

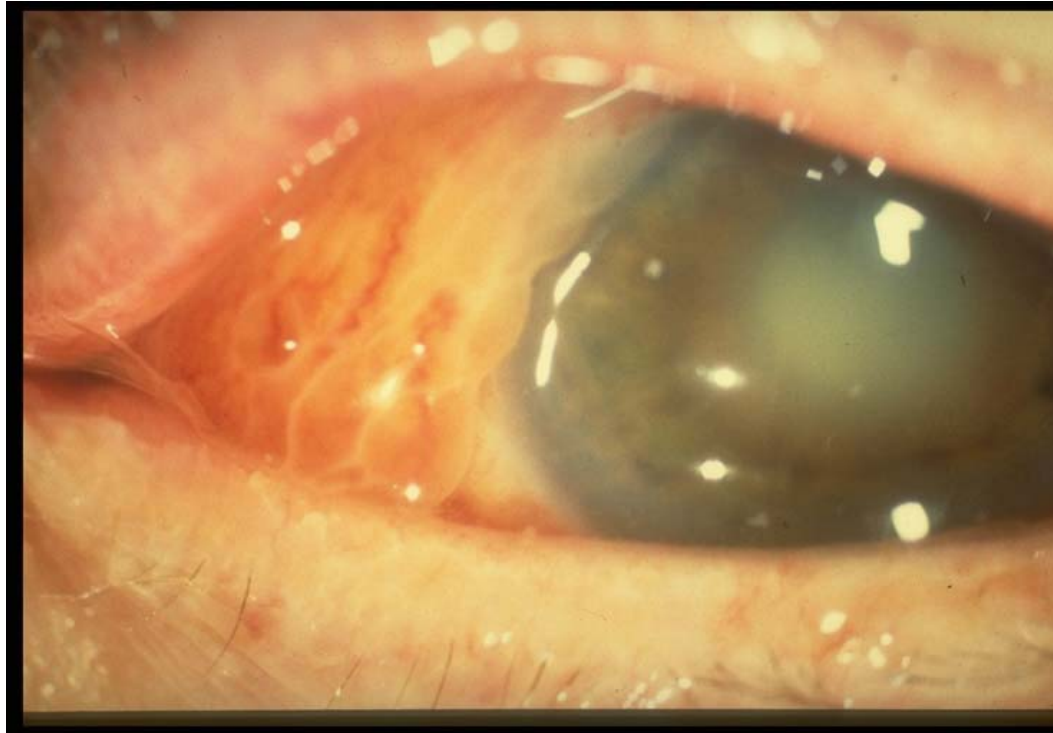
## Subgroups of Endophthalmitis

### postoperative endophthalmitis

- acute
- chronic / delayed onset
- bleb associated e.itis

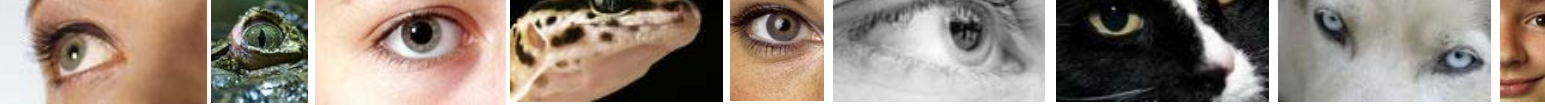
### posttraumatic endophthalmitis

- 25 % of all cases of e.itis
- 6 – 10 % of all cases of penetrating trauma and retained iofb



### endogeneous endophthalmitis

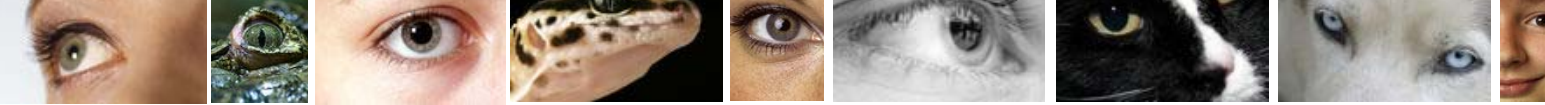
pseudoendophthalmitis (e.g. triamcinolon i.v.)



## ***Incidence of acute postoperative endophthalmitis***

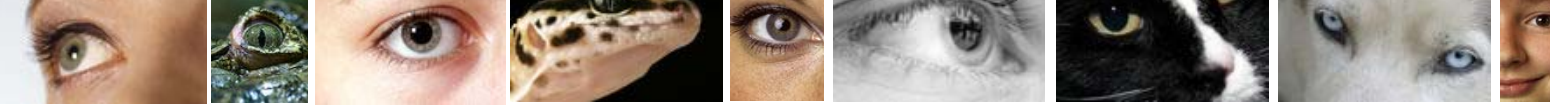
- Any intraocular intervention (0.05 %)
- Cataract surgery (0.07 %)
  - more frequent in clear cornea cases
- Trabeculectomy (0.2 %)
- sec. IOL implantation (0.2 %)
- Vitrectomy (0.03 %)





## ***The species found in acute postop endophthalmitis***

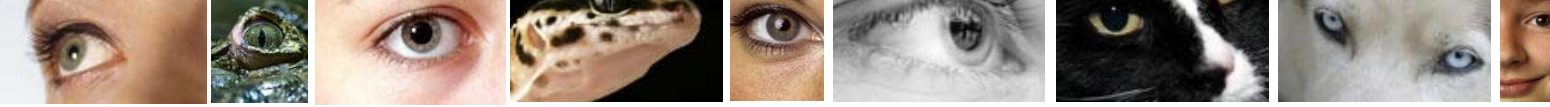
- coag.neg. Staphylococcus species
- Staphylococcus aureus
- Streptococcus spec.
- gram-negative bacteria



# ***Management of acute postoperative endophthalmitis - 1***

## **Goals of treatment**

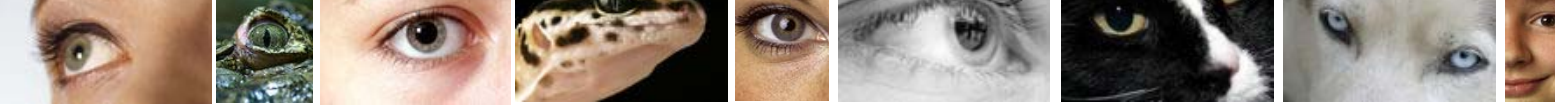
1. Identify the species which is responsible
2. Reduce as much inflammatory material as possible
3. Inject antimicrobials (local intraocular treatment)
4. Reduce the inflammatory tissue reaction



## ***Management of acute postoperative endophthalmitis - 2***

### **Sequence of treatment and options**

1. Close any open accesses (e.g. corneal tunnel)
2. Anterior chamber biopsy
3. Clean the anterior chamber, removal of fibrin, debris
4. Vitreous biopsy
5. Clean the central vitreous
6. Open the posterior capsula
7. Clean the capsular bag
8. Inject antimicrobials
9. Option a: Remove the Intraocular lens
10. Option b: Inject silicone oil



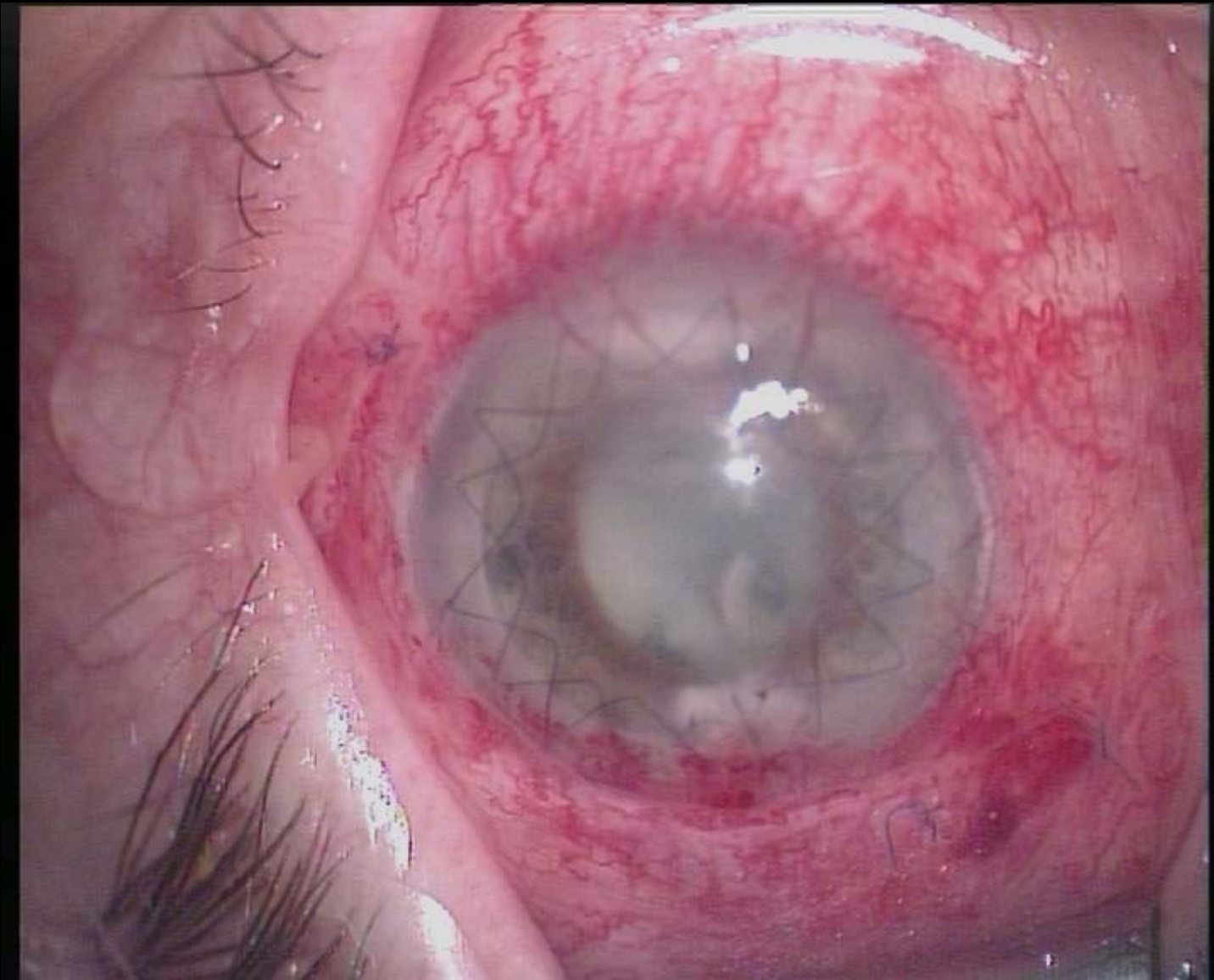
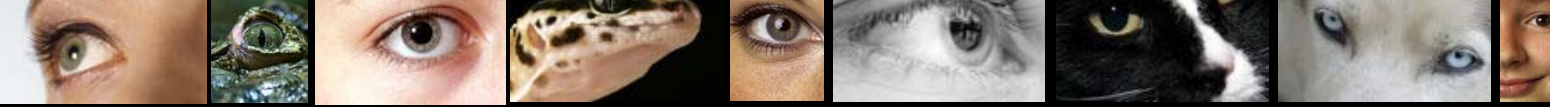
## ***What material is safe to identify the species ?***

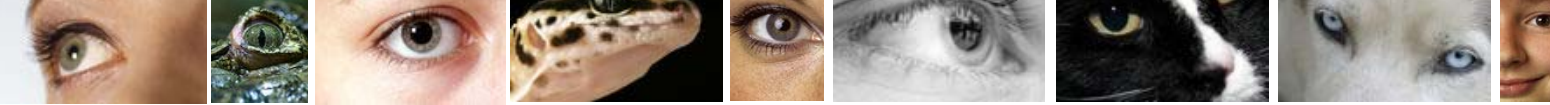
AC biopsy 34.8 %

Vitreous biopsy 58.2 %

Vitreotomy fluid 80 %

But: dilution of fluid by irrigating solution -> vitrectomy under air!



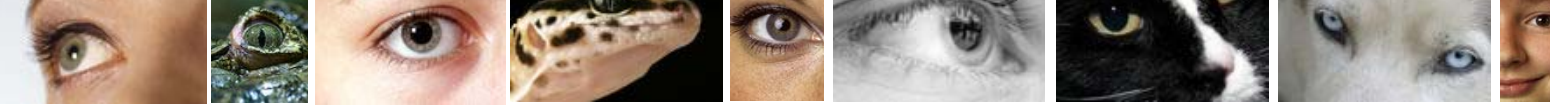


## ***Antibiotics for intraocular injection – safe dosage***

Vancomycin 1 mg

Ceftazidime 2 mg or Amikacin 0.4 mg



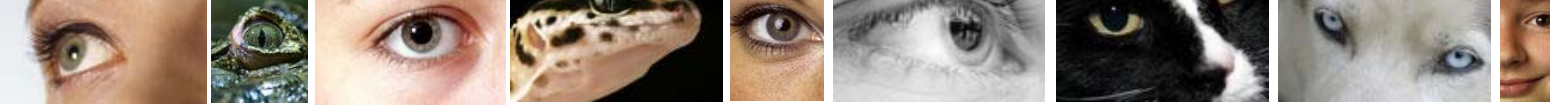


## ***Endophthalmitis Vitrectomy Study - EVS***

420 patients enrolled with endophthalmitis  
< 6 weeks after cat surgery or iol implant

### ***Key messages:***

- Vitrectomy is superior to vitreous biopsy only when va is < hm
- Systemic antibiotics are not effective compared to injections



## *Endophthalmitis Vitrectomy Study - Results*

- Adverse events:

Phtisis (Vx 2 % vs biopsy 4 %)

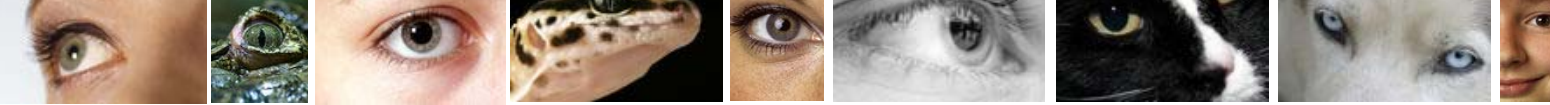
Retinal detachment (Vx 2.7 % vs 7 %)

Enucleation:

3 tap eyes, but no vx eye!!!

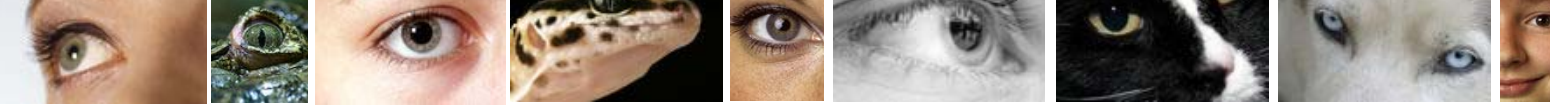
Secondary proc within 1 week:

7 % vx eyes and 13 % tap eyes



## ***Reasons for Vitrectomy in early cases***

- Better and earlier determination of the species
- Less adverse events (less enucleations)
- Faster rehabilitation



## ***Other aspects***

### ***Systemic antibiotics***

Spectrum of bacteria in the EVS was not very aggressive

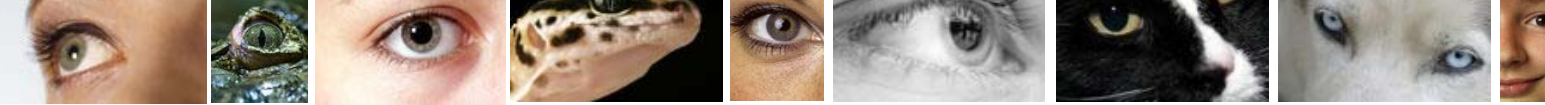
Other risk factors such as immunosuppression

### ***Steroids***

May be helpful as intraocular injections (400 µg Dexamathasone)

But also systemically to calm down the inflammatory process

Several studies seem to support this theory



## ***Systemic treatment***

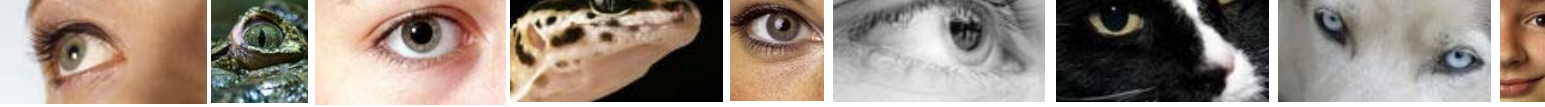
2 x 1 gr Vancomycin i.v.

3 x 2 gr Ceftazidime i.v.

5 mg kg BW Prednisolone i.v.

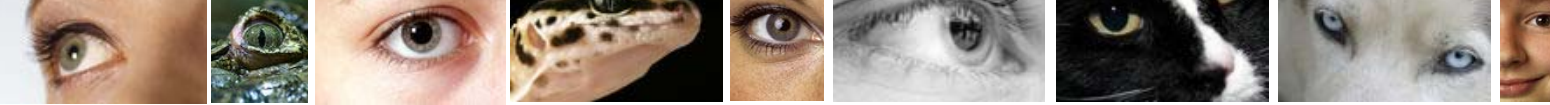
Recommended for cases with a bad prognosis

- ◆ Function < hm
- ◆ Gr – species, streptococci, enterococci
- ◆ Severe retinal infiltrates
- ◆ Delayed clearing of vitreous cavity
- ◆ Additional systemic factors, e.g. immunosuppression



Thank you for  
your kind attention

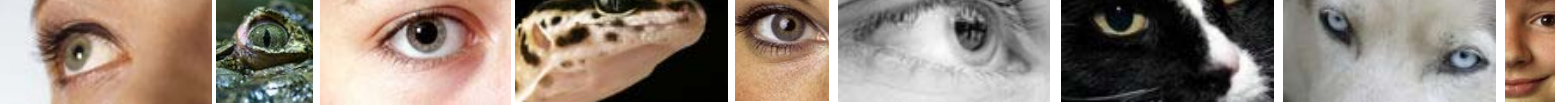




## ***Chronic subacute Endophthalmitis***

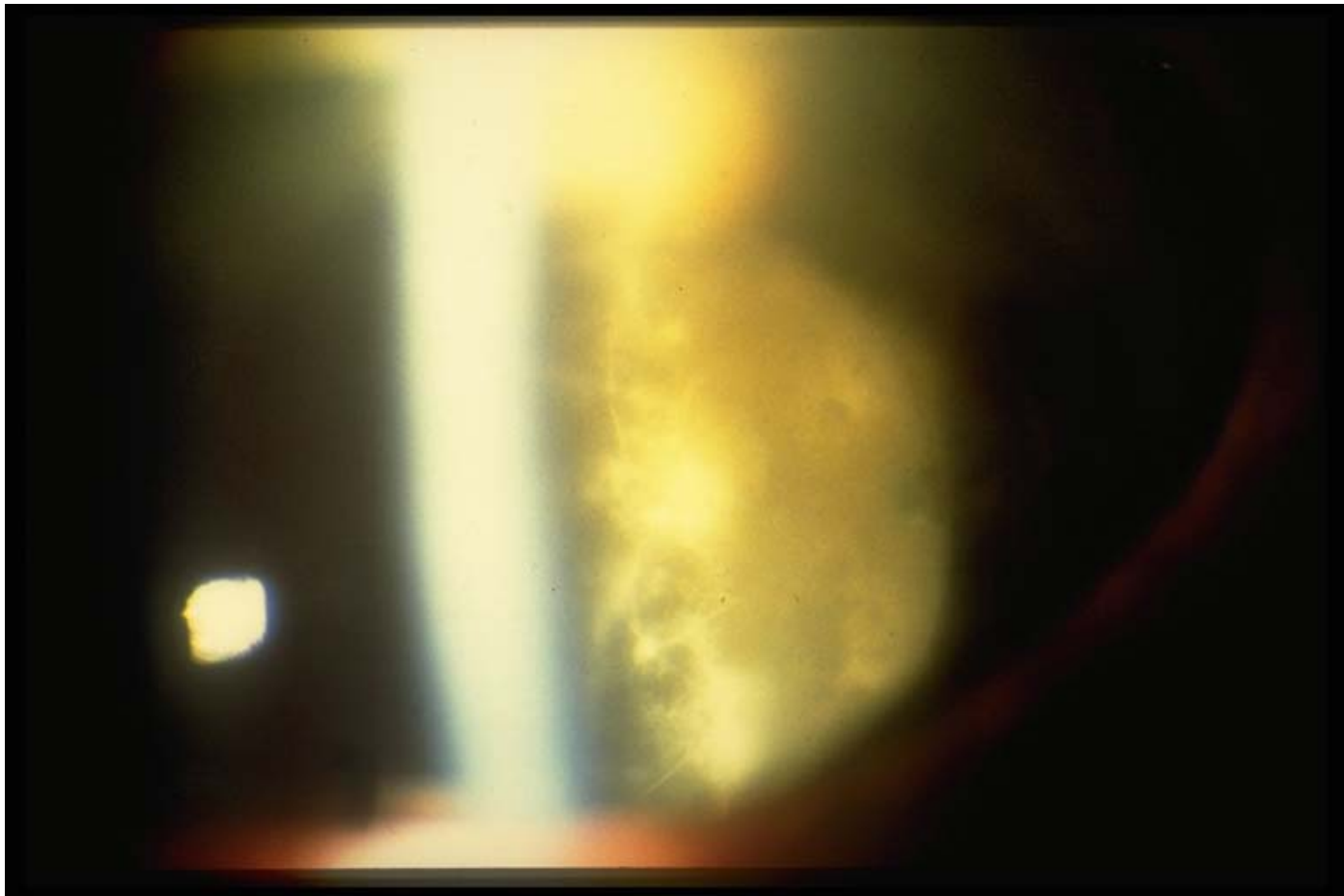
Clinical findings:

- Recurrent redness
- Recurrent hypopion
- Recurrent pain
- Recurrent blurred vision
- Rare thick vitreous infiltrations
- Rare retinal involvement

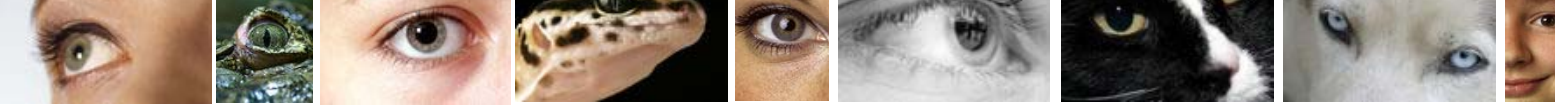


## ***Chronic subacute Endophthalmitis***

Clinical picture:





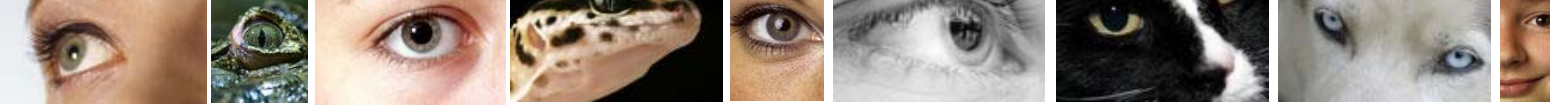


Adds-on

Chronic subacute endophthalmitis

Traumatic endophthalmitis

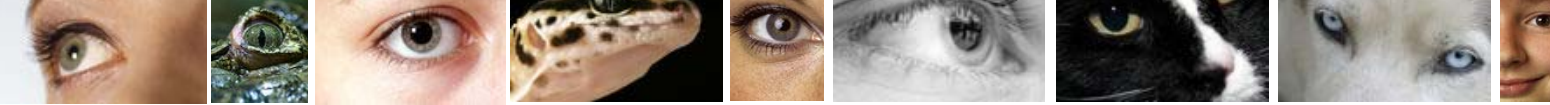
Endogeneous endophthalmitis



## ***Chronic subacute Endophthalmitis***

### **Management:**

- AC biopsy
- Identify the species
- Open the capsular bag and clean it
- Option: remove the IOL – wait and see
- Option: in a second procedure implant another IOL

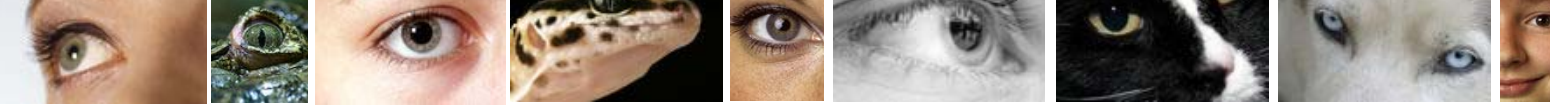


## ***Antibiotics ?***

1 mg Vanco + 1 mg Ceftazidime ( 0.005 mg Ampho B) i.o.

In some conditions:

4 x 0.5 mg Vanco ( + Ampho B 1 x 0.1-0.3 mg kg BW) i.v.

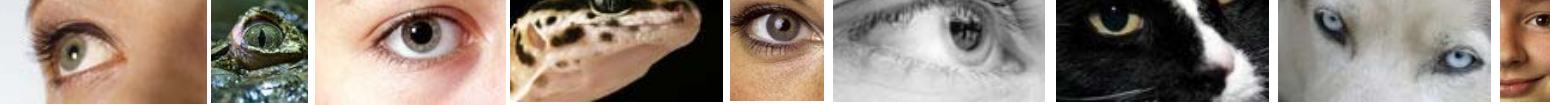


## ***Prevention of endophthalmitis***

- Rinse the conjunctival sack with PVP Iodine solution 10 %
- Adequate disinfection of the skin
- Sterile conditions
- Closed systems for implantation (e.g. IOL Injector)
  
- Even for intravitreal injections

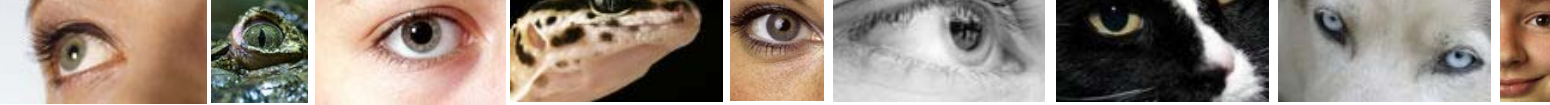
### **However:**

Prophylactic antibiotics in the irrigating solution are not recommended!



## ***Posttraumatic endophthalmitis:***

- Rare under industrial circumstances (steel IOFBs)
- More frequent in trauma in rural areas (e.g. wood)
  
- Immediate closure of wounds
- Identify the species
- Local and systemic antimicrobial treatment
- Consider early reconstruction
  
- Similar than in postoperative endophthalmitis
- But different species spectrum

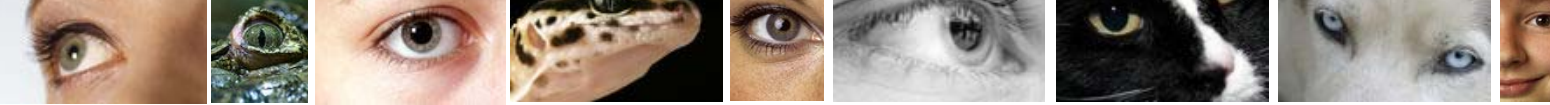


## ***Prophylaxis of traumatic endophthalmitis after open globe injuries***

Ceftazidime 3 x 2 gr i.v.  
Clindamycine 3 x 600 mg i.v.  
Gernebcine 3 x 80 mg i.v.

For one week

Or orally Ciprofloxacin 2 x 750 mg

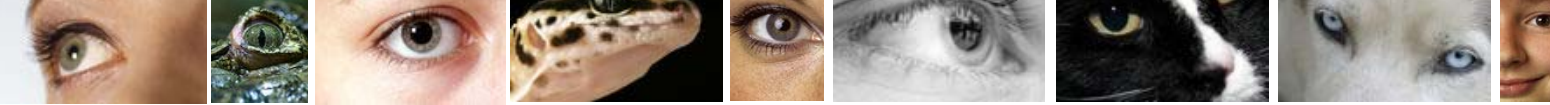


## ***Endogenous endophthalmitis***

under immunosuppression  
(e.g. posttransplantation or chemotherapy or drug abuse)

In immunocompromising diseases  
(e.g. AIDS, IG deficiency)

After major surgical procedures  
(bowel surgery -> fungi)



## ***Management of endogenous endophthalmitis***

- Identify species by biopsy
- Treat locally and systemically

## ***Systemic treatment of mycotic endophthalmitis***

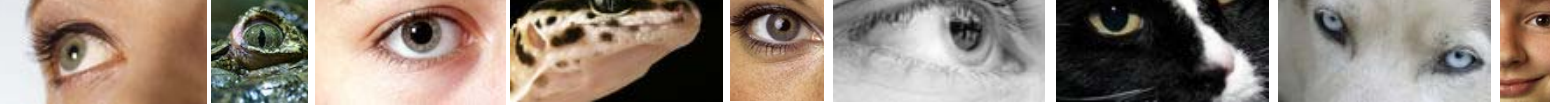
Oral: Fluconazole 400 mg, after 3 days 200 mg if sensitive

i.v. : Amphotericine B 1 x 0.1 mg kg BW increase to 1 x 0.3 mg kg BW  
within a few days

## ***Intraocular treatment of mycotic endophthalmitis***

0.005 mg Amphotericine B every 2nd day





## Endogeneous candida endophthalmitis in testosterone abuse

