

"Hot Topics" discussions held at the IEOC meeting, June 8-9, 2018.

FRIDAY, JUNE 8

How do you manage insidious uveitis?

- Dr. Brooks: using more systemic dexamethasone now. Low dose 6-8 mg 1x per day for long term. Also uses atropine long term. Keep the pupil dilated. Says cases should never go off therapy. Also would consider prednisolone. Systemic steroids protect the back of the eye more.
- Dr. Lanois: Also uses systemic dexamethasone. 4-8 mg EOD. It would be nice to define an acceptable dose as there is feeling in the equine internal medicine community that long term use of steroids is not acceptable
- Dr. Kallberg: Starts at 1 mg/kg of prednisolone for 14 days then tapers the dose. Steroids are better than NSAIDs. Also is doing intravitreal injection of preservative free gentocin at a dose of 4 mg. May repeat in 1-2 months. However she is getting cautious about the injections as it looks like there is some retinotoxic effect. Cited a case of a valuable horse who showed some visual impairment after 4 injections at 2 month intervals. Studying with ERGs to better understand.
- Dr. Brooks commented on aspirin: Some owners have reported that aspirin therapy slows down cataract progression. 5 gms per day orally forever. Does not harm, may help some. Also has some horses on low dose flunixin.
- Dr. Tolar experiments to see "how low can they go" for steroid systemic doses (gets some horses down to 2x per week), and rechecks every 6 months.
- Dr. Huck-Miller uses Equioxx (firocoxib) on some of her cases.
- Dr. Allbaugh likes to use topical NSAIDs 1-2x per day (1% diclofenac).

How do you manage adnexal squamous cell carcinoma "in the field".

- Dr. Dwyer: Cisplatin injections or cryotherapy.
- Dr. Merideth: Uses carboplatin with considerable success. Cryotherapy will help small tumors. Recommends that you not use nitrous oxide, better to use liquid nitrogen. And do 2-3x cycles. If they recur he uses cisplatin.
- Dr. Gilger: Usually he is a second opinion on cases. Does not think that you should freeze a tumor a second time if unsuccessful the first time. Uses PDT on cases where owners want to just treat one time. If not successful he uses carboplatin in gel injections.
- Dr. Brooks commented that we need more collaborative data so we get evidence on which modalities work best. The only thing we know for sure from Dr. Tracy King in the 1980s is that cases that are debulked and treated with "something else" do better than horses treated with surgery alone. He challenged the IEOC to organize a study group to get some good data.
- Dr. Tolar and Gilger discussed electrochemotherapy: This modality has had great success in non-ocular sites. But this technique MUST be done under general anesthesia.

- Dr. Plummer explained PDT (photodynamic therapy) to the room. Debulk tumor, then inject VISUDYNE into the tumor bed base. The dye is preferentially taken up by tumor cells. Then apply light stimulation of XX wavelength to activate the dye. 10 ml of the VISUDYNE costs \$350-400. Good option for non-invasive adnexal tumors.
- Dr. Tolar asked if anyone was using 2 alpha interferon (Roferon). One attendee used it for limbal tumors after surgery, once a week for 4 weeks.

TOP SPL TIPS:

- Dr. Knott uses infusion pumps: Graysby infusion pumps designed for 24 hour infusion in children. Gives ability to infuse solutions onto the cornea constantly. Can purchase cheaply on Ebay. The pumps come in a phone sized plastic container, which is duct taped to the halter. Cost \$200 each but can get used for @\$50. They have a lot of "recipes" they use. Suspensions do not work well. CHPC, ofloxacin. Uses plasma rather than serum—much less "sticky". Uses Vfend in the pumps without issues. Prefers to use preservative free solutions. Attaches the SPL tubing to the horse by piercing the skin with the trochar in several places rather than using tape and suture. This is a great time saver. To pierce the eyelid he uses a 2 ml syringe as a guide usually into the nasal canthus to place in the inferior lid region. He ducts tapes the box to the head-collar. He has a mix he uses frequently on the cornea of hyaluronic acid and plasma that he calls "Love juice"; this is pushed through pump; while antibiotics are pushed into the SPL through syringes.
- Dr. Huck-Miller puts her pumps in a makeup bag or fanny pack and attaches to the halter. Uses Styrofoam swimming pool noodles to protect certain parts.
- Dr. Brooks does not use pumps. He encouraged the group to do some studies to determine what drug combinations are "doing" in vitro and in vivo. Dr. Brooks noted that he has published previously that the anticollagenase effects of serum are reduced if combined with other drugs.

How do you manage eye pain in your patients?

- Dr. Knott uses subconjunctival mepivacaine if doing surgery, intravitreal injections, etc.
- Dr. Gilger uses subconjunctival carbocaine or lidocaine for enucs. Uses subconjunctival amphotericin B a lot for bad fungal cases and finds this is painful; precedes with a bleb of lidocaine to reduce pain.
- Dr. Knott applies topical proxymetacaine with a cotton bud prior to making subconjunctival injections.
- Dr. Tolar uses subconjunctival carbocaine or lidocaine as well.
- Question from audience: Comments on topical morphine? All in room were negative on using this.
- Dr. Patterson: In humans they use topical anesthetics a lot to manage eye pain. Should we be using this strategy? Dr. Knott said that he had a human MD that mixed proxymetacaine with CHPC and used for 3 days. Dr. Plummer said she does not do it for fear that it will affect corneal quality. She has seen some non-healing ulcers following RDVM use of topical anesthetics.

- Dr. Plummer and Tolar both use IM butorphanol to manage severe pain.
- Dr. Allbaugh asked if anyone uses Firocoxib to manage severe pain. Room opinion was that this drug is not efficacious on severe ocular pain.

Dr. Allbaugh put up photos of red/purple flat lesions on the tapetum. The fellow eye was not affected even though that eye had uveitis. Asked for comments on etiology or similar cases.

- Room suggested a tick disease workup.
- Dr. Allbaugh said this struck her as odd being unilateral.

SATURDAY, JUNE 9

Discussion of Immune mediated Keratitis (IMMK)

- Dr. Matthews commented that the cornea is an extraordinarily complex organ. IMMK implies some kind of immunologic compromise. It is a spectrum of disease. Every case will be different in terms of presentation and in terms of response to therapy. We throw a lot of treatments at a disease we do not understand. We probably underuse steroids. He has published some groups of diseases that present similarly. Some do seem to get better. The earlier they are treated the better.
- Dr. Kate Myrna asked the room: What diagnostics do you employ? Corneal biopsy? Staggered drug trial? She is concerned about altering the immunobiology of the cornea any time you put a blade to it.
- Dr. Brooks said a lot depends on which layer is affected. Subepithelial or anterior stromal form vs deep stromal form vs. endothelial form. The deep ones have the colored staining that looks to have a green or orange sheen. Look out for Rose Bengal positive/Fluorescein negative lesions that may be fungal.
- Dr. Matthews: Once a cornea is immunologically compromised it is hard to get it back to a stable status. A normal cornea has NO population of lymphocytes (LC). If LC get into the cornea it is compromised. Some of his endothelial cases have turned around if he got to treating them with steroids immediately after symptoms occurred.
- Dr. Merideth asked the room how many go to a superficial keratectomy quickly?
- Dr. Nunnery is pretty quick to do these on horses that are superficial to mid-stromal in depth. She will do superficial keratectomies and leave them open. So far she has a few years followup on ones she has done. Has not seen complications.
- An Auburn colleague of Richard McMullen says they have treated superficial and stromal cases with intrastromal injections of indocyanine green dye and the results have been great. Theoretically the therapy would also kill any organisms that were present.
- Dr. Allbaugh asked if any of the room has any good new treatments to heterochromic iridocyclitic keratitis (HIK). Topical bromfenac was room's response, but everyone agreed these cases are very difficult.
- Dr. Gilger: said he mostly goes to cyclosporine (CSA) for his IMMK cases and they do OK for a while but once they go to calcific deposits he then goes to surgery. Most IMMK horses are fairly comfortable.

- Dr. Brooks said endotheliitis cases have been his hardest. Present with vertical corneal edema. In his hands the only thing that slows these cases down is low dose systemic dexamethasone: 6mg/day. Often bilateral.
- Dr. Gilger was queried about his stem cell research on select cases of IMMK. For now that research has been suspended.
- Dr. Noelle LaCroix commented that Dr. Nederland has published on a case of IMMK that progressed to lymphoma.
- Dr. Kallberg treats her IMMK cases with steroids or CSA but in Sweden no topical or systemic drug therapy is allowed in competition. She goes pretty quickly to keratectomies. Some heal in 2 weeks. Some are more complicated.
- Room was asked what they would do with a case where the lesions were in multiple places on the eye. Dr. Nunnery said she removes most of the corneal surface geography when she does keratectomies on these cases, and leaves them open.

Sudden blindness following head trauma:

- Dr. Brooks commented that horses that flip over and are suddenly blind may have hemorrhage in the visual cortex, and they may be similar to human patients who have hemorrhagic strokes. Iron in hemoglobin is toxic to brain tissue. Could Iron chelators be a therapy? A drug named Desferal (desferoxamine mesylate) is an iron chelating agent made by Novartis that could be used in such a case. Please contact Dr. Brooks if you have a case of sudden blindness.

Therapy for non-infectious, non-healing ulcers. Role of Amnion? Role of PRP and other regenerative strategies, carboxymethylglucose sulfate (Cacicol)?

- The room commented that they had no evidence to date of beneficial effects of topical or injected PRP or other conditioned blood products. Dr. Allbaugh said their studies in dogs of Cacicol have not shown beneficial effects.
- Dr. Nederland says the raised edge ulcers often have stiff/hard edges. On biopsy these come back as corneal sequestra. May be associated with fungus. Superficial keratectomy helps a lot.
- A practitioner from Idaho said she has had a few horses who have responded to focal burring followed by thermatokeratoplasty.

Do you advise surgery on fungal ulcers with grooves or furrows?

- Dr. Gilger said that is absolutely a sign for surgery ASAP. Usually keratectomy with some kind of grafting, usually using conjunctiva. Dr. Allbaugh does standing keratectomy and leaves them open on most of her cases. Use a 6400 blade, debulk. Dr. Tolar agrees, it is necrotic tissue and should be excised. The area of the furrow is weak.
- Dr. Brooks: The groove is forming to get rid of all that tissue. Is a perforation waiting to happen. On histopath the groove region shows a dissection plane of PMNs.
- Dr. Stoppini (Italy) has had luck with one case who had a standing keratectomy followed by corneal cross linking. He thinks the cross linking process has some antifungal activity and also can stabilize melting.

- Dr. Merideth has also had good luck with corneal cross linking for deep stromal abscesses.

Any other advances in fungal keratitis treatment?

- Dr. Tolar commented that in human corneas freeze therapy is administered (spray or contact)
- Dr. Lanois uses the antifungal skin cream terbinafine. He puts 0.2 ml in syringe and applies twice a day. Antimicrobial use rules in France do not permit voriconazole without a proven fungal culture.
- Dr. Bickel asked Dr. Meredith where he gets riboflavin. He gets it in Europe.

How do you handle vaccination in horses with IMMK or ERU?

- Most people modify the patient's vaccine schedule somehow to reduce the triggering potential of vaccination on these two diseases. NSAIDS were commonly used when vaccines were administered.
- Answers ranged from Banamine for 1-5 days around the date of vaccine administration to splitting up the antigens to stopping vaccination completely.