“Atypical” Scleritis in a dog

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- Tuli, 4yo FS Sheltie
  - 4/2013 OS scleral swelling → → incr pain
    - possible trauma,
    - neo/poly/gram, neo/poly/dex, ofloxacin
  - 5/2013 No improv
    - Enucleation OS
Unilateral, assymetrical
Locally extensive (nodular)
Limbus, sclera, deep episclera, cornea
Linear liquifactive necrosis
rare foci of granulomatous inflam w/ central necrotic core

possible vasculitis (1° or 2°?)

- severe locally exten necrotiz pyogran lymphoplas scleritis, episcler, cellulitis w/ linear necrosis
  - suggestive of perforating trauma
3 weeks routine recovery

- early 6/2013 similar signs OD
  - Cyclosporine, mycophenolate
  - 6/12 pred, 6/24 mycophenolate incr
  - Tick panel, abdom us, blwrk: all norm

- 8/7 Pred decr: flare ups

- Poor pred tolerance
  - Doxycycline, clindamycin
- Referred for Autoimmune work up and re-exam
  - thinning hair coat w/ ventral alopec
  - muscle mass decr
- OD Visual
  - Pupillary light reflex/dazzle present
  - Episcler/sclera: circumferential vasc injection
  - 1+ aqueous flare (prot ant chamber)
  - IOP= 6mmHg (10-25mmHg)
- 8/21 Enucleation
  - cont discomfort
  - poor pred tolerance
Mild scleritis w/ prominent deep episcleral edema
Scleritis

Scleritis on drugs!
Comparative aspects

- **Human**: Scleritis classification
  - **Anterior** (most common) / **posterior**
    - Nodular
    - Diffuse
  
  ________________
  - Inflammatory
  - Necrotizing with inflammation
  - Necrotizing w/o inflammation (Scleromalacia perforans)

- **Anterior**: 50% bilateral
- **Posterior**: 100% unilateral
- **Necrotizing w/ inflam**: most severe, most painful
Comparative aspects

- **Dog:** Scleritis classification
  - Anterior
    - Diffuse
      - Granulomatous (w/o necrosis)
      - Necrotizing with inflammation
      - Necrotizing w/o inflammation (Scleromalacia perforans)??

- Posterior- ?? incr incidence w/ improved diagnostic

- Necrotizing w/ inflam: most severe, most painful
  - Clinical signs and histologic correlates w/ human closely
Nodular necrotizing w/ inflammation
- **Primary- Idiopathic**
- **Secondary**
  - 50% underlying systemic disease
    - Autoimmune disease
      - Sheltie dog- predisposed to AI dermatomyositis
      - RA, SLE, polychondritis
      - Small vessel vasculitis
      - **ANCA- anti-neutrophil cytoplasmic Abs**
    - SINS (surgical induced necrotiz scleritis)
    - Infectious- Herpes zoster, TB Syphilis, Toxo…
      - ACVO. Willis et al. seropos *T gondii, E canis*
Mechanisms

- T vs B cell mediated, MHCII overexpression
  - Vet Ophth. Denk et al. B cell dominated inflam
  - response to Rituximab- sustained Bcell depletion
- MMP3, 9 TIMP-1 imbalance
- TNFa- driving progressive inflammation
  - Response to antiTNF a/b drugs
Conclusion

- Dogs mimic human autoimmune scleritis
  - Most common: diffuse anterior
  - Consider anterior nodular cases
- Necrotizing with inflammation
  - Rapidly progress to bilateral disease
- Investigate for systemic disease
  - In dogs rarely found- entities vet med is unaware of?? cANCA?
- Immunosuppressive drugs
- AntiTNFα, B lymphocyte depleting drugs