Ophthalmic Emergencies
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Emergency Assessment

- Perform examination in a dark room
- Use magnification
- Apply proparacaine or use sedation if needed
- Examination
  - Comfort level
  - Vision and reflex testing (menace, dazzle, direct PLR, indirect PLR)
  - Evaluate each structure individually
  - Assess for aqueous flare
- **Ocular testing is important!**
  - Schirmer tear test, tonometry, fluorescein stain

Proptosis

- Acute globe displacement
- Assess for other evidence of trauma
- **Poor prognostic indicators**
  - More than 2 extraocular muscles torn
  - Ruptured eye
  - Hyphema
  - Cat or non-brachycephalic breed
- **Globe replacement**
  - Temporary tarsorrhaphy with horizontal mattress sutures
    - Leave in place at least 3 weeks
  - Systemic antibiotics and anti-inflammatories
  - Topical antibiotic q6, atropine q12-24h

Corneal Emergencies

- **Deep and melting ulcers**
  - Involves corneal stroma, usually bacterial infection
  - Look for divot in cornea, white infiltrate, soft appearance
  - Cytology and culture/sensitivity helpful
  - Conjunctival graft recommended if >50% depth
    - Provides corneal support and blood supply
  - Medical treatment
    - **No topical ointments! Drops only!**
    - E-collar and activity restriction important
    - **Topical broad-spectrum antibiotics 6-8x/day**
      - Ofloxacin, tobramycin, or gentamicin (good for gram negative)
      - Cefazolin, chloramphenicol or, neopolygram (good for gram positive)
    - Slow taper (but never < 3x/day). **treat at least 1 week past resolution**
      - Serum or plasma 6-8x/day
        - Keep refrigerated; good for up to 2 weeks
      - Atropine drops q12-24h
      - Oral NSAID, pain medication
      - Oral antibiotic: doxycycline or Clavamox

- **Corneal Perforation**
• Painful, often a “yelp” when it first occurs
• Clear or bloody discharge, protrusion/bulge on cornea, hyphema common
• Conjunctival graft vs. medical management (similar to deep ulcer treatment) vs. enucleation

• **Corneal laceration**
  o Medical vs. surgical treatment based on depth
  o Treat like deep ulcer

• **Corneal foreign body**
  o Superficial, deep, or penetrating
  o If superficial, **hydropulsion** with eyewash in syringe
  o Surgical removal if deeper
  o Treat remaining ulcer

**Anterior Uveitis**

• Always assess for **aqueous flare**!
• Usually low intraocular pressure, but secondary glaucoma common
• Can be local ocular disease or manifestation of systemic disease
  o **Idiopathic ~50% of cases**
• Systemic work-up
  o Full physical examination
  o CBC, Chemistry, UA
  o Infectious disease testing
    • Dog: 40x, tick titers, blasto/histo, other fungal infections
    • Cat: FIV, FeLV, FIP, crypto, blasto/histo, toxoplasma, bartonella
  o Chest radiographs, abdominal ultrasound
  o Lymph node aspirates
  o Ocular fluid cytology
  o Blood pressure
• Treatment
  o Treat underlying cause
  o Topical anti-inflammatory q6-12h (steroid >> NSAID)
    • Steroids: prednisolone acetate, dexamethasone (NPdex)
    • NSAIDs: diclofenac, ketorolac, flurbiprofen
  o Topical atropine q12-24h (NOT if elevated IOP)
  o Oral anti-inflammatory (steroid >> NSAID)
    • Careful with steroids if possible infectious disease!
    • Can start with prednisone at anti-inflammatory dose
  o Oral doxycycline

**Hyphema**

• Blood can be diffuse or settled in anterior chamber
• Low intraocular pressure, but **secondary glaucoma common**
• Can be secondary to ocular disease (trauma, intraocular tumor, retinal detachment) or systemic disease (hypertension, thrombocytopenia, coagulopathy, neoplasia)
• Diagnostics: CBC, Chemistry, PT/PTT, Blood pressure, Ocular ultrasound
• Treatment
  o Topical steroids q6-8h
  o +/- oral steroids

(Hyphema continued...)

  o Atropine or tropicamide q12h (NOT if elevated IOP)
Glaucoma

- Elevated intraocular pressure (normal = 10-25mmHg)
  - **Careful of false elevations!** Take all findings into consideration
- Primary (inherited) vs. secondary
- Important to assess visual potential (menace, dazzle, PLR)
- Assess for signs of chronicity
  - Poorer prognosis
- Emergency treatment
  - **Lower pressure ASAP!**
    - Latanoprost drop topically
      - NOT if anterior lens luxation
    - Mannitol 1 g/kg IV slowly over 20-30 minutes
      - Contraindicated with kidney or heart disease, dehydration
      - Best to do bloodwork first
      - Can repeat once if necessary
    - Glycerin 2 ml/kg PO
      - Similar to mannitol
      - Cannot be used in diabetic patients
    - Aqueocentesis with 27-30 gauge needle
- Medications
  - Dorzolamide q8-12h
  - +/- Timolol q8-12h
    - Contraindicated with heart disease
    - Careful in small dogs
  - +/- Latanoprost q12-24h
    - Not with anterior lens luxation or uveitis
  - Oral NSAID
- Surgical options if refractory to treatment

Anterior Lens Luxation

- Usually causes acute glaucoma
  - Important to assess visual potential
  - **Terrier breeds most common!**
  - Treatment options:
    - **Trans-Corneal Reduction**
      - Awake or sedated
      - Proparacaine for corneal anesthesia, +/- tropicamide and mannitol
      - Apply lubricant to cornea, tilt head up, apply pressure to cornea with CTA
      - Once lens is posterior, apply latanoprost and then hold head up until pupil is constricted
      - Always check for ulcer
      - Will need latanoprost q12h FOREVER
    - Intracapsular lens extraction surgery
    - Enucleation
      - If permanently blind or unable to perform post-op care

References

We hope to see you at our next event on Thursday, November 8th!

“Current Techniques in CPR”

presented by Elke Rudloff, DVM, DACVECC, cvMA