

# Ophthalmic Emergencies in Dogs and Cats

Todd Marlo, DVM, MS, DACVO reviews the diagnosis and treatment of common ophthalmic emergencies in dogs and cats.

## Speaker Bio:

Todd Marlo, DVM, MS, DACVO obtained his degree in Veterinary Medicine from the University of Illinois in 2013. He completed his small animal rotating internship at the University of Missouri. Following his internship, he remained at the University of Missouri to complete his Comparative Ophthalmology residency. He achieved board certification in 2018. He currently practices at Veterinary Ophthalmology Services in Chattanooga, TN. During his free time, he enjoys outdoor sportsmanship and traveling with his wife.

## Learning Objectives:

1. Understand how to perform an ophthalmic exam.
2. Understand how to diagnose and treat corneal ulcers.
3. Understand how to diagnose and treat corneal foreign bodies.
4. Understand how to diagnose and treat glaucoma.
5. Understand how to diagnose and treat lens luxation.
6. Understand how to diagnose and treat uveitis.
7. Understand how to diagnose and treat retrobulbar abscesses.
8. Understand how to diagnose and treat proptosis.



---

# Ophthalmic Emergencies

*Todd Marlo, DVM, MS, DACVO*

---

---

---

---

---

---

---

---

---

---

---

Slide Title



- **First level**
  - Second level
    - Third level

Title of Presentation

© 2022 Vetcetera • All rights reserved.

---

---

---

---

---

---

---

---

---

---

---

---



## Ophthalmic Examination

- **Schirmer Tear Test**
  - Always perform 1st!
- **Fluorescein Stain**
- **Tonometry**
- **Examination with Retroillumination**
- **Physical Examination**
  - Retropulsion of the globe
  - Opening the mouth



---

---

---

---

---

---

---

---

---

---



Superficial Ulceration

---

---

---

---

---

---

---

---

---

---

## Corneal Ulceration

- **Superficial**

- Most Common
- Heals within 7-10 days
- Trauma-dogs
- Infectious-cats



---

---

---

---

---

---

---

---

---

---

## Corneal Ulceration

- **Treatment**

- Antibiotic
  - Tobramycin, Neopolybac
- E-collar
- Oral Pain Medication
  - Carprofen, Tramadol, Gabapentin



---

---

---

---

---

---

---

---

---

---



- **Complicated**

- Mid-Deep Stromal
- Descemetocoele
- Cellular infiltrate
- Has not healed within 7-10 days
- Indolent
- Have not corrected underlying cause



---

---

---

---

---

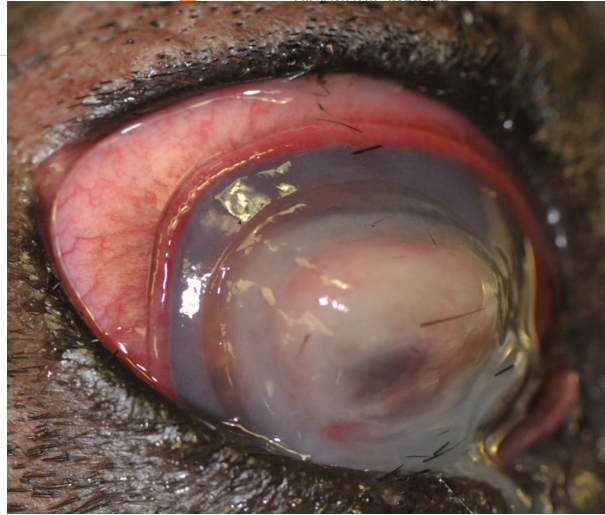
---

---

---

---

---



## Melting Ulceration with Perforation

---

---

---

---

---

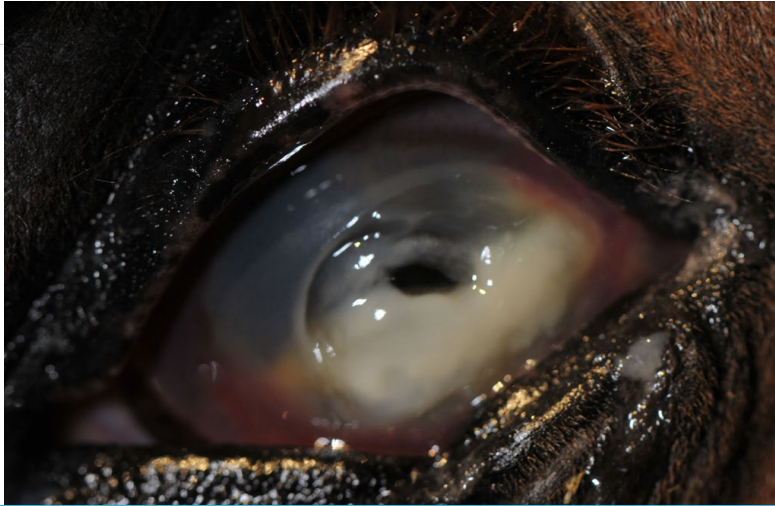
---

---

---

---

---



Descemetocoele with Cellular Infiltrate

---

---

---

---

---

---

---

---

---

---

---



## Corneal Perforation with Iris Prolapse and a Fibrin Plug

---

---

---

---

---

---

---

---

---

---

# Corneal Ulceration



## ● Treatment

- Ensure underlying cause is removed
  - Remove foreign body
  - Distichia
  - Ectopic Cilia
  - Diamond Burr-indolent only
- E-collar
- Referral!



---

---

---

---

---

---

---

---

---

---

# Corneal Ulceration



## ● Treatment

- Antibiotic
  - Ofloxacin, Cefazolin, Chloramphenicol
  - Use 2!
- Anti-collagenase
  - Serum/Plasma
  - Vetrix (Amniotic membrane)
- Oral Pain Medication
  - Carprofen, Tramadol, Gabapentin



---

---

---

---

---

---

---

---

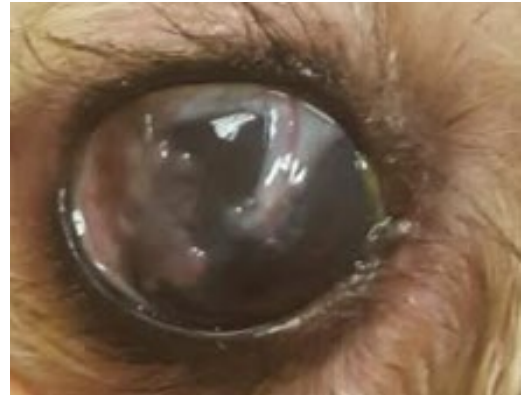
---

---

# Corneal Ulceration

- Treatment

- Systemic antibiotic
  - Clavamox, Convenia, Doxycycline
- Referral
  - Conjunctival Graft
  - Removal of object
  - Diamond Burr



---

---

---

---

---

---

---

---

---

---

---

## Corneal Foreign Body

- **Superficial**

- Hydropulsion (Labelle et al. 2013)
  - 6 cc syringe & 25 gauge catheter
  - Treat underlying ulceration



- **Deep**

- Refer
  - Treat underlying ulceration

---

---

---

---

---

---

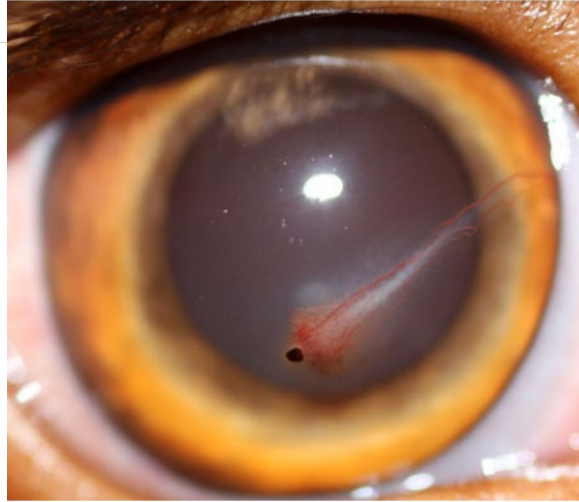
---

---

---

---





Pont et al. 2016

## Superficial Epithelial Seed Husk

---

---

---

---

---

---

---

---

---

---

---



Pont et al. 2016

## Full Thickness Corneal Foreign Body

---

---

---

---

---

---

---

---

---

---

---

---



---

# Use of hydropulsion for the treatment of superficial corneal foreign bodies: 15 cases (1999-2013)

Amber L Labelle <sup>1</sup>, Kathryn Psutka, Sean P Collins, Ralph E Hamor





Acute Primary Glaucoma

---

---

---

---

---

---

---

---

---

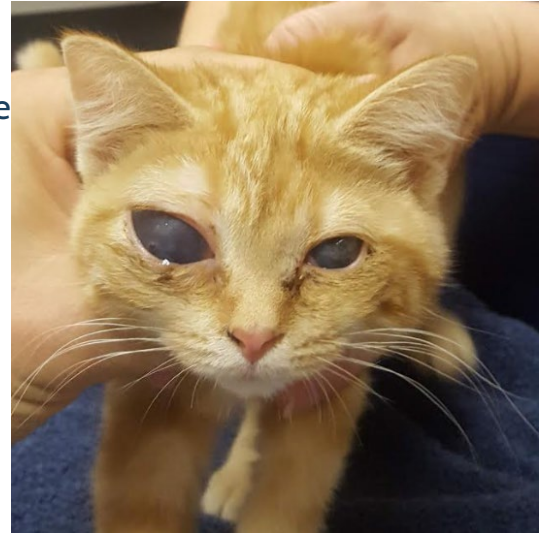
---

# Glaucoma

- **Primary/Secondary**
  - The acute abdomen of the eye
  - Always due to a blockage in aqueous outflow
    - Painful
    - Potentially blinding
- **Normal Intraocular Pressure**
  - Dog: 12-25 mmHg
  - Cat: 12-27 mmHg

- **Primary**

- Breed Specific
  - Cocker Spaniel, Huskey, Basset Hound, Beagle
- Inherited
- Changes occur at the iridocorneal angle
  - Narrowing over time
  - Goniodysgenesis
  - Open/closed angle



---

---

---

---

---

---

---

---

---

---

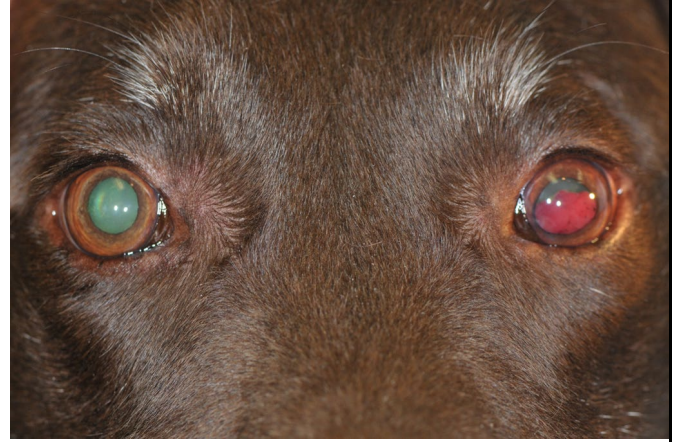
---

---

---

- **Secondary**

- Obstruction of the angle occurs
  - Neoplasia, Lens luxation, Uveitis
- Pressure can rise suddenly or over time
  - Treatment is similar to primary



---

---

---

---

---

---

---

---

---

---

---

---

---

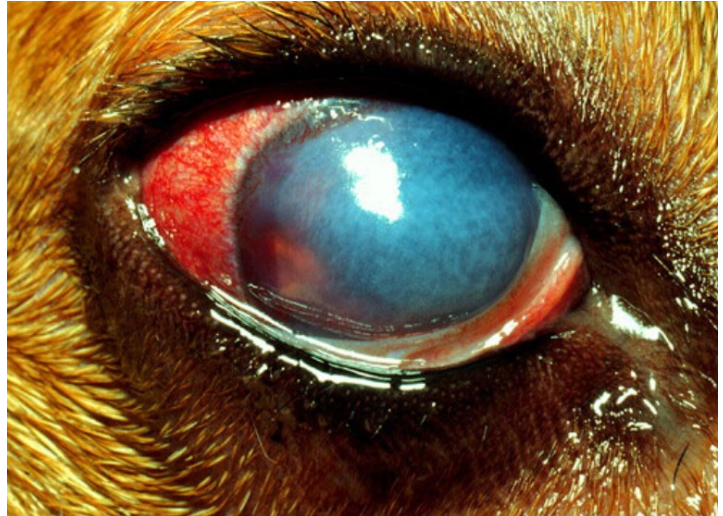
## Glaucoma

- **Acute Clinical Signs**

- Blepharospasm
- Scleral injection
- Mydriasis
- Ocular discharge
- Lethargy

- **Chronic Clinical Signs**

- Buphthalmia
- Lens luxation
- Blindness



---

---

---

---

---

---

---

---

---

---

---





## Secondary Glaucoma with Buphthalmia and Lens Luxation

---

---

---

---

---

---

---

---

---

---

# Glaucoma

## ● Treatment

- Rule out lens luxation
- Emergency hypotensive therapy
  - Alternating drops of latanoprost and dorzolamide
  - Administer a drop every 5 minutes for 30 minutes
  - Recheck IOP
- Oral analgesia
  - Gabapentin, Tramadol
  - Carprofen, Meloxicam



---

---

---

---

---

---

---

---

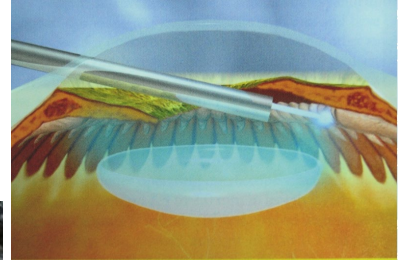
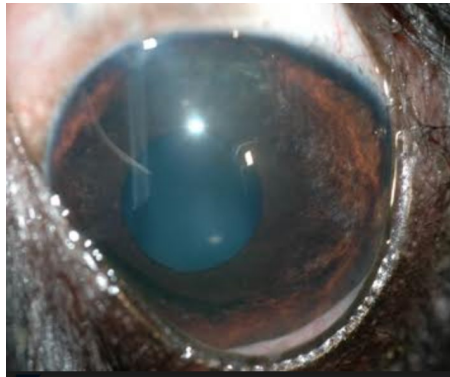
---

---

## Glaucoma

- **Surgery**

- Must be referred
  - Cyclophotocoagulation
  - Aqueocentesis
  - Goniovalves
- Enucleation
  - Pathological submission
  - Contralateral eye



---

---

---

---

---

---

---

---

---

---

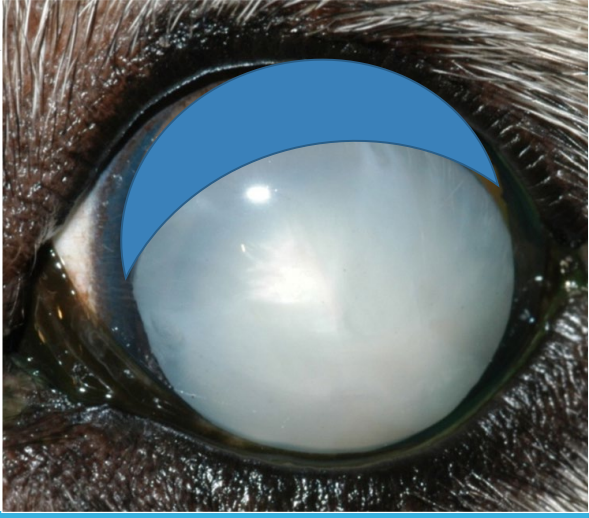
---

---

---

---





Mature Cataract with Anterior Lens Luxation

---

---

---

---

---

---

---

---

---

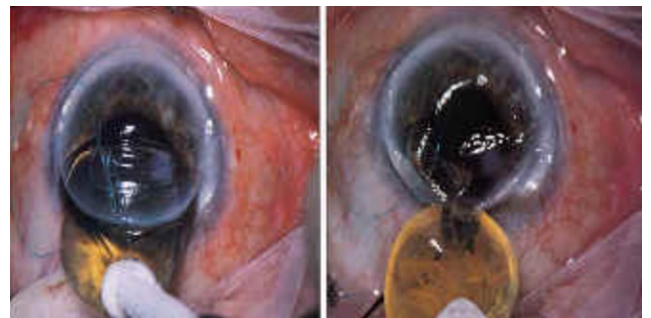
---

---

## Lens Luxation

### ● Treatment options

- Intracapsular Lens Extraction (ICLE)
  - Ophthalmologist must perform
  - Similar recovery to phacoemulsification
- Trans-corneal reduction
  - Non-invasive method
  - Lens remains within the eye
  - Can luxate again
  - Lifelong therapy
- Medical therapy
  - Last choice



---

---

---

---

---

---

---

---

---

---

---

● **Trans-corneal reduction**

- **Montgomery et al. 2014**
  - Sedation
  - Can cause ulcerations
  - Referral is still recommended

## **Trans-corneal reduction of anterior lens luxation in dogs with lens instability: a retrospective study of 19 dogs (2010-2013)**

Keith W Montgomery<sup>1</sup>, Amber L Labelle, Anne J Gemensky-Metzler

<https://onlinelibrary.wiley.com/action/downloadSupplement?doi=10.1111%2Fvop.12142&file=vop12142-sup-0001-VideoS1.avi>

---

---

---

---

---

---

---

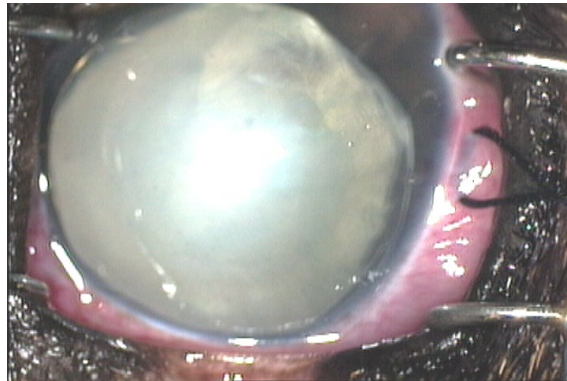
---

---

---

---

# Trans-Corneal Reduction of Anterior Lens Luxation



---

---

---

---

---

---

---

---

---

---



## Lens Luxation

- **Cats are different**
  - Surgery not generally recommended
  - Uveitis work-up needed
  - Medical therapy only
    - Dorzolamide



---

---

---

---

---

---

---

---

---

---

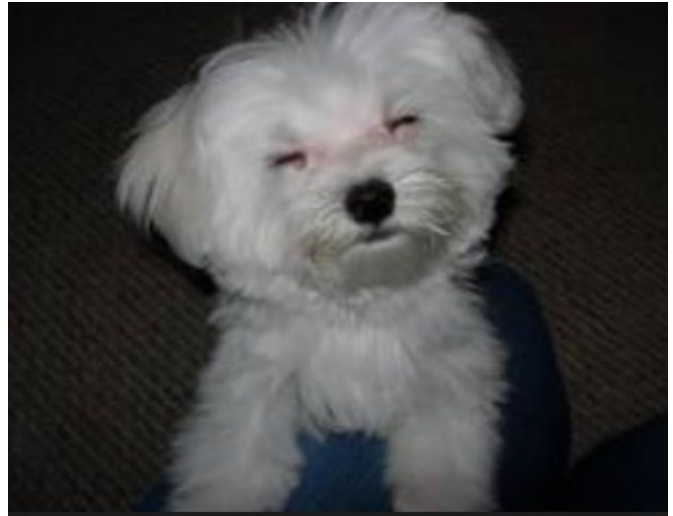
---

---

● **Clinical signs**

○ **Acute**

- Blepharospasm
- Miosis
- Aqueous Flare
- Hyphema
- Scleral injection
- Hypopyon



---

---

---

---

---

---

---

---

---

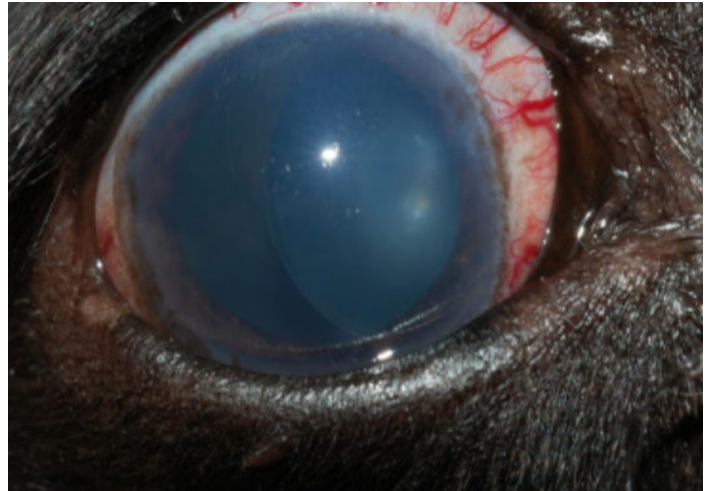
---

---

---

- **Clinical signs**

- Chronic
  - Secondary glaucoma
  - Cataractogenesis
  - Retinal detachment
  - Buphthalmia
  - Synechia formation



---

---

---

---

---

---

---

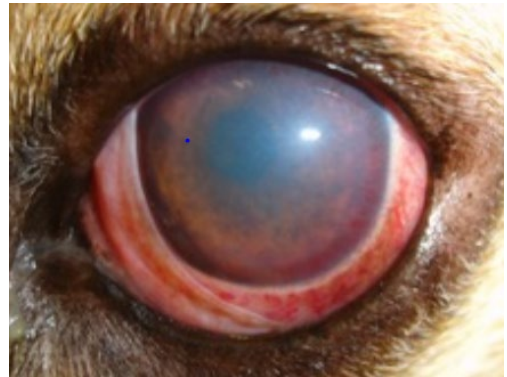
---

---

---

- **What to do?**

- Can be the cause or secondary
- Make sure none of the prior problems are occurring
- Referral
- Think like an internist



---

---

---

---

---

---

---

---

---

---

---

# Uveitis

## ● Differentials-Dog

- Trauma
- Phacolytic/Phacoclastic
- Neoplastic
- Idiopathic
- Infectious
  - Viral
  - Fungal
  - Tick-Borne
  - Protozoal



---

---

---

---

---

---

---

---

---

---

# Uveitis

- **Differentials-Cat**

- Fungal
- FeLV
- FIV
- FIP
- Toxoplasmosis
- Immune-mediated



---

---

---

---

---

---

---

---

---

---







## Retrobulbar Abscess

- **Clinical signs**

- Exophthalmia
- Acute
- Anorexia
- Pain upon opening mouth
- Increased intraocular pressure
  - Does not always occur



---

---

---

---

---

---

---

---

---

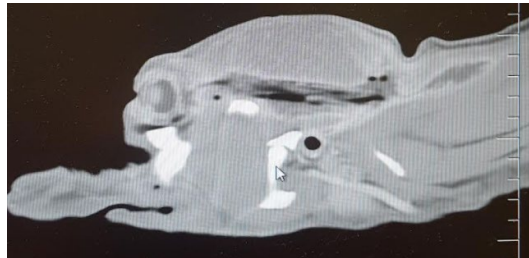
---

---

# Retrobulbar Abscess

- What to do?

- Imaging
- Complete laboratory values
- Medical
- Surgical



---

---

---

---

---

---

---

---

---

---

## Retrobulbar Abscess

- **Medical**

- Systemic antibiotic
  - Needs to be broad-spectrum
  - Think about delivery
  - Clavamox, Convenia
- Systemic anti-inflammatory
  - NSAID (Meloxicam)
  - Think about delivery
  - Adjunct pain management



---

---

---

---

---

---

---

---

---

---

---

## Retrobulbar Abscess

- **Surgical**

- 48 hours of no improvement
- Immediately
- Must facilitate drainage
- Intubate
- Blind stick
- Medical therapy required
- May cause blindness
  - Optic nerve may tear



---

---

---

---

---

---

---

---

---

---



## Bilateral Proptosis

---

---

---

---

---

---

---

---

---

---

---

# Proptosis

- Prior to clinic arrival
  - Time is of the essence
  - Lubrication!



Comparing oils: Olive, coconut, canola, and vegetable oil ([medicalnewstoday.com](http://medicalnewstoday.com))




---

---

---

---

---

---

---

---

---

---

# Proptosis

- **Triage**
  - Enucleation
  - Replacement



---

---

---

---

---

---

---

---

---

---

# Proptosis



## ● Indicators

- Optic nerve transected (-)
- Corneo-Scleral laceration (-)
- Chronicity (-)
- Rupture of 3 extraocular muscles (-)
- Hyphema (-)
- Breed/Species (+/-)
- Voluntary globe movement (+)
- Vision (+)
- Consensual PLR (+)
  - Pupil size is not reliable



---

---

---

---

---

---

---

---

---

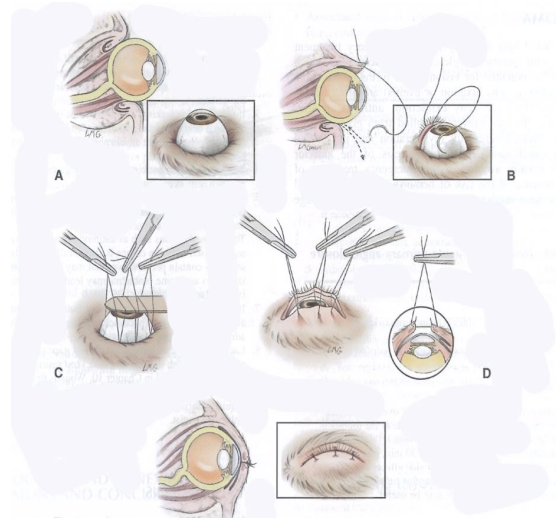
---



## Proptosis

### • Replacment

- Stabilize 1<sup>st</sup>!
- Lubrication
- Perform if unsure
- Pain medication
- Will require anesthesia



**Figure 19-2.** Procedure for replacement of a proptosed globe. **A,** Globe proptosis. **B,** Placement of simple interrupted traction sutures of 4/0 nylon. Alternatively, a series of modified horizontal mattress sutures may be used. Sutures should enter and exit at the lid margin and not on the conjunctival surface. **C,** Placement of scalpel handle on a cornea lubricated with an artificial tear ointment. **D,** Traction on the sutures and replacement of the globe. **E,** Completion of the sutures. *Slatters' Veterinary Optho 2008 p. 421*

---

---

---

---

---

---

---

---

---

---

---

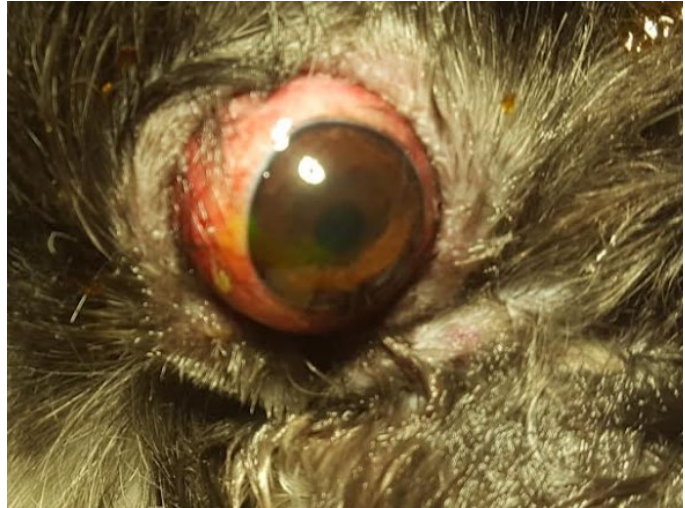
---



## Proptosis

- **Treatment**

- Topical antibiotic
- Systemic pain control
- Recheck in 2 weeks



---

---

---

---

---

---

---

---

---

---

- **Complications**

- Lagophthalmia
- Strabismus
- Corneal ulcerations
- Keratoconjunctivitis sicca (KCS)
- Blindness



---

---

---

---

---

---

---

---

---

---



---

**Thank you for choosing Vetcetera!**

*Ophthalmic Emergencies*

---

---

---

---

---

---

---

---

---

---

---

## References:

1. Labelle AL, Psutka K, Collins SP, Hamor RE. Use of hydropulsion for the treatment of superficial corneal foreign bodies: 15 cases (1999–2013). *J Am Vet Med Assoc*. 2014 Feb 15;244(4):476–9. doi: 10.2460/javma.244.4.476. PMID: 24479463.
2. Miller, Paul. “Ophthalmic Emergencies.” *Slatter's Fundamentals of Veterinary Ophthalmology (Fourth Edition)*, W.B. Saunders, 2008
3. Montgomery KW, Labelle AL, Gemensky-Metzler AJ. Trans-corneal reduction of anterior lens luxation in dogs with lens instability: a retrospective study of 19 dogs (2010–2013). *Vet Ophthalmol*. 2014 Jul;17(4):275–9. doi: 10.1111/vop.12142. Epub 2014 Jan 10. PMID: 24405506.
4. Tetas Pont R, Matas Riera M, Newton R, Donaldson D. Corneal and anterior segment foreign body trauma in dogs: a review of 218 cases. *Vet Ophthalmol*. 2016 Sep;19(5):386–97. doi: 10.1111/vop.12312. Epub 2015 Sep 11. PMID: 26359142.

## Image Credits:

Slide 5: [www.vetwest.com](http://www.vetwest.com)

Slide 11: [Eickemeyer.co.uk](http://Eickemeyer.co.uk)

Slide 12: [An-vision.com](http://An-vision.com)

Slide 14: [Raymed.com](http://Raymed.com)

Slide 15–16: Tetas Pont R, Matas Riera M, Newton R, Donaldson D. Corneal and anterior segment foreign body trauma in dogs: a review of 218 cases. *Vet Ophthalmol*. 2016 Sep;19(5):386–97. doi: 10.1111/vop.12312. Epub 2015 Sep 11. PMID: 26359142.

Slide 3,6,24, 38: [1800petmeds.com](http://1800petmeds.com)

Slide 26: [dogtime.com](http://dogtime.com)

Slide 31: [Cats.org.uk](http://Cats.org.uk)

Slide 37: [Wikipedia.com](http://Wikipedia.com)

Slide 38: [Vetrxdirect.com](http://Vetrxdirect.com)

Slide 39: [blog.petcube.com](http://blog.petcube.com)

Slide 44: [target.com](http://target.com); [medicalnewstoday.com](http://medicalnewstoday.com)

Slide 47: Miller, Paul. “Ophthalmic Emergencies.” *Slatter's Fundamentals of Veterinary Ophthalmology (Fourth Edition)*, W.B. Saunders, 2008.pp 419–26.

All other images provided by Todd Marlo.