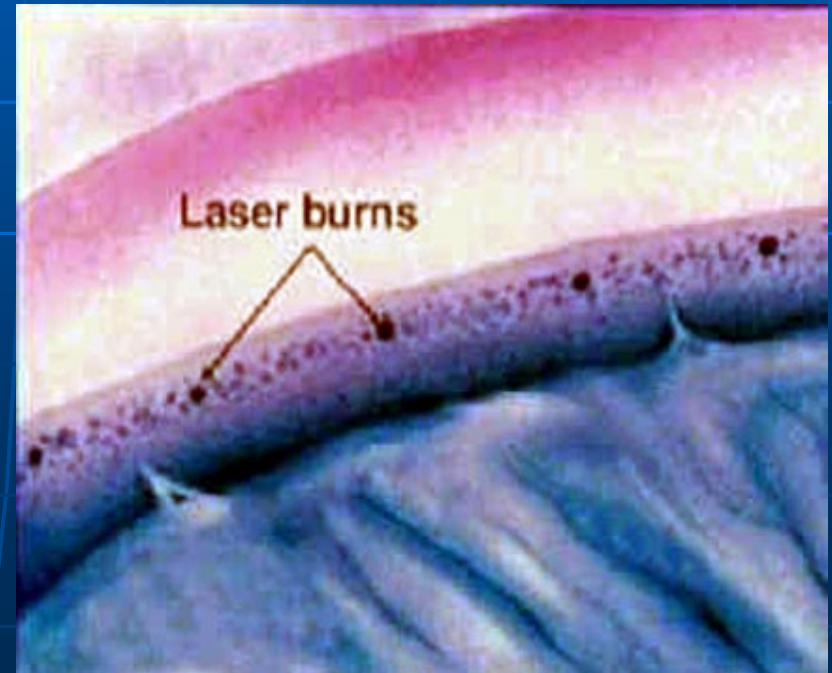
Laser iridoplasty

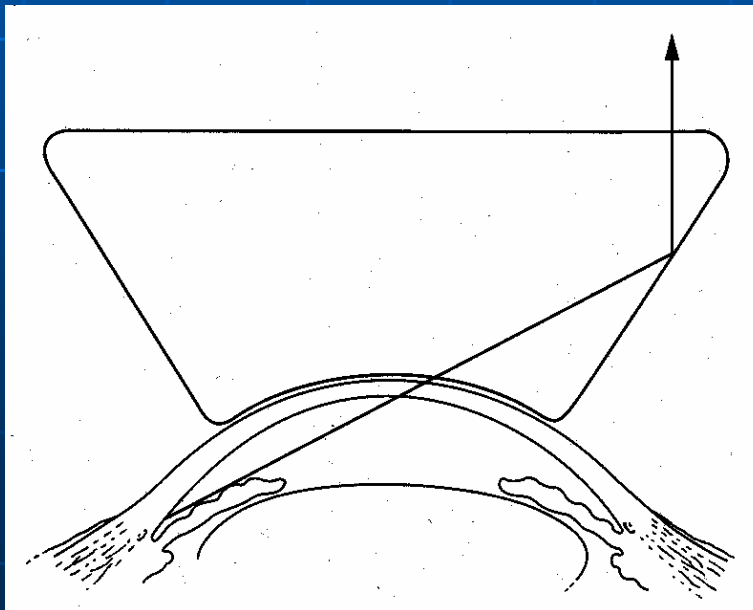
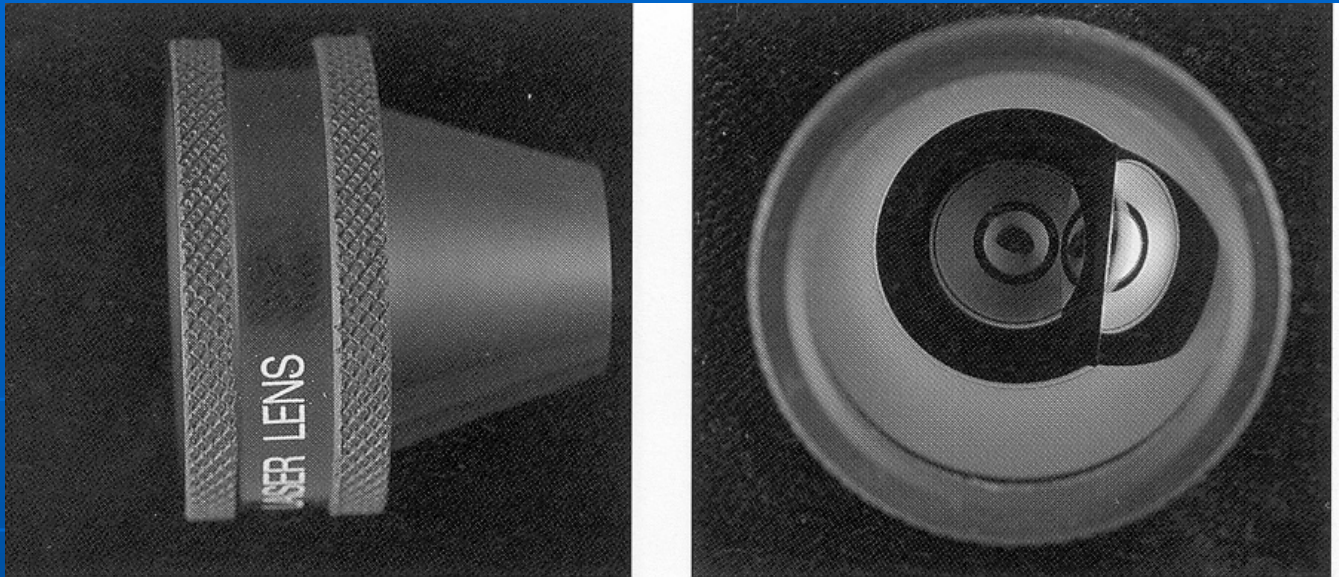




Laser trabeculoplasty *pluses*:

- Easy to perform for the surgeon
- Easy to have for the patient
- Very safe
- Can lower eye pressure significantly for many years
- Eye-drops can be avoided





Laser trabeculoplasty *minuses*:

- Often doesn't work
- May just lower pressure a little.
- May only lower pressure for a limited period

Pressure-lowering treatments:

1. Eye-drops
2. Tablets
3. Laser
4. **Surgery**



Operations for glaucoma

- Two common procedures:
 1. Trabeculectomy
 2. Tube shunt, e.g. Molteno drain



Surgery first?

- Studies in Britain and USA have justified performing glaucoma surgery as the first treatment for glaucoma



Glaucoma surgery *pluses*:

- Successful surgery is the best treatment for glaucoma
 - e.g. eye pressure of 9, no eye drops needed, diffuse uninflamed drainage bleb
- Disadvantages of eye-drops:
 - Compliance
 - Cost
 - Complications

Glaucoma surgery *minuses*:

- Serious risks of surgery
- Common problems of surgery
 - Disturbed vision
 - Acceleration of cataract
 - Tear film disturbance
- Many visits - lots of eye-drops
- Blebs can get infected

But . . .

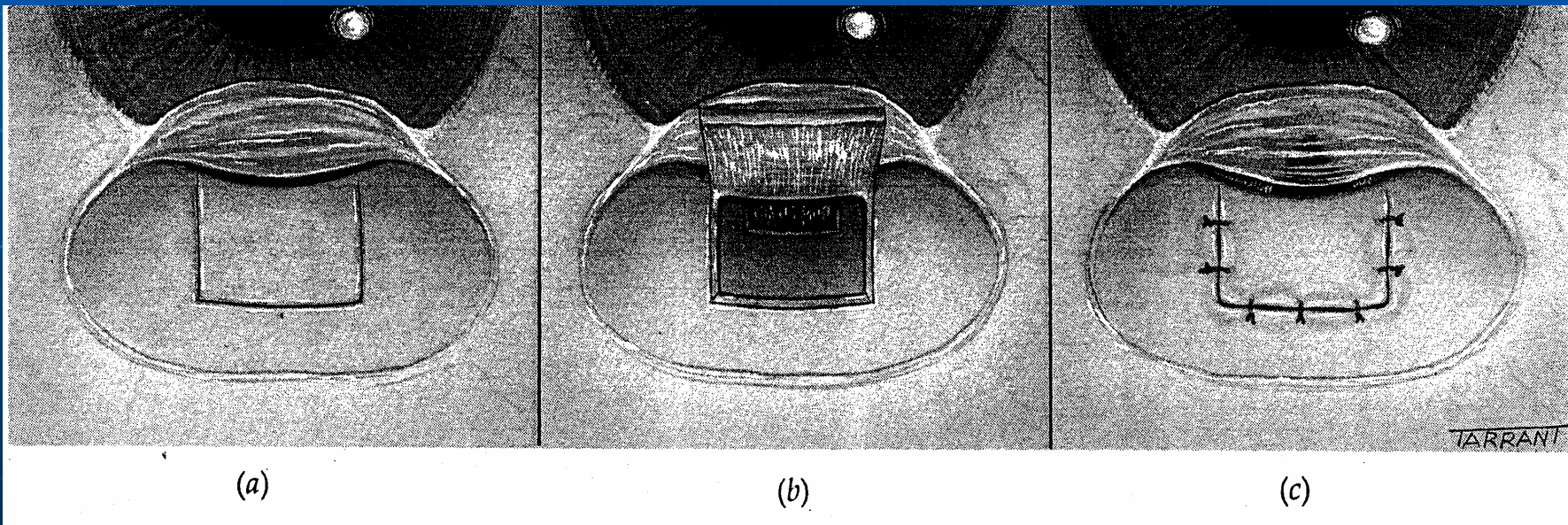
- Far, far more people have been made blind by glaucoma than by glaucoma operations

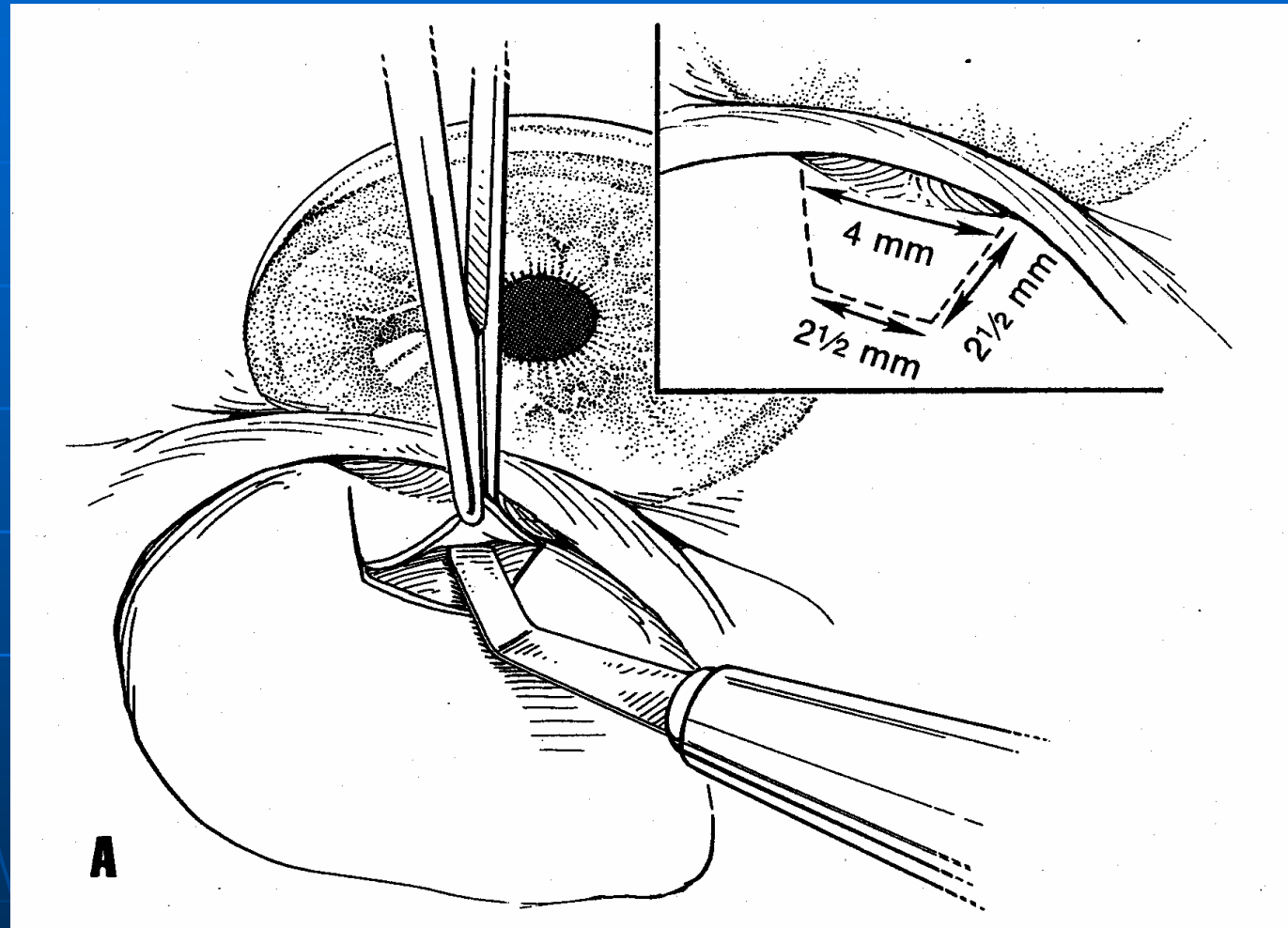
Trabeculectomy

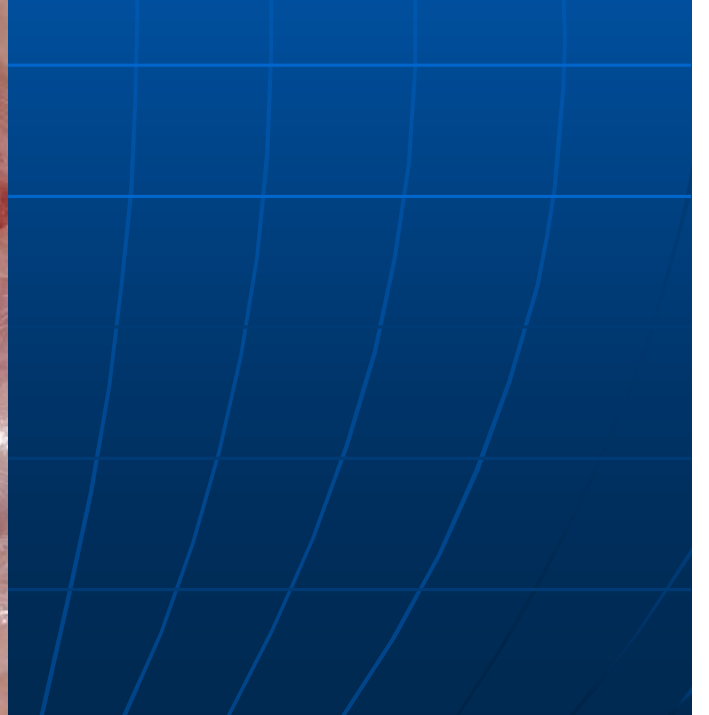
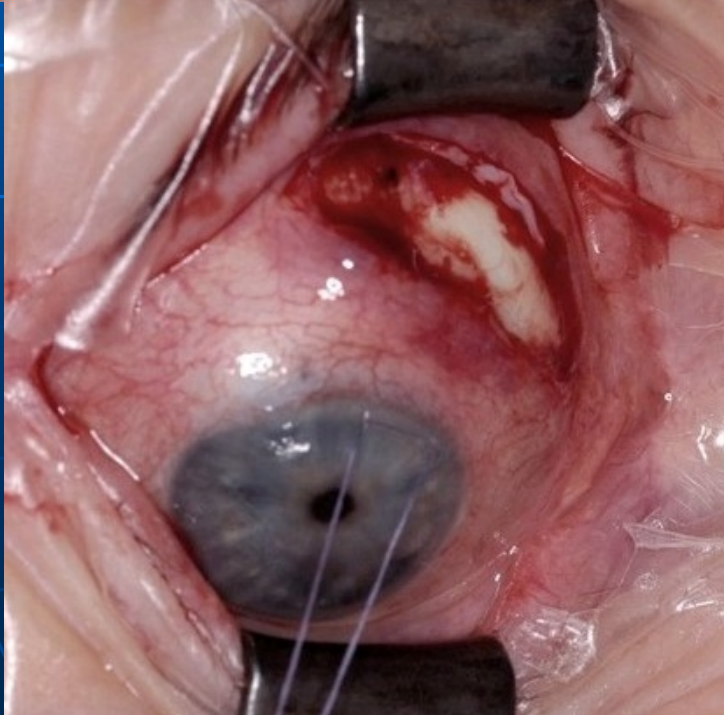
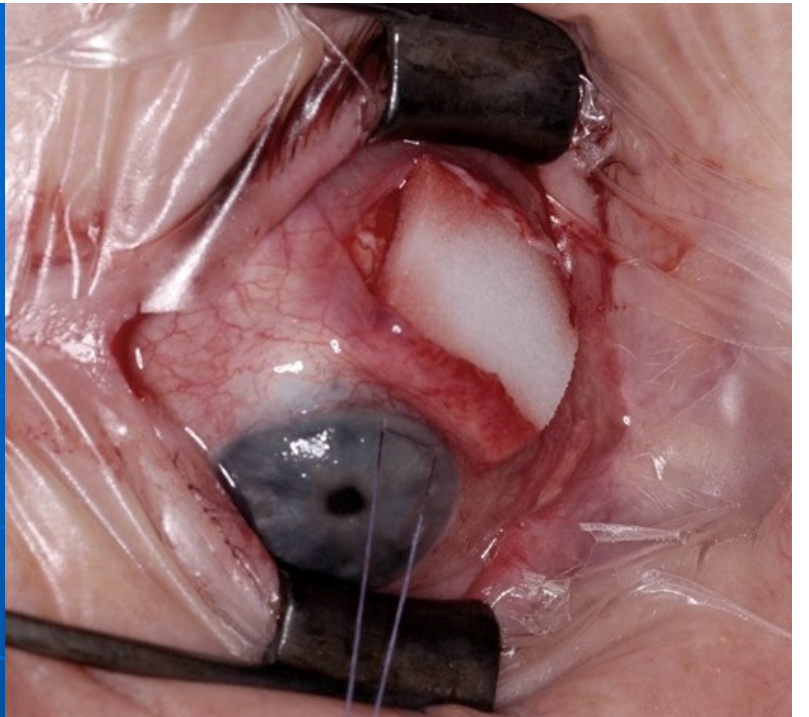
- The standard glaucoma operation since the 1960s
- Aim: to create a flap-valve still maintaining some eye pressure
- Sometimes anti-metabolite drugs like 5FU and mitomycin used

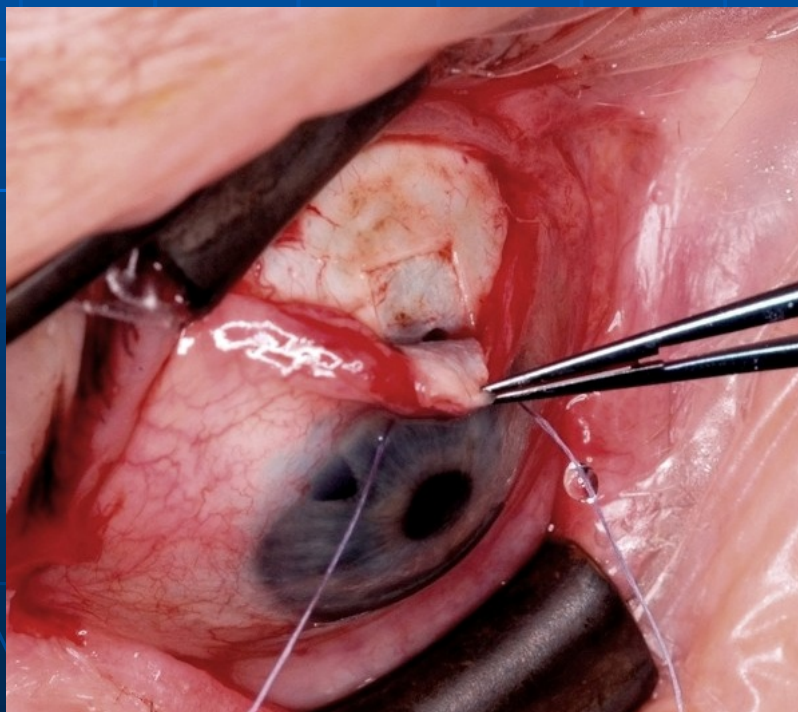
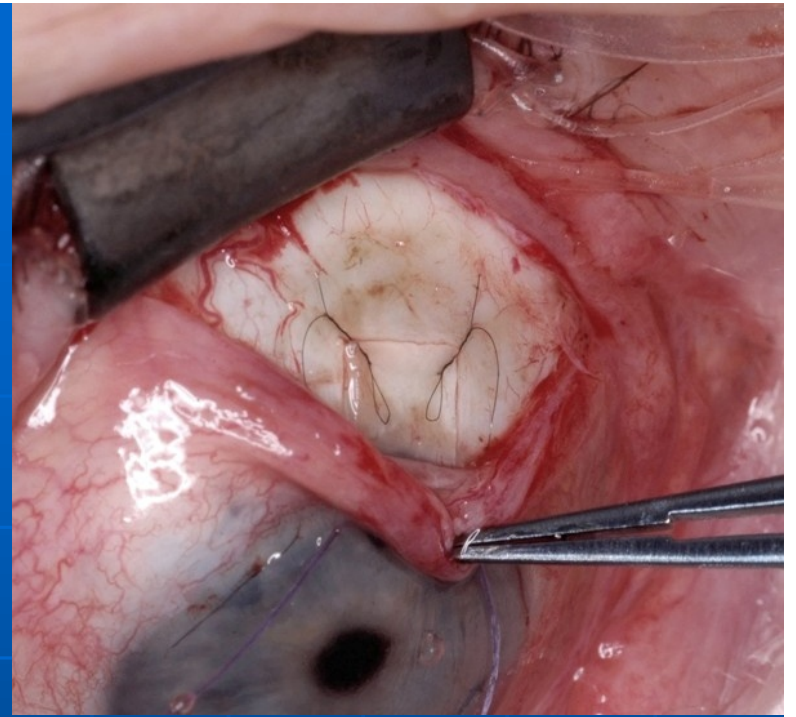
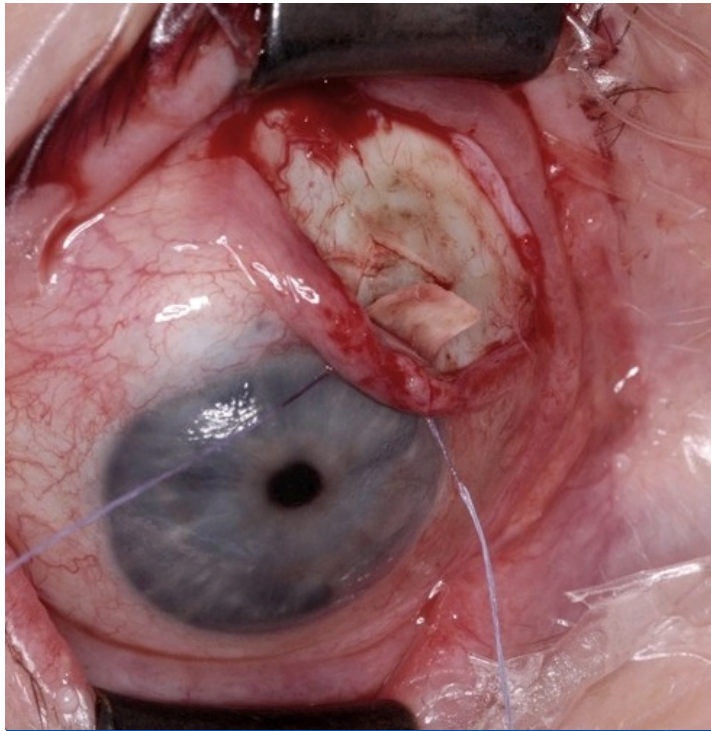
Trabeculectomy

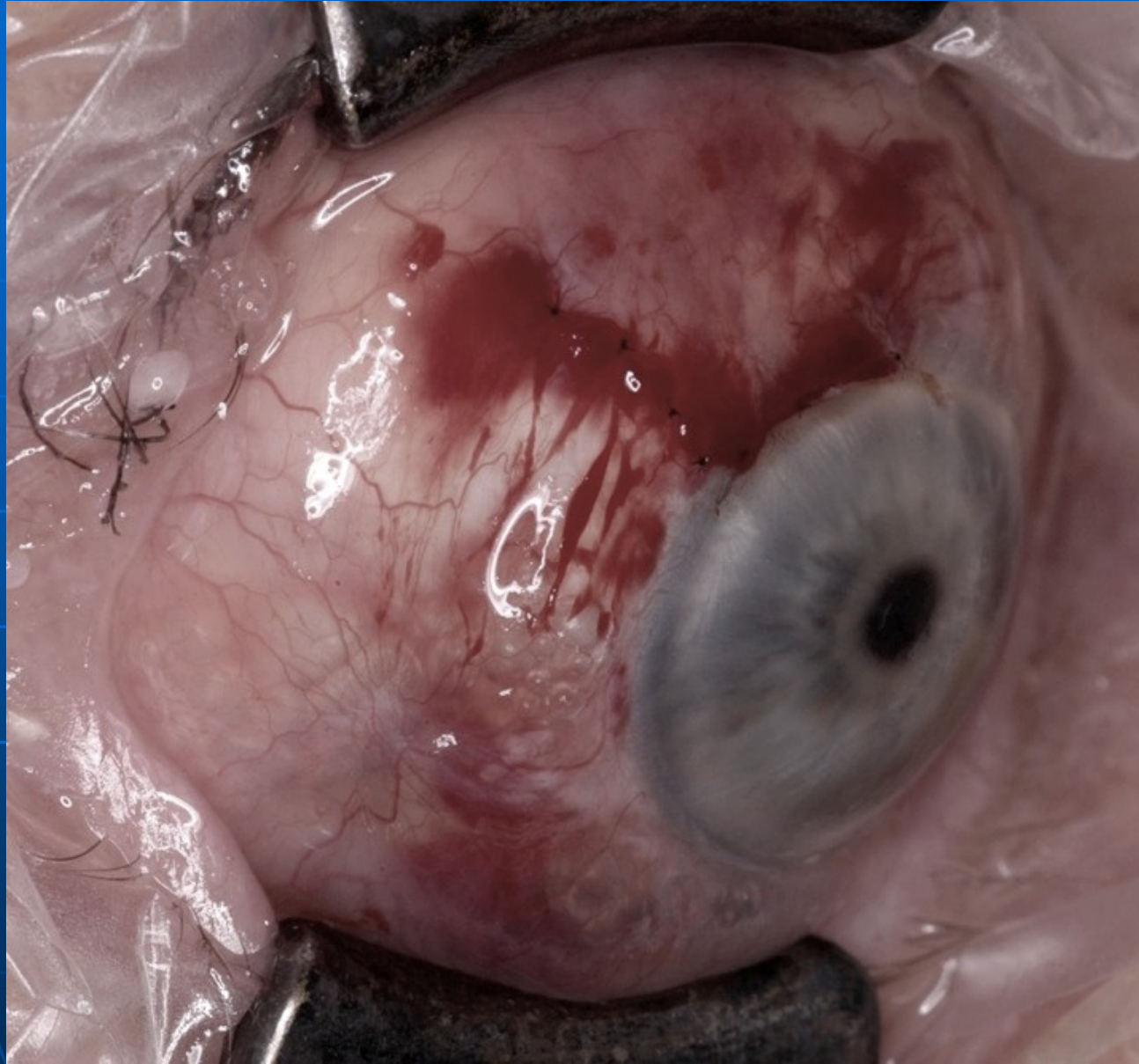
- Performed under the upper eyelid
- Many variations in technique

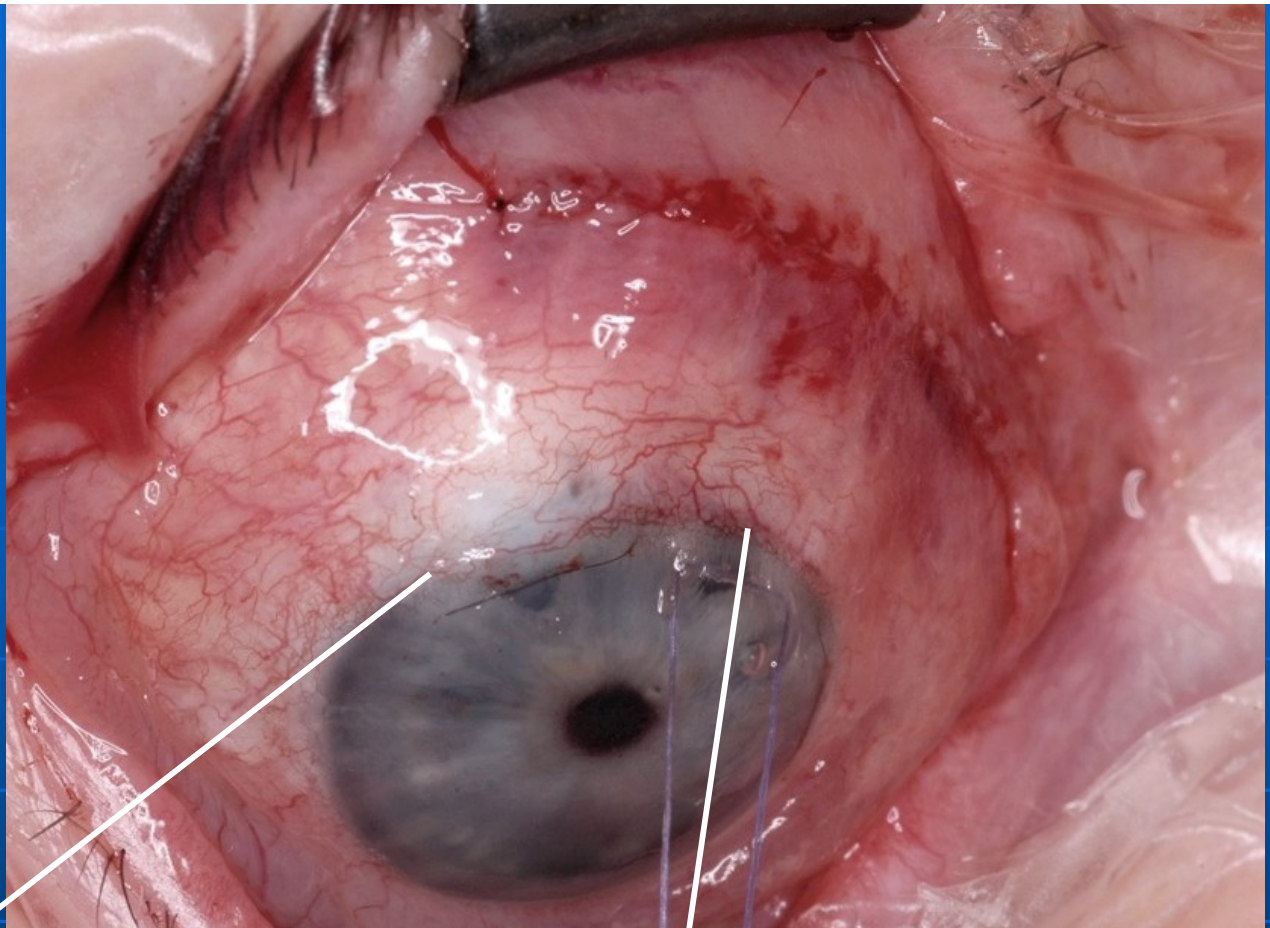






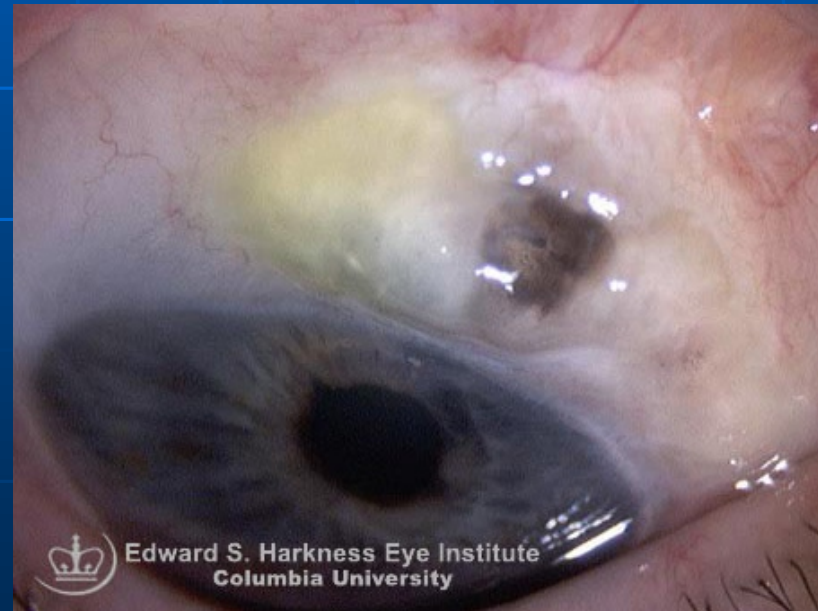
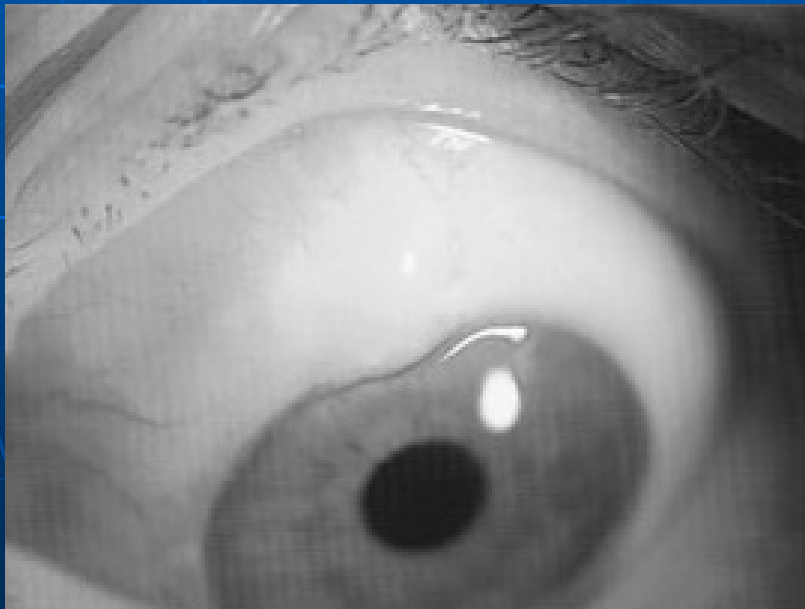
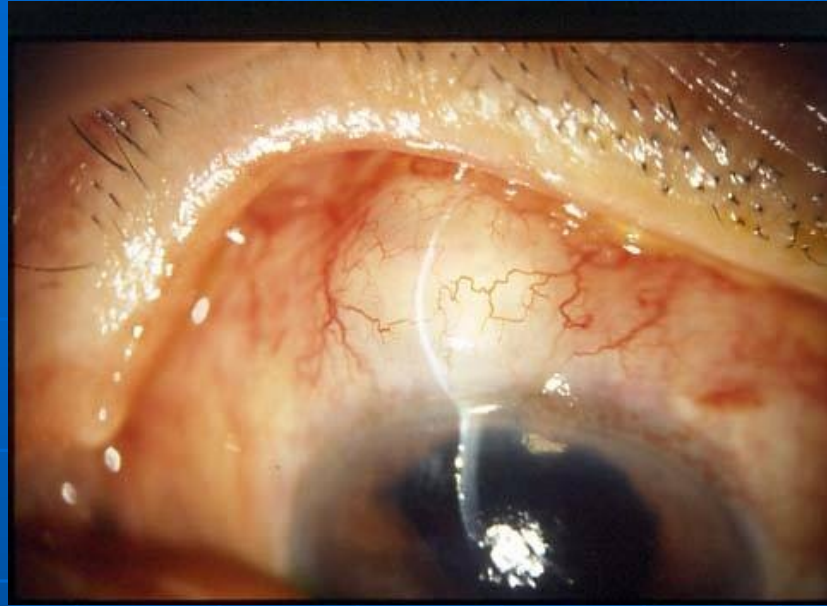






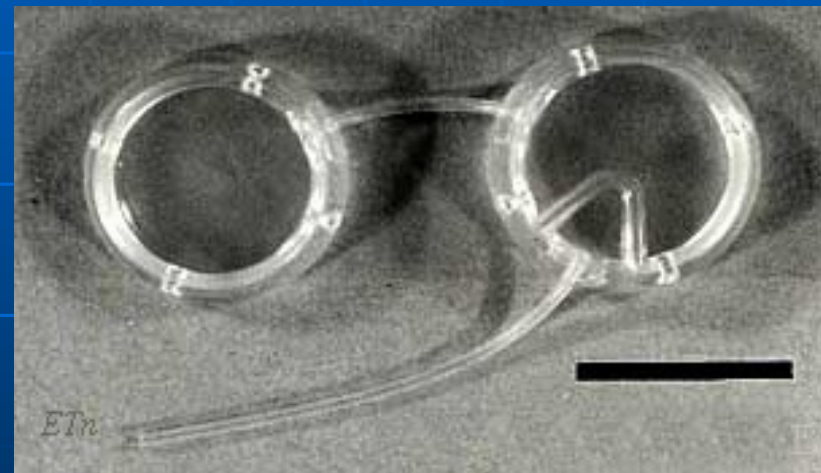
Old bleb

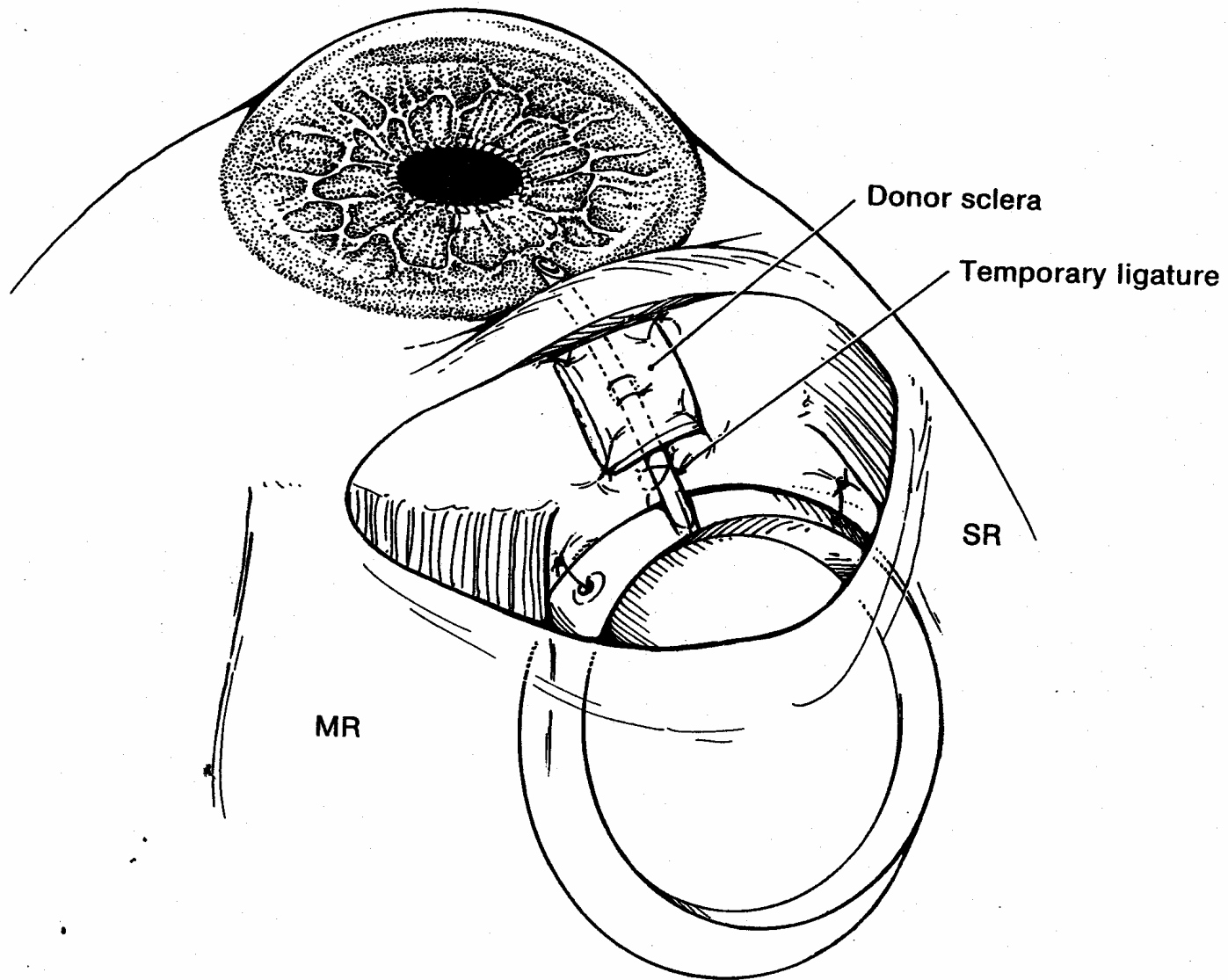
New bleb

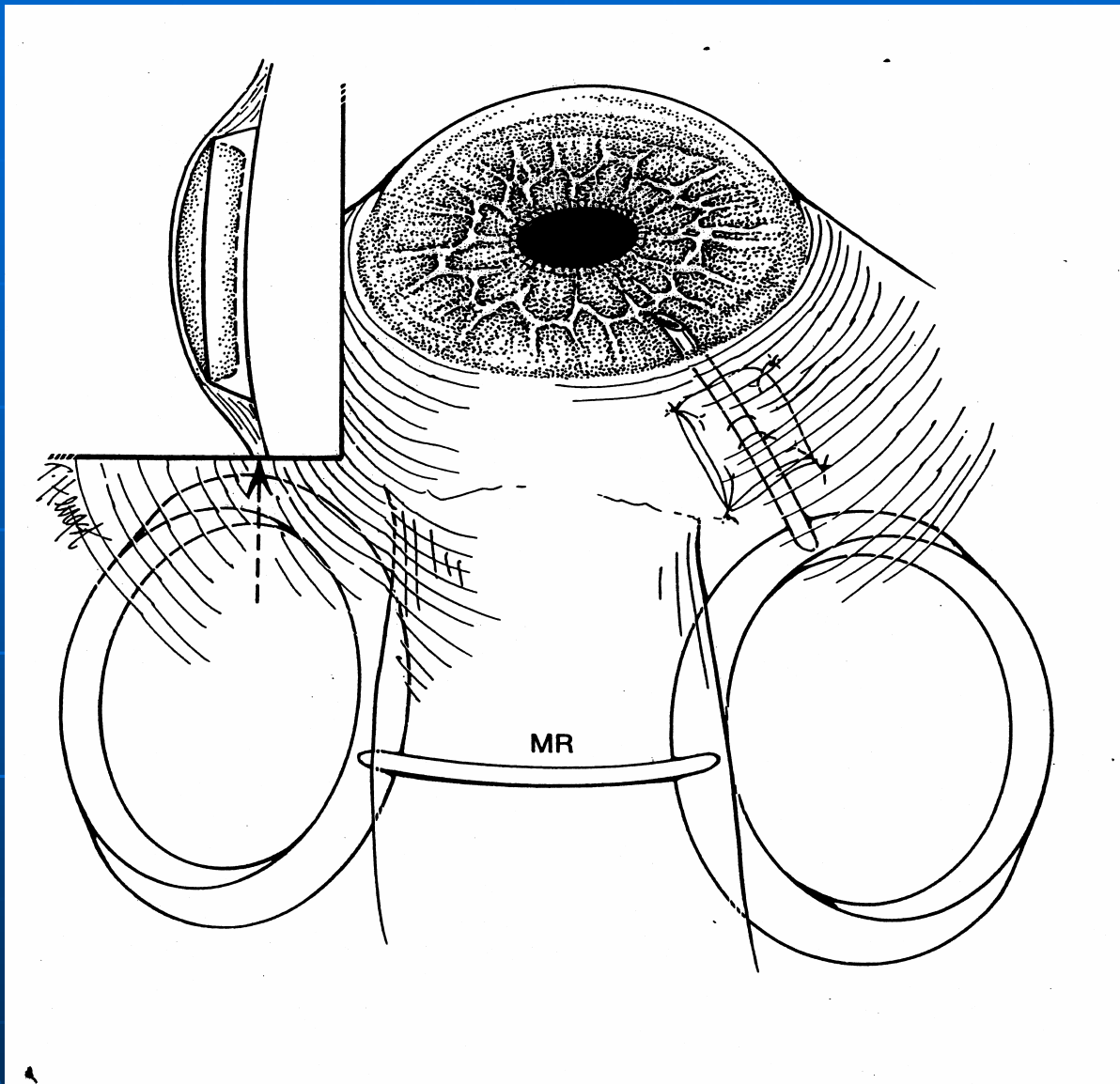


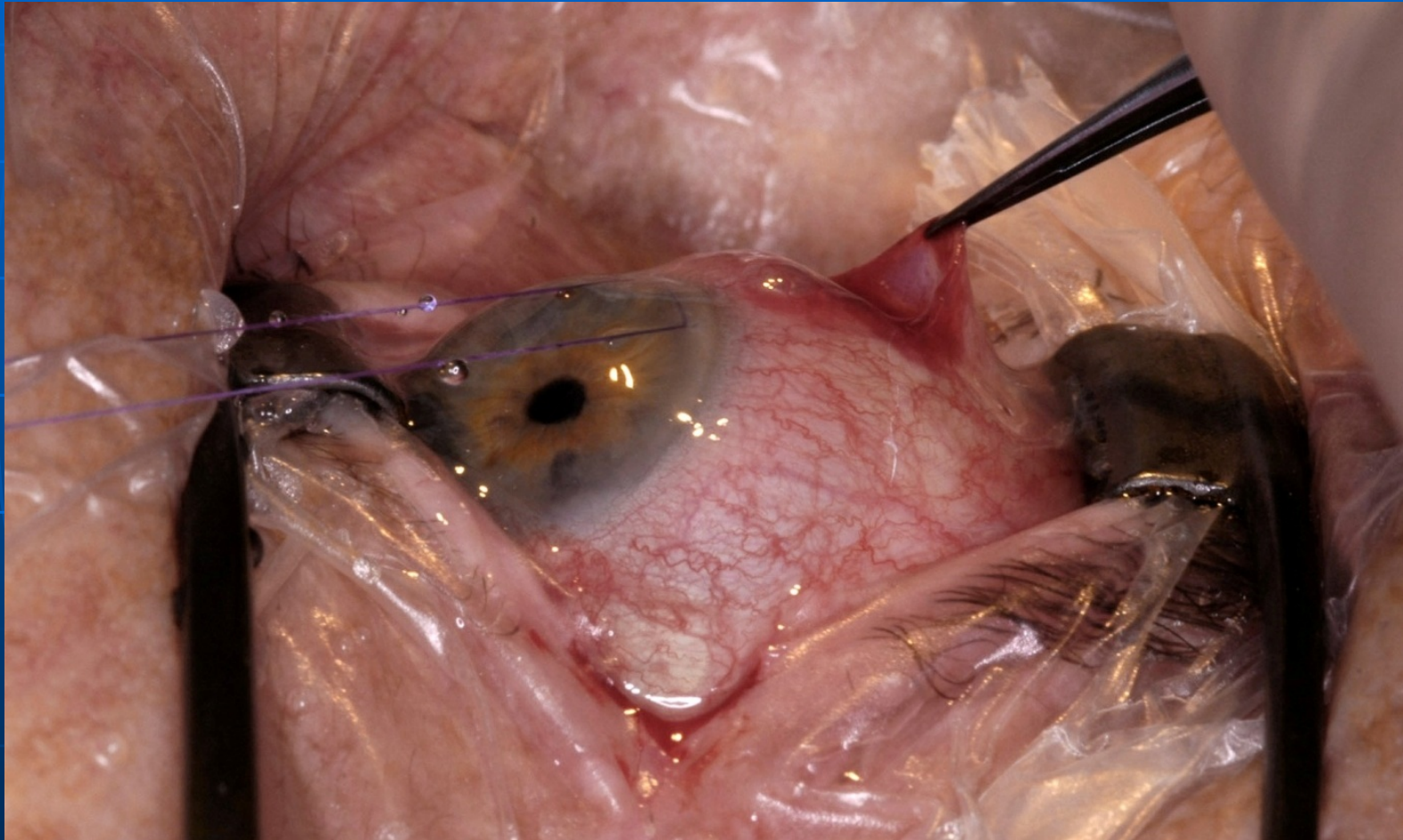
Molteno Drain

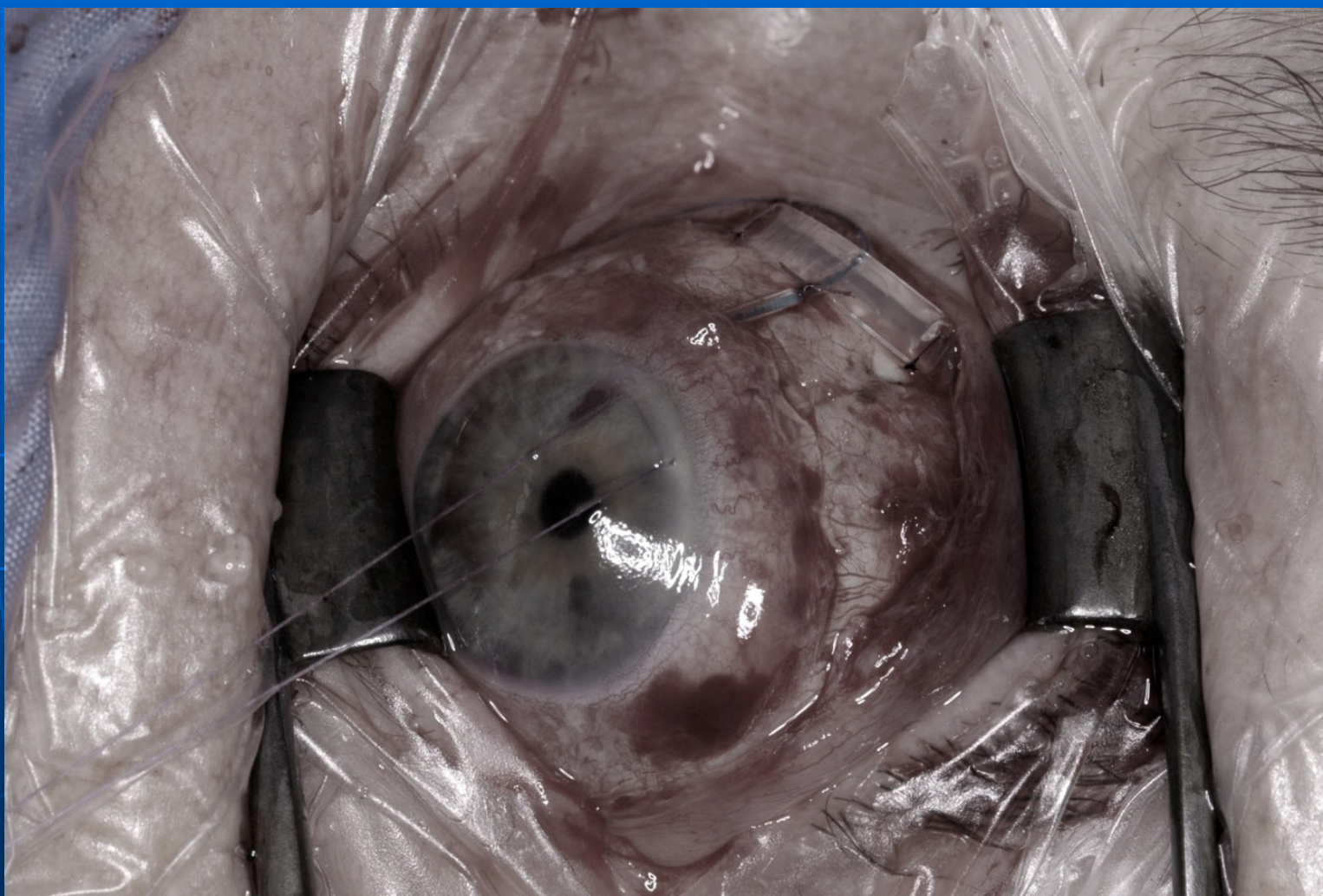
- The original tube shunt, developed by Professor Molteno

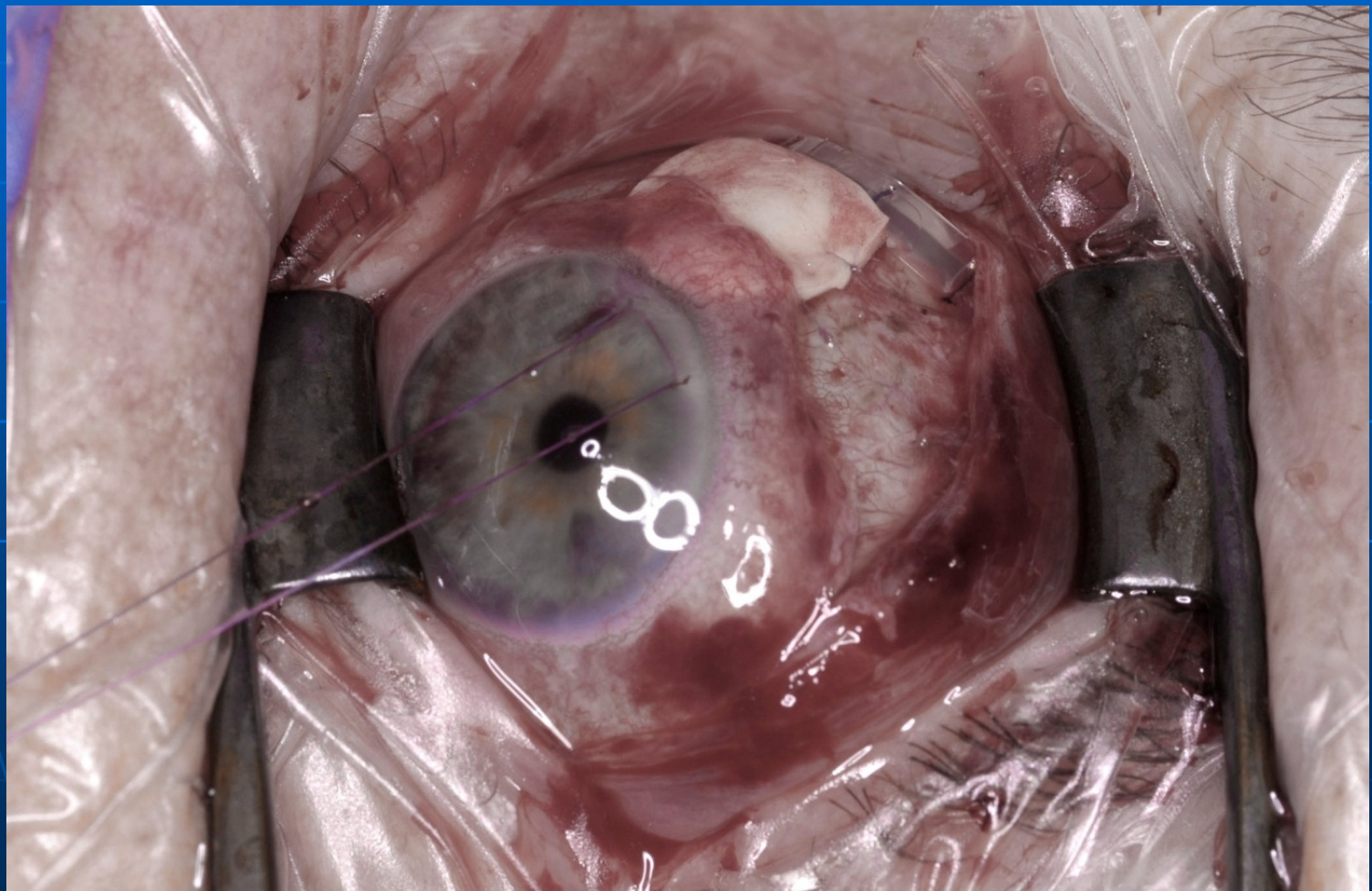






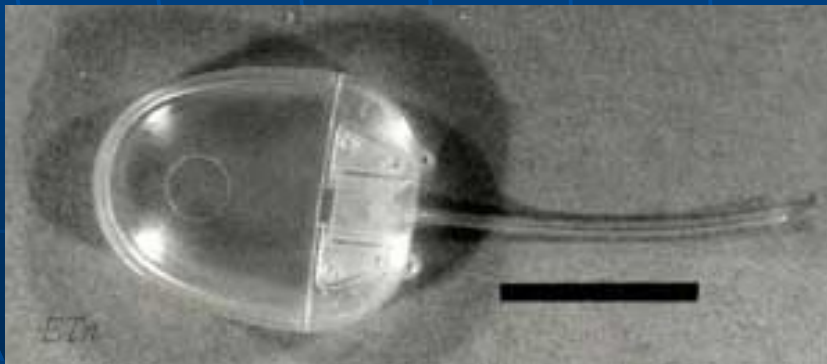


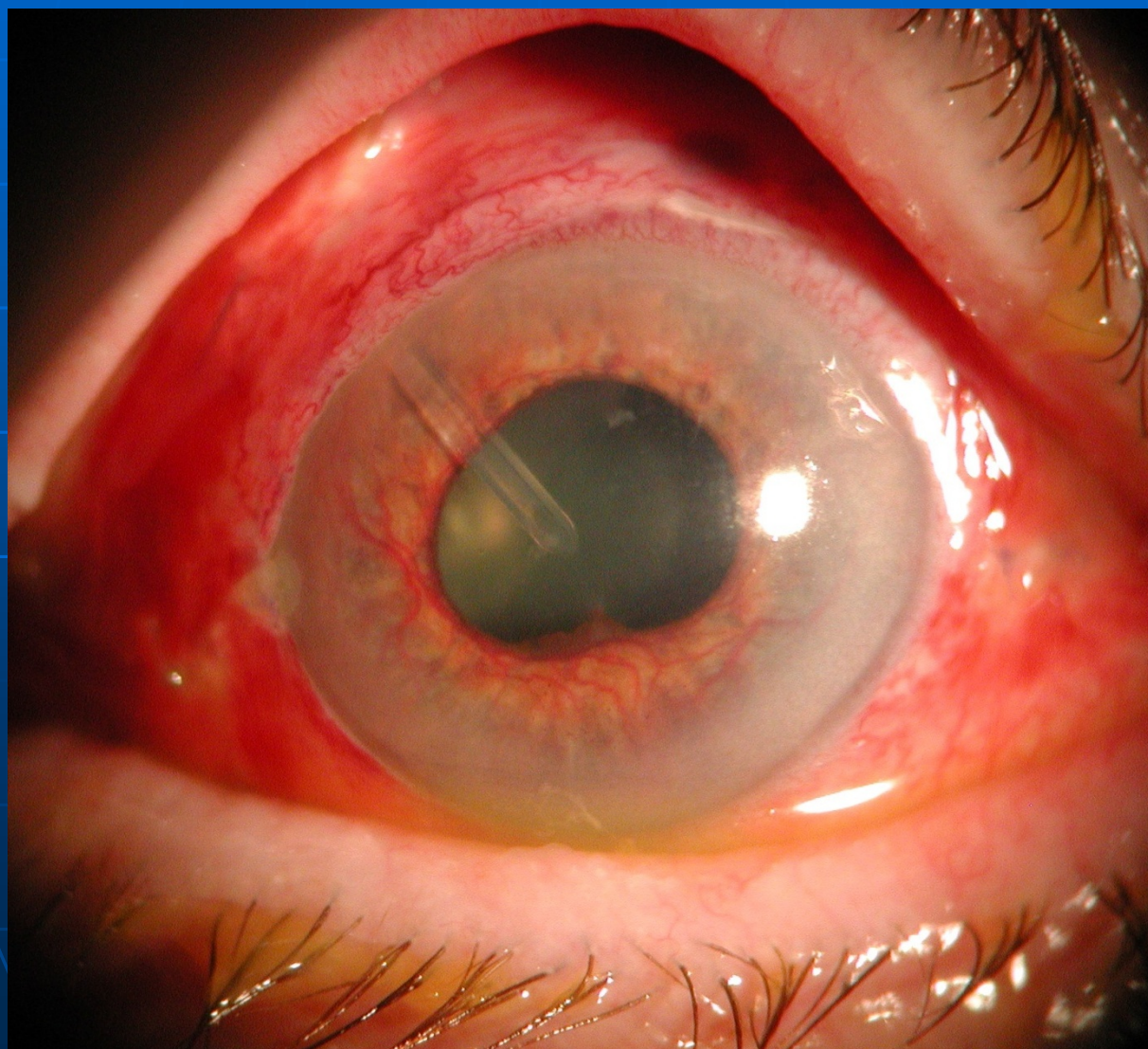




A variety of other tube implants exist

- Baerveldt pars plana implant
- Ahmed implant





Glaucoma New Zealand

**A charitable trust
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