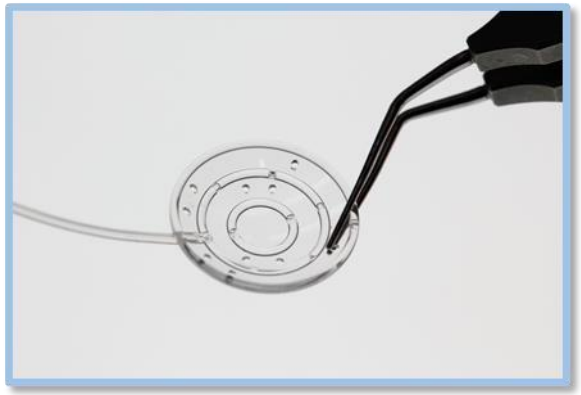
# Placement of the an-vision an-GlauDrain glaucoma shunt




## Stefan Kindler, Dr. med. vet.

FTA Surgery, ZB & WBE Ophthalmology

Adj Prof. Ophthalmology, Small Animal Clinic, Justus Liebig Universtity, Giessen

Head & CEO, Animal Eye Center, Wiesbaden

Head & CEO Fachtierärztliches Zentrum AniCura Wiesbaden Schierstein


Part of AniCura

# What is an-GlauDrain?

- **an-GlauDrain** is a non-valved gonioimplant that shunts aqueous humor from the anterior chamber into a subconjunctival pocket, lowering the intraocular pressure. The aqueous humor can then be resorbed and returned into the normal circulation.
- The **an-GlauDrain** gonioimplant is foldable, allowing a comfortable placement in a subconjunctival pocket
- The base is made of a hydrophobic and highly bio-compatible acrylate, and the connected tube is made of silicone, certified for long-term implantation.
- **an-Glaudrain** is the first gonioimplant designed specifically for veterinary medicine.

# an-GlauDrain implantation Procedure

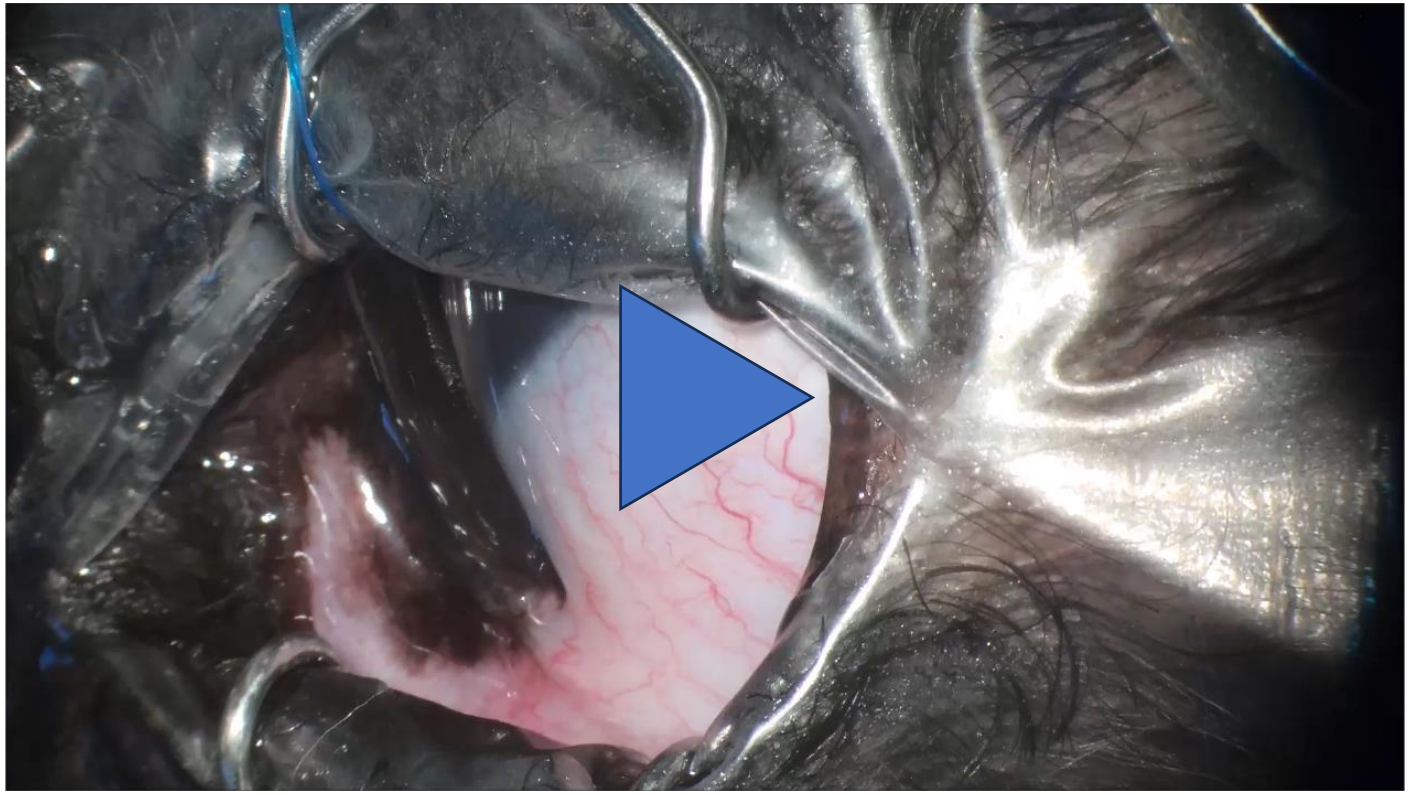
## Video

### an-GlauDrain on the Cornea

Part of AniCura

an-vision

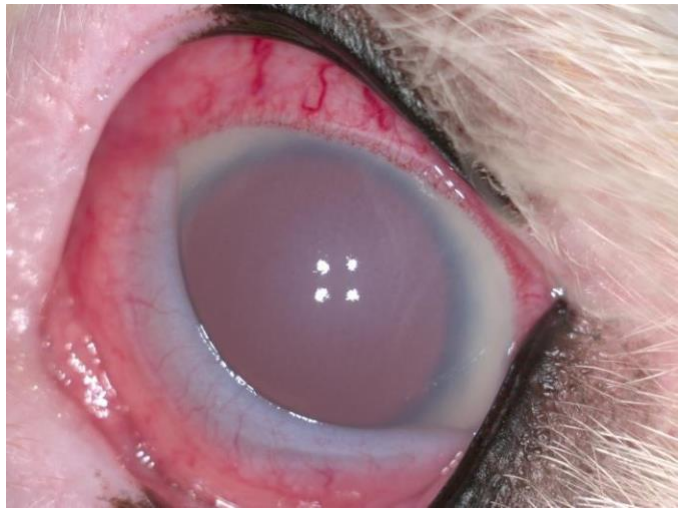
# an-GlauDrain implantation Procedure

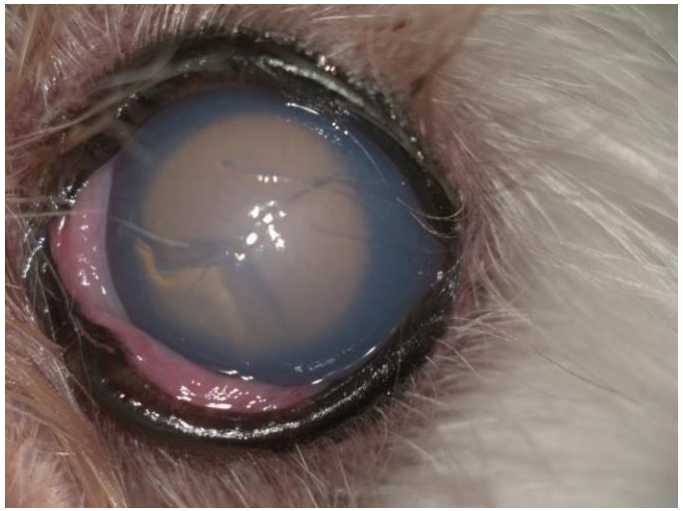


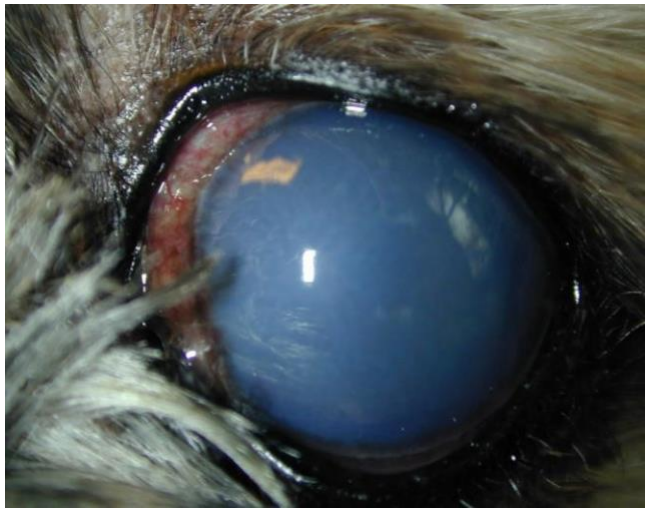
Part of AniCura

# Indications for Placement of the an-GlauDrain glaucoma shunt

- Ocular hypertension
- Insufficient response to medication
- Visual eye with gradually increasing intraocular pressure
- Acutely blind eye with possibility of regaining vision
- (owner requests vision preserving surgery, even if prognosis is poor)







Part of AniCura

# Recommended Instrumentation

- Lid speculum
- Colibri forceps
- Stevens tenotomy scissors
- Westcott scissors (optional)
- Wet-field or high temperature cautery
- Blunt-tipped 27 G cannula (e.g. Sauter)
- Microsurgical needle holder for 8/0 suture
- Small needle holder for 6/0 suture
- 2 Tying forceps
- Vannas capsulotomy scissors
- Adhesive ophthalmic surgical drape
- Absorbent sticks and/or spears22 G cannula
- 8/0 monofilament non-resorbable suture with spatula needle
- 6/0 PGA
- BSS with epinephrin and heparin added
- epinephrine
- TPA
- Mitomycin C (0.2%)
- Triamcinolone (preservative free)
- OVD (optional)
- Intracameral antibiotic (e.g. cefoxurim - optional)

Part of AniCura

# an-GlauDrain implantation Procedure

- Surgical preparation of eye including disinfection and draping; do not clip hair!
- Thoroughly irrigate ocular surface including cul de sac  Apply surgical drape and lid speculum
- Thoroughly irrigate ocular surface including cul de sac
- Apply 1-2 drops of epinephrine to ocular surface / conjunctiva to blanch blood vessels
- Incision of conjunctiva and tenon 5-8 mm from limbus, parallel to limbus, 7-10 mm
- Blunt dissection on sclera posteriorly at least to equator, creating a pocket for gonioimplant
- If hemorrhage occurs, use epinephrine and/or careful cautery

Part of AniCura

# an-GlauDrain implantation Procedure

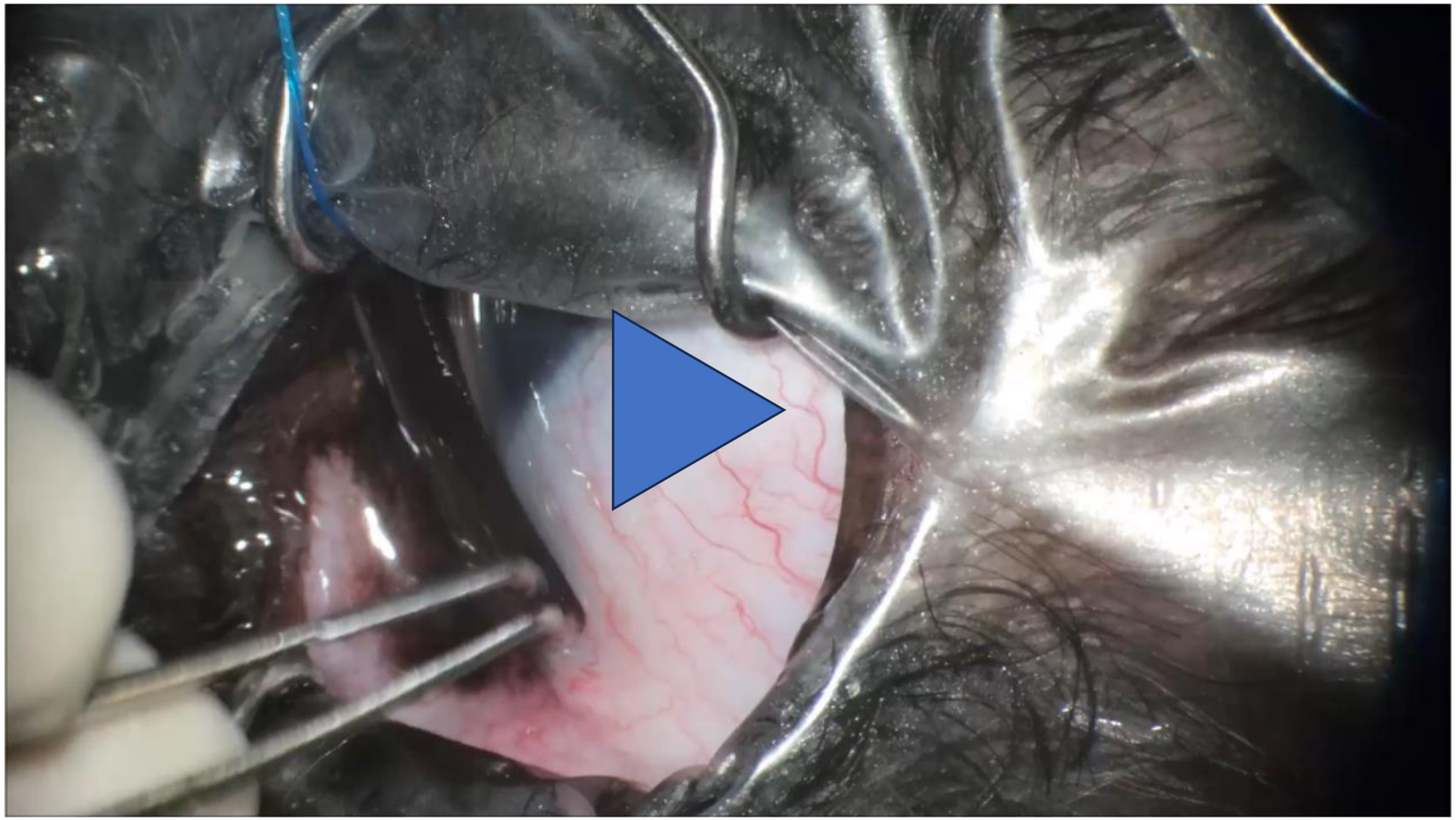
## Video

Pocket

Part of AniCura

an-vision

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Insert implant into pocket, folding if necessary, to control depth and width of pocket.

Part of AniCura

an-vision

# an-GlauDrain implantation Procedure

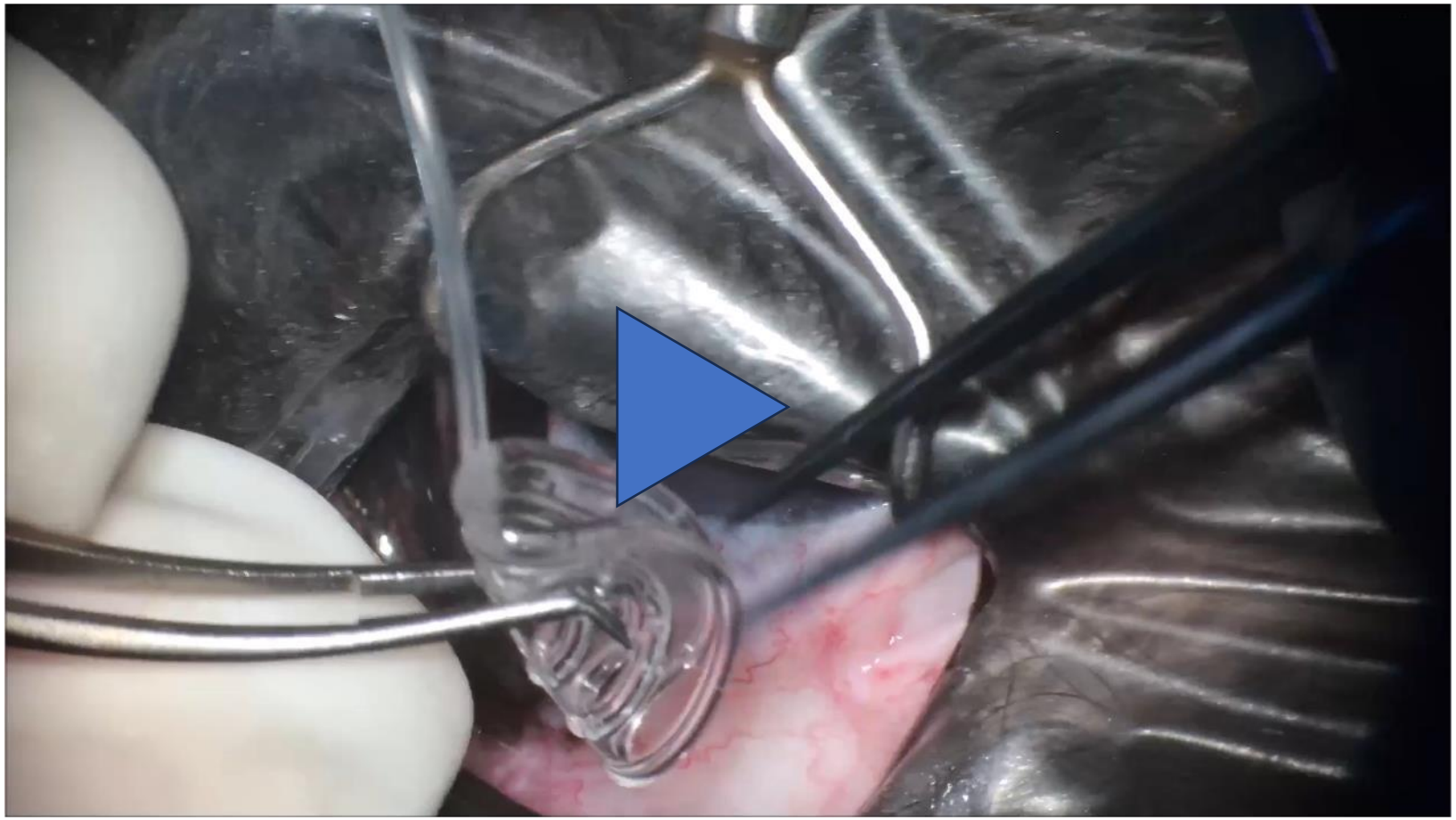
## Video

Testing the size of the pocket

Part of AniCura

an-vision

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Remove implant, insert spear / stick previously soaked with mitomycin C (MMC)

- *alternatively*: prior to incision subtenon injection of MMC to create a bleb

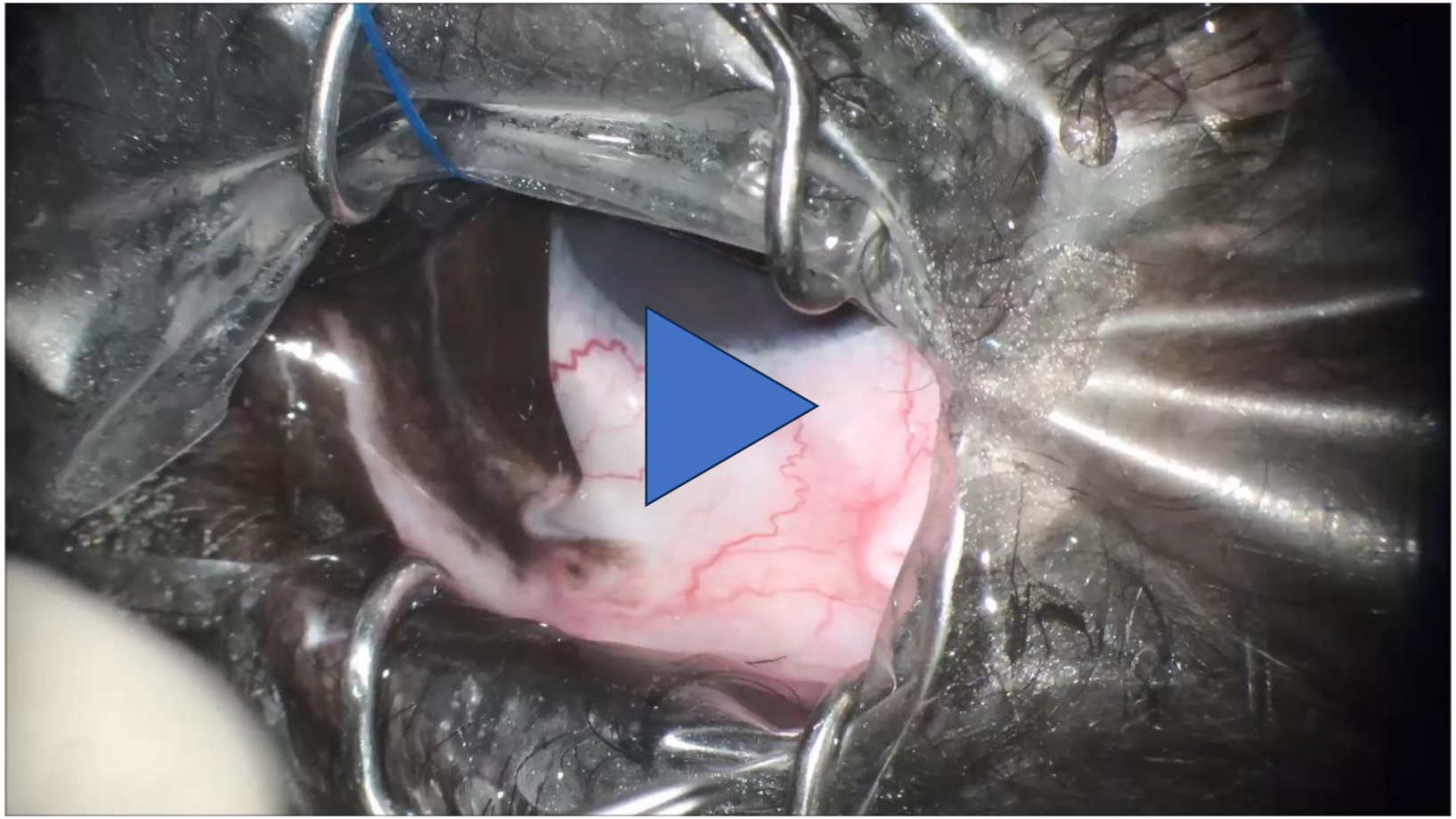
# an-GlauDrain implantation Procedure

## Video

Placement of Mitomycin C swab

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Insert blunt cannula into end of tube
- Flush tube with BSS towards plate to ensure patency (priming)
- Then fill tube with TPA

Part of AniCura

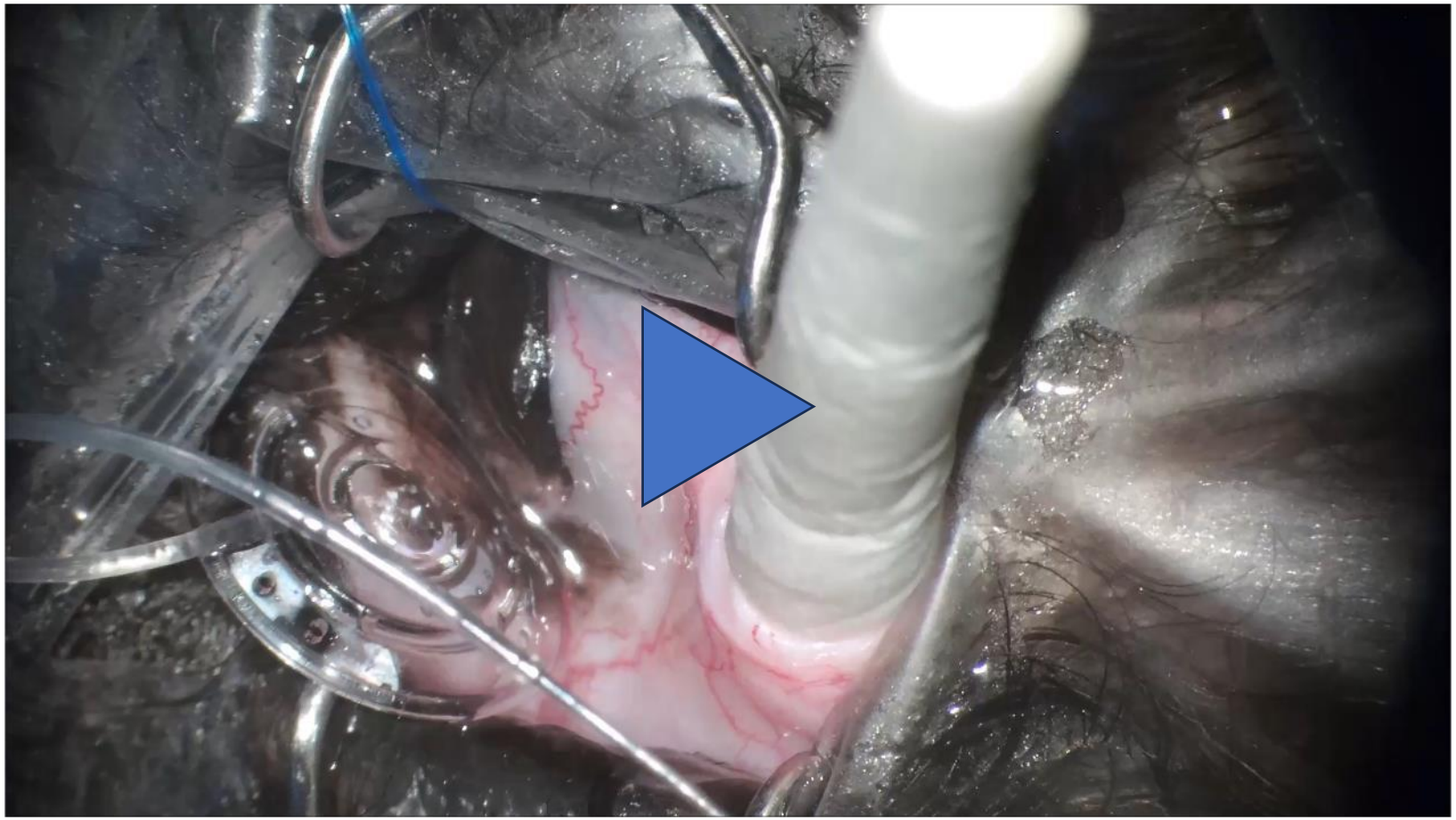
# an-GlauDrain implantation Procedure

**Video**

Irrigation of tube with BSS and TPA

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- After 5 minutes, remove MMC soaked sponge and irrigate thoroughly.
- Two 8/0 monofilament non-resorbable sutures can be preplaced in the implant at this time.
- Place implant into pocket as far caudally as possible, avoiding placement on top of extraocular muscles. Aim for post equatorial placement.

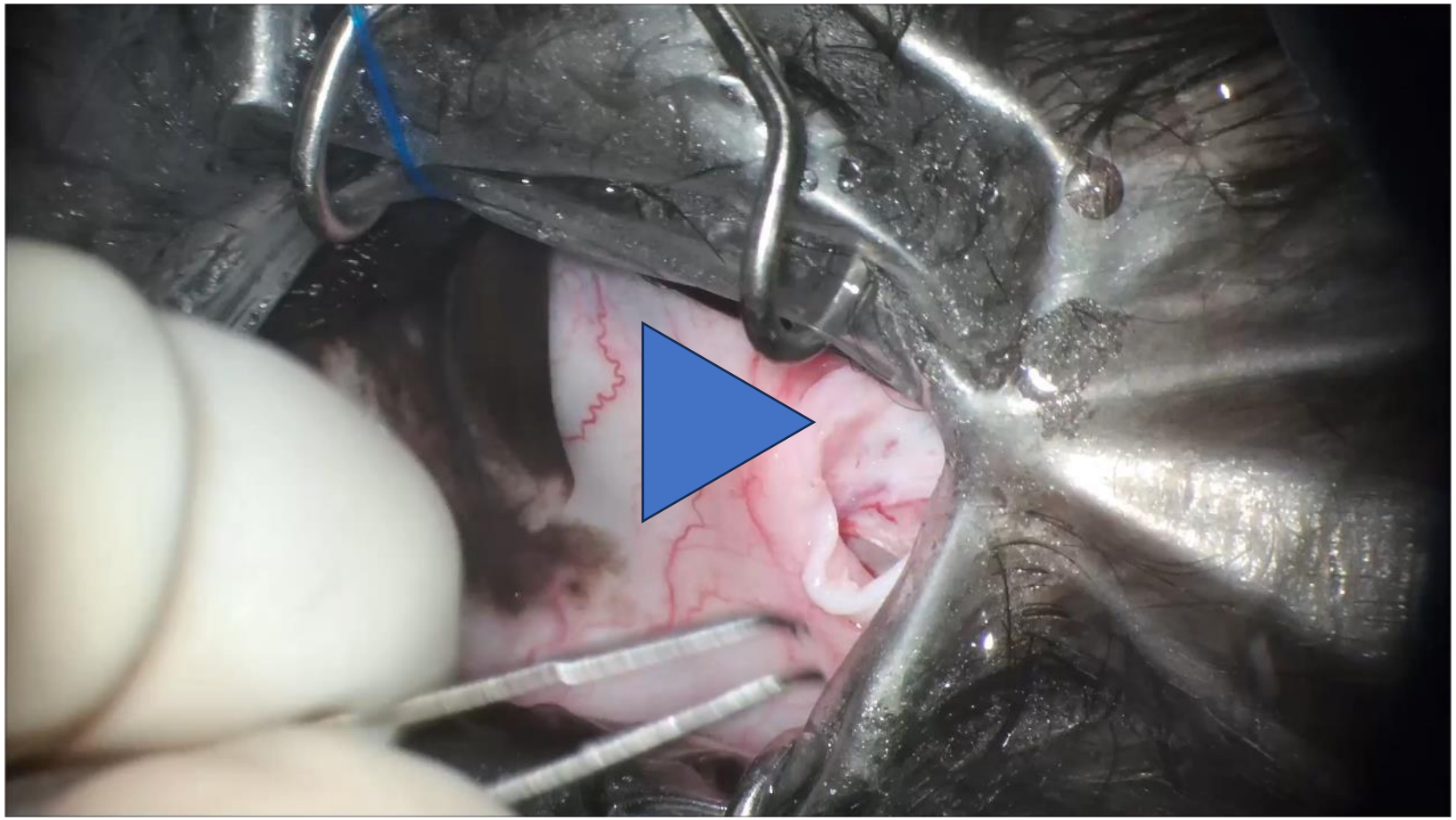
# an-GlauDrain implantation Procedure

## Video

Irrigation of pocket and placement of implant

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Suture implant to sclera with two 8/0 monofilament non-resorbable non-penetrating sutures, if possible using the holes in the anterior part of the implant.
- Placing sutures through the implant is possible but not recommended

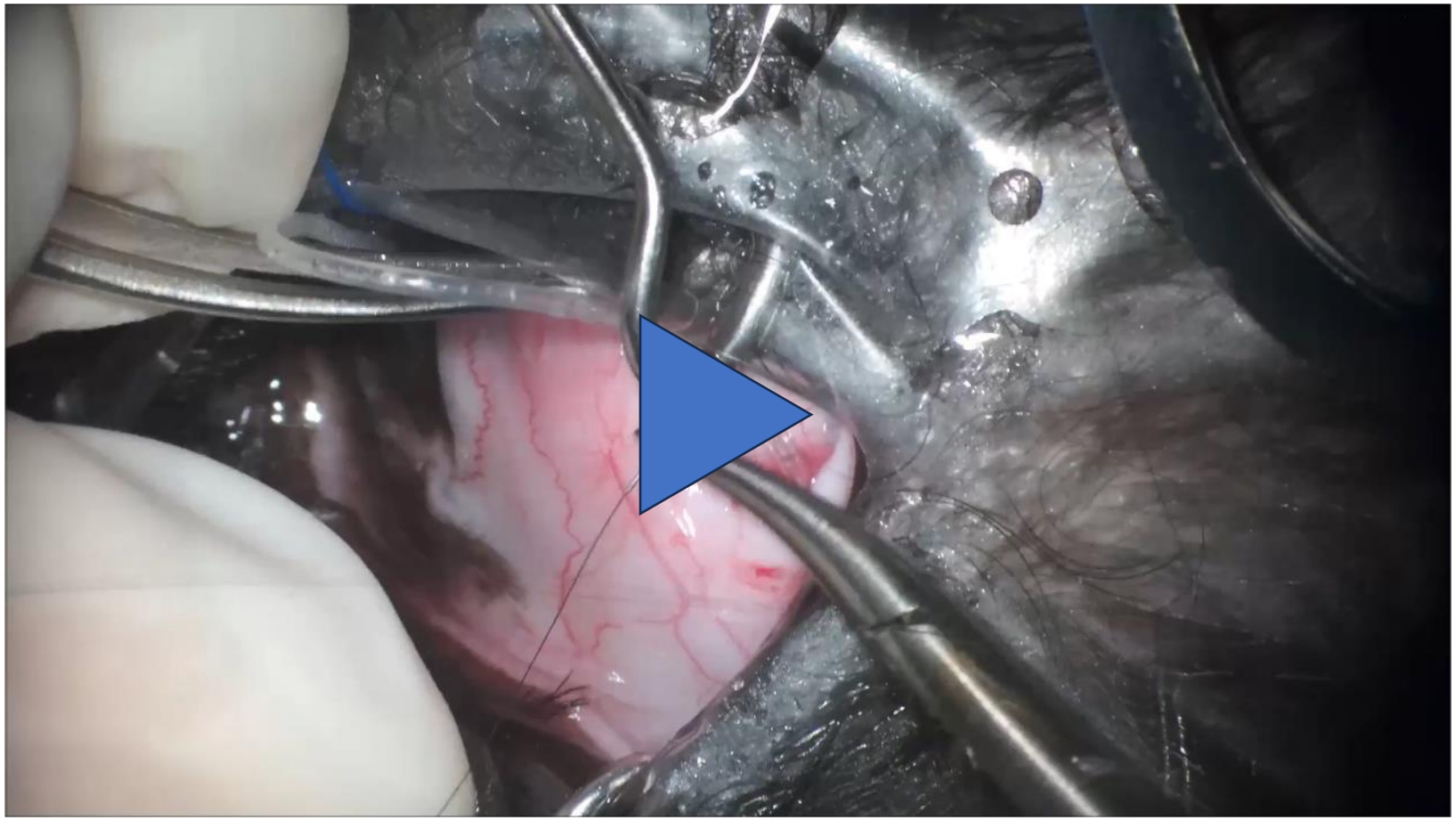
# an-GlauDrain implantation Procedure

## Video

1st suture

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

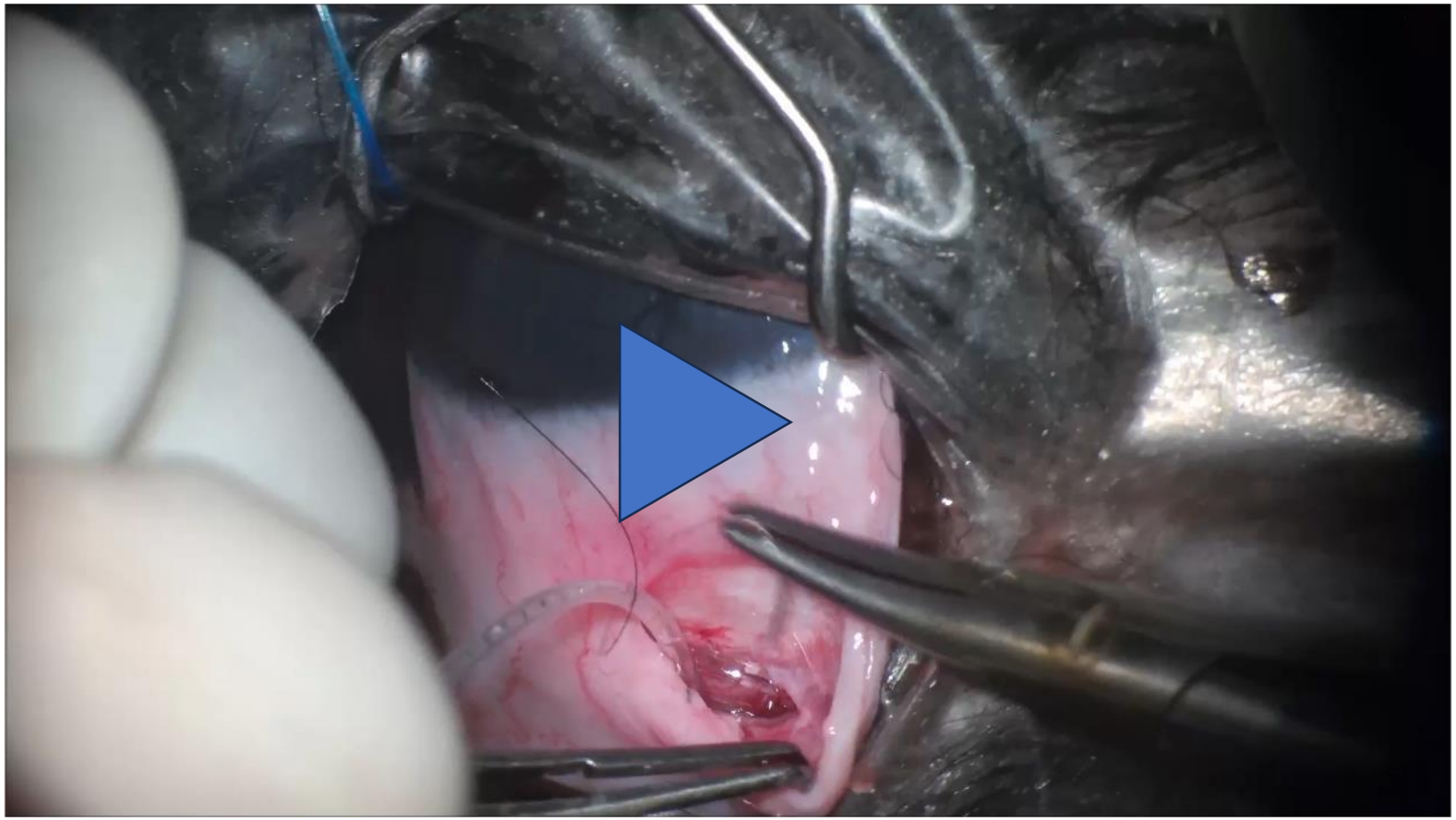
# an-GlauDrain implantation Procedure

## Video

2nd suture

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Place tube on cornea to estimate required length, tube should protrude into anterior chamber 3-4 mm when in place.
- Shorten tube to required length, creating a bevel using Westcott or Vannas scissors.

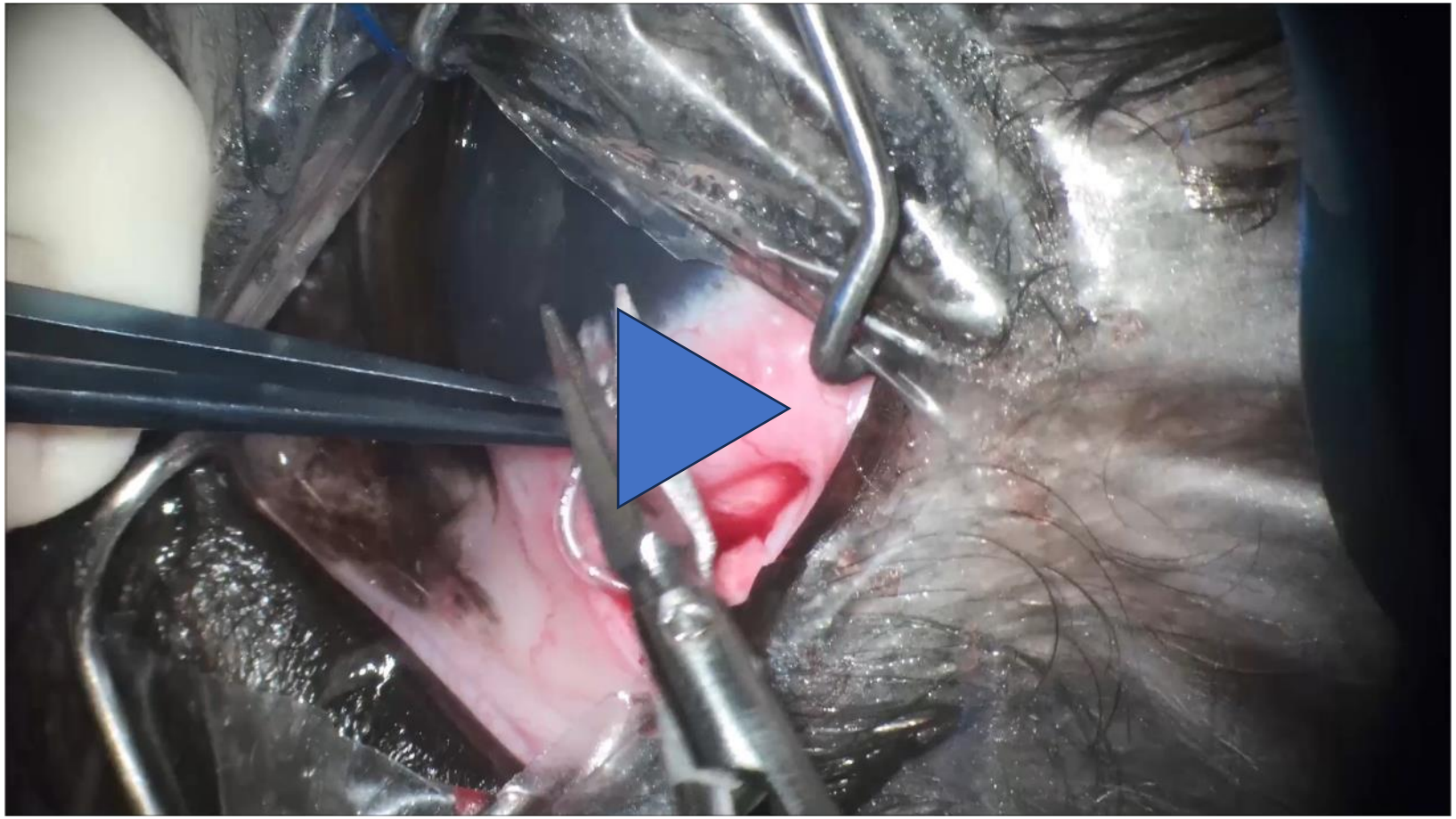
# an-GlauDrain implantation Procedure

## Video

Shortening tube

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Use a 22 G cannula on a syringe filled with TPA to tunnel through the sclera into the anterior chamber through the iridocorneal angle, avoiding the iris and the cornea, beginning approx. 2-3 mm posterior to the limbus.
- Inject 0.3 ml TPA and 0.3 ml triamcinolone, slowly withdraw cannula (if possible have assistant do this).
- Optionally inject intracameral antibiotic (in cases of prolonged surgery times) and/or small amount of OVD (smoother and easier tube insertion) while slowly withdrawing the cannula (if possible have assistant do this).
- Grab tip of tube with tying forceps and insert into created opening.
- Tube can be gently sutured to sclera, tying off is not necessary.

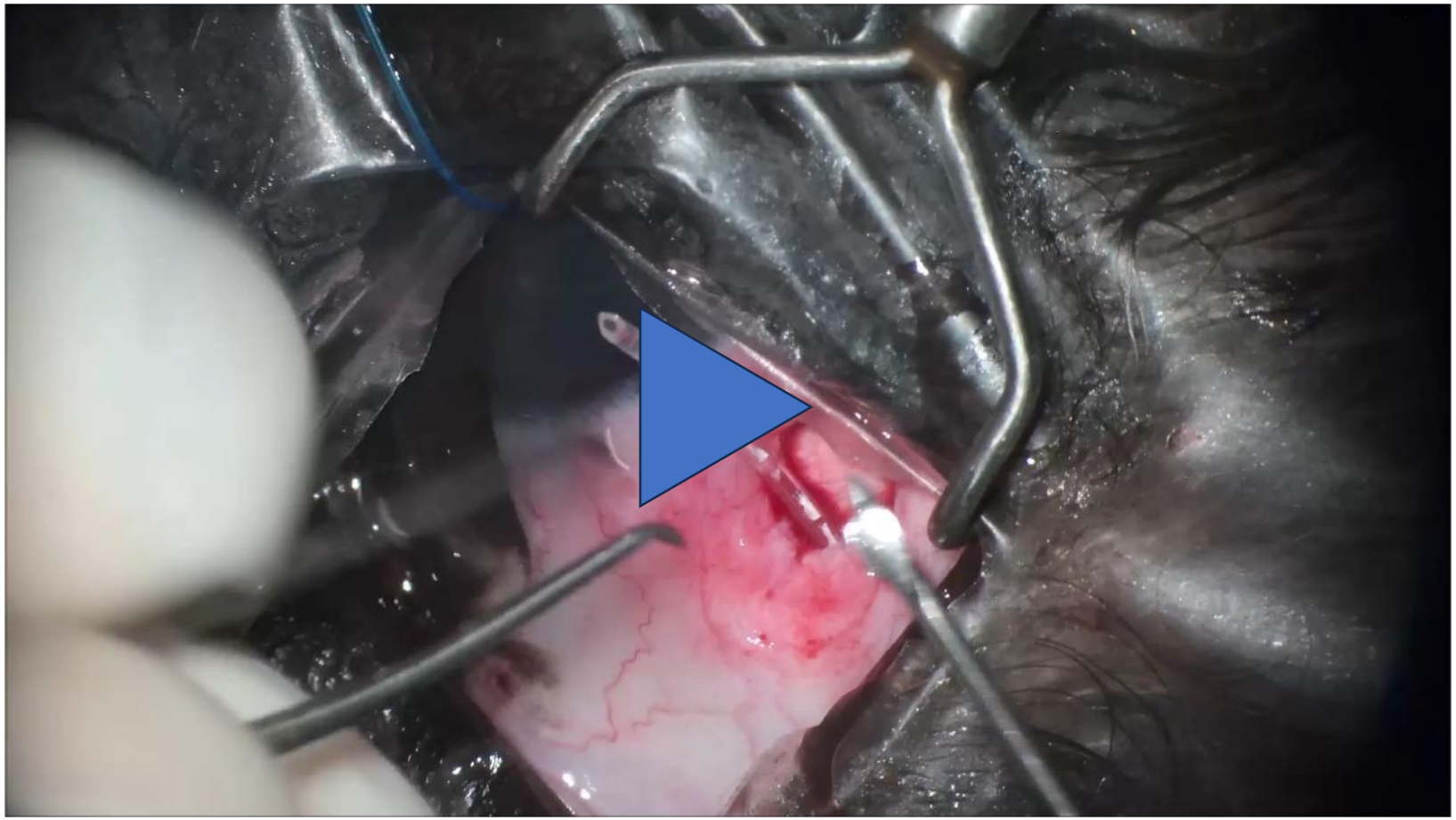
# an-GlauDrain implantation Procedure

## Video

Paracentesis TPA Cefoxurim Dexamethasone Tube placement

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain implantation Procedure

- Suture conjunctiva and tenon (!) 1 or 2 layer continuous 6/0 PGA suture.

Part of AniCura

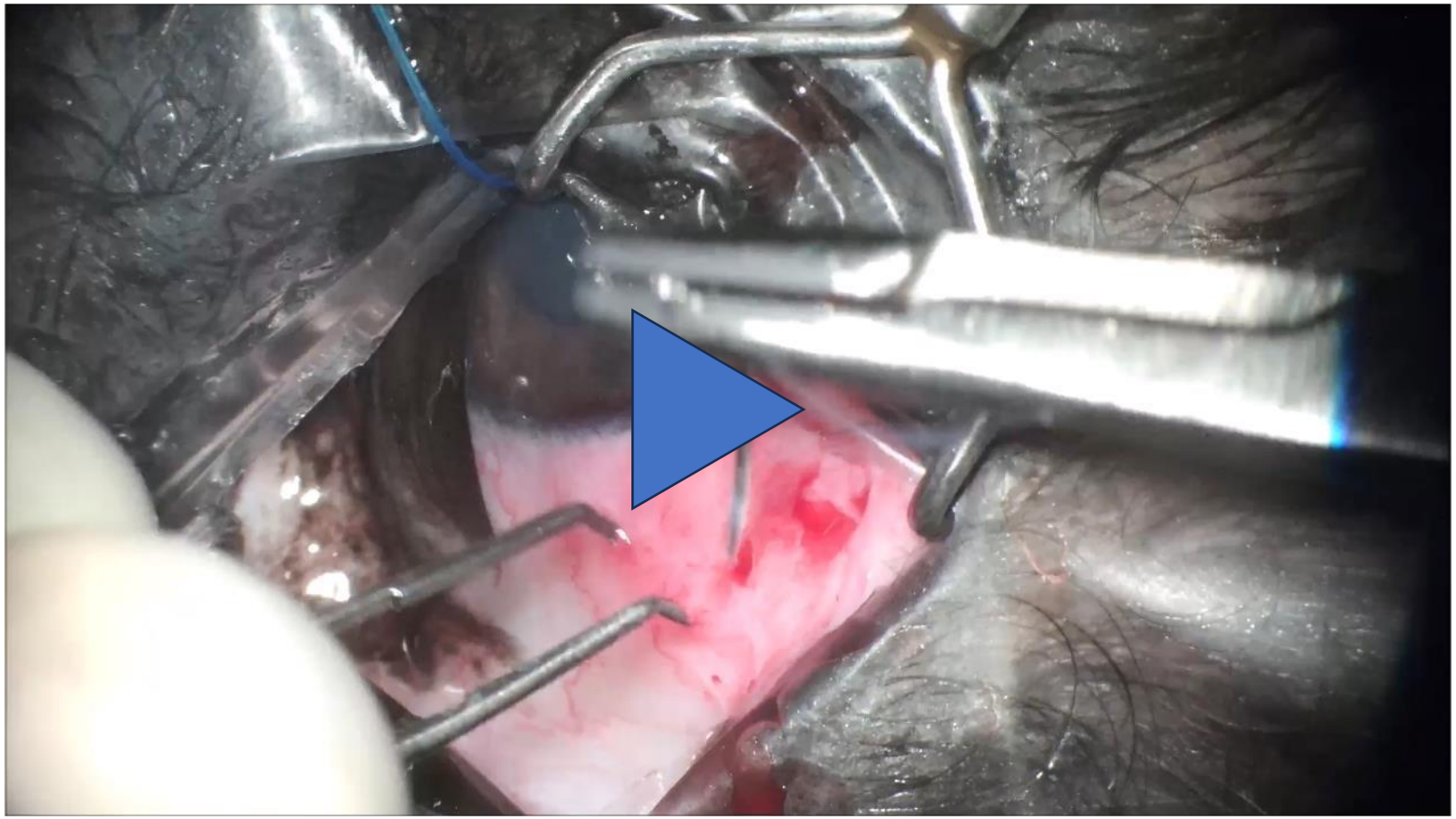
# an-GlauDrain implantation Procedure

**Video**

Suture Tenon and Conjunctiva

Part of AniCura

# an-GlauDrain implantation Procedure



Part of AniCura

# an-GlauDrain postoperative medication

- Topical carboanhydrase inhibitor +/- beta blocker bid (brinzolamide/timolol)
- Topical combination antibiotic / steroid tid
- Systemic nonsteroidal (firecoxib, 5 mg/kg)
- Systemic antibiotic (optional, usually not necessary)
- Elizabethan collar or optivizor

# an-GlauDrain gonioimplant – comments I

- **Location of Implant:**
- I prefer dorso-temporal quadrant for ease of implantation, other quadrants are possible. Other surgeons report good results for implantation in ventro-nasal quadrant.
- If further implants are necessary, other quadrants can be used.

# an-GlauDrain gonioimplant – comments II

- **Lasercycloablation (TSCP, ECP)**:
- If indicated, should be performed prior to shunt implantation.
- I will often place only a gonioimplant at the first surgery and do photocycloablation + gonioimplantation if a second procedure is necessary.
- This results in less trauma and – in my hands – less fibrin and scar tissue formation.

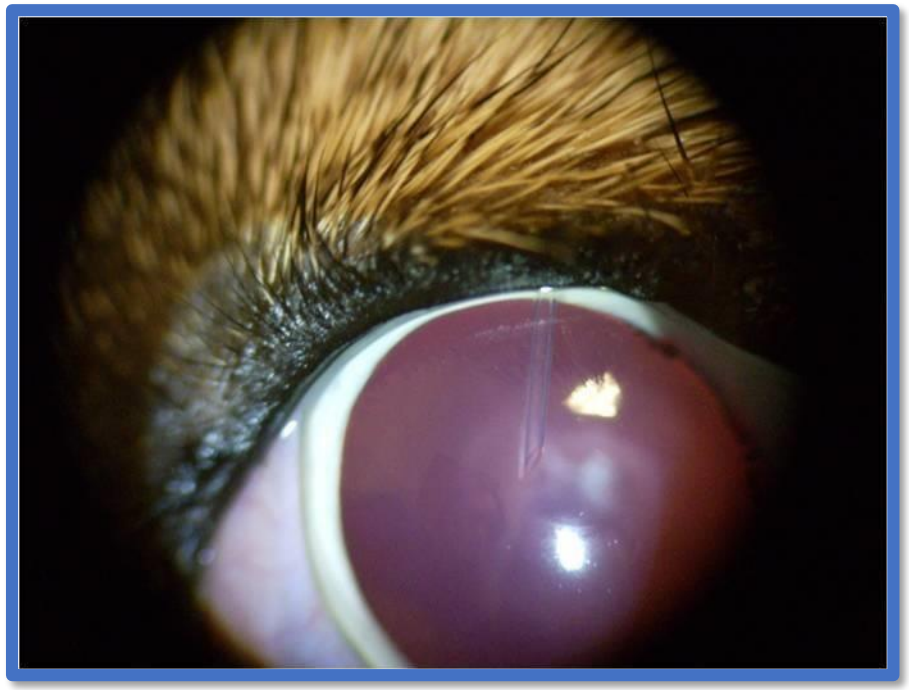
# an-GlauDrain gonioimplant – comments III

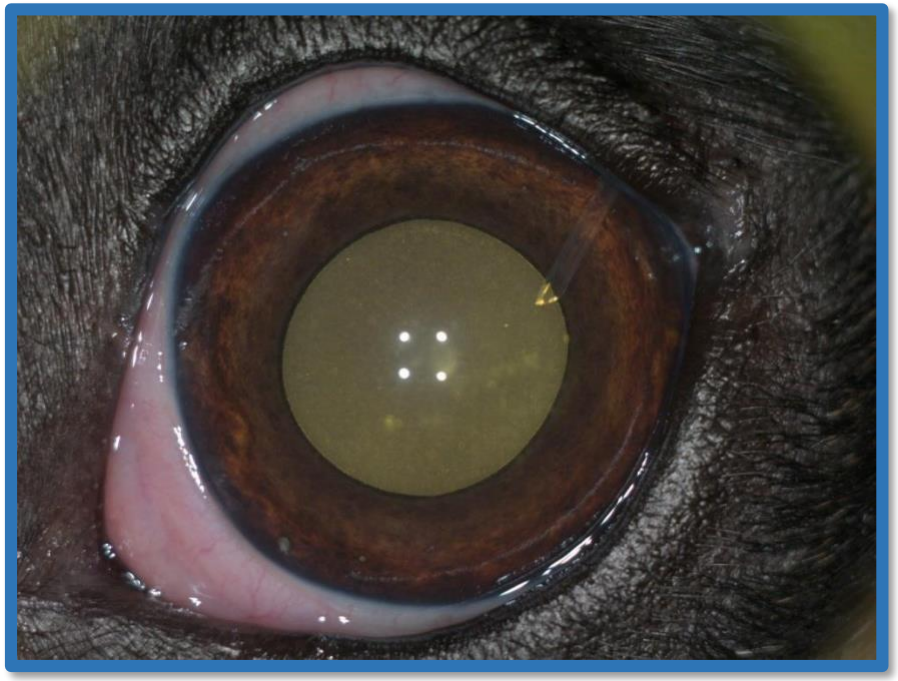
- **Tying off / stenting the tube:**
- In my hands after many years of implanting both valved and nonvalved implants, this is rarely – if ever – necessary (except in Baerveldt shunts). I have never seen post operative hypotension unless tube implantation takes too long, allowing too much aqueous humor to egress.

an-vision

# an-GlauDrain gonioimplant

## Thank you for your attention!





Part of AniCura