



IEOC/an-vision, Inc. Equine
Ophthalmology Symposium

Radisson Blu Hotel
Edinburgh, Scotland

June 1-3, 2023

IEOC/an-vision, Inc. Equine
Ophthalmology Symposium
June 1-3, 2023
Radisson Blu Hotel | Edinburgh, Scotland

The goal of this symposium is to share, with a small group of dedicated clinicians and scientists, current clinical and basic research on equine ophthalmology. Abstract and case presentations, along with social events, will facilitate the development of multi-centered collaborative research.

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Edinburgh Castle Dinner Sponsors

Special thank you to **Animal Eye Consultants Ltd.**, **Claudia Hartley Veterinary Ophthalmology**, and **Tim & Meg Knott, The Equine Eye Clinic** for graciously co-sponsoring the Friday Night Dinner Event at the Edinburgh Castle!

2023 IEOC/an-vision, Inc. SYMPOSIUM PROGRAM

Event	Room
General Session	St. Giles
Breaks & Lunch	Cannongate
Vendor/Sponsor	Cannongate

THURSDAY, JUNE 1ST

5:30PM - 8:00PM	Registration Desk Open
6:00PM - 8:00PM	Welcome Reception in Dunedin Room

FRIDAY, JUNE 2ND

			Presenter
7:30AM	Registration Desk Open		
7:45AM - 8:30AM	Breakfast in hotel dining room for hotel guests, drinks in vendor room.		
8:30AM - 8:45AM	Welcome and Introduction		
8:45AM - 9:45AM	State of the Art Lecture	Equine Recurrent Uveitis (ERU) - What has Happened so Far in ERU Research	Prof. Dr. Cornelia Deeg
9:45AM - 10:00AM	Break with Vendors		
10:00AM - 11:00AM	State of the Art Lecture	<i>Continued...</i> Equine Recurrent Uveitis (ERU) - Current Research Directions and Results from my Group	Prof. Dr. Cornelia Deeg
11:00AM - 11:05AM	Small Break		
11:05AM - 11:25AM	Abstract	COMPARATIVE SAFETY AND EFFICACY OF LOW-VOLUME RETROBULBAR ANESTHESIA USING THREE COMMERCIAL ANESTHETIC FORMULATIONS IN ADULT HORSES	J.S. Eaton
11:25AM - 11:45AM	Abstract	EFFECT OF VOLUMES OF ANESTHETIC AND GENTAMICIN SOLUTIONS ON INTRAOCULAR PRESSURE AFTER RETROBULBAR BLOCK AND INTRAVITREAL INJECTION IN HORSES WITH RECURRENT UVEITIS: A RANDOMIZED CONTROLLED STUDY	T. Launois
11:45AM - 12:05PM	Abstract	SUB-TENON'S ANESTHESIA IN EQUINE CATARACT SURGERY AND VITRECTOMY: A RETROSPECTIVE CASE SERIES (2018-2022)	O. Kiese
12:05PM - 1:20PM	Lunch with Exhibitors		
1:20PM - 1:40PM	Abstract	EFFECT OF VACCINATION ON A LEPTOSPIRAL UVEITIS OUTBREAK - 18 MONTH FOLLOW-UP: THE PARADOX STUDY	Dr. Gerras
1:40PM - 2:00PM	Abstract	THE EFFECT OF MORPHINE ON POSTOPERATIVE PAIN AFTER TRANSPALPEBRAL ENUCLEATION IN HORSES	H. Hermans
2:00PM - 2:15PM	Case Report	A Case of Ectopia Lentis, Microphakia and Spherophakia in a 3-day old colt foal	K. Houston
2:15PM - 2:30PM	Case Report	A severe ocular nodular sarcoid under treatment for 1.5 years	A. Sauvage
2:30PM - 2:45PM	Case Report	H-FIRE as adjunctive therapy for an adnexal atypical vascular tumor	T. Stonex
2:45PM - 3:05PM	Break with Vendors		
3:05PM - 3:20PM	Case Report	Uveitis as a long-term complication after corneal grafting using acellular porcine corneal stroma (APCS) for veterinary use (BioCorneaVet™) in two horses	S. Stadler
3:20PM - 3:35PM	Case Report	Bovine pericardium membrane (Tutopatch®) combined with a conjunctival flap for the management of deep corneal ulcers in horses: experiences from two cases	N. Giannakopoulou
3:35PM - 3:50PM	Case Report	Anterior Displacement of the terminus of Descemet's Membrane in a Poitou Donkey	M.H. Neaderland
3:50PM - 4:05PM	Case Report	An uncommon case of lipid keratopathy in a thoroughbred foal	S. Chahory
4:05PM - 4:10PM	5 min Vendor Time		
4:10PM - 5:00PM	"Hot Topics" Discussion		
5:00PM	Conclude		
7:00PM - 11:00PM	Edinburgh Castle Dinner	Those with pre-purchased tickets are to meet at the entrance of the Edinburgh Castle by 6:50PM this evening. Walk from the hotel on your own, bring your tickets and wear comfortable shoes! (Event is sold out)	

2023 IEOC/an-vision, Inc. SYMPOSIUM PROGRAM *continued...*

Event	Room
General Session	St. Giles
Breaks & Lunch	Cannongate
Vendor/Sponsor	Cannongate

SATURDAY, JUNE 3RD			Presenter
7:30AM	Registration Desk Open		
7:30AM - 8:30AM	Breakfast in hotel dining room for hotel guests, drinks in vendor room.		
8:30AM - 8:45AM	Welcome and Introduction		
8.45AM - 9:45AM	State of the Art Lecture	Ocular Oncology in Horses	Dr. Fernando Malalana
9:45AM - 10:00AM	Break with Vendors		
10:00AM - 11:00AM	State of the Art Lecture	Continued...Ocular Oncology in Horses	Dr. Fernando Malalana
11:00AM - 11:05AM	Small Break		
11:05AM - 11:25AM	Abstract	EQUINE CONJUNCTIVAL HAEMANGIOSARCOMA: CLINICAL FEATURES, MANAGEMENT AND OUTCOME OF SEVEN CASES IN THE UNITED KINGDOM	A Kashani-Carver
11:25AM - 11:45AM	Abstract	CLINICAL FINDINGS AND OUTCOMES OF HORSES PRESENTING WITH IMMUNE MEDIATED KERATITIS TO VETERINARY HOSPITALS IN THE UNITED KINGDOM AND FINLAND: 96 CASES (2009-2021)	J.F. Preston
11:45AM - 12:05PM	Abstract	WHAT HAVE WE BEEN MISSING, OR HOW CAN WE LOOK BETTER?	RJ McMullen Jr
12:05PM - 1:20PM	Lunch with Exhibitors		
1:20PM - 1:40PM	Abstract	TRANS CORNEAL ASPIRATION FOR MANAGEMENT OF PRIMARY IRIS CYSTS IN THE STANDING HORSE	S.L. Pratt
1:40PM - 2:00PM	Abstract	USE OF RECOMBINANT TISSUE PLASMINOGEN ACTIVATOR (rTPA) FOR TREATMENT OF FIBRIN AND BLOOD IN THE ANTERIOR CHAMBER OF THE HORSE	R. Pereira
2:00PM - 2:20PM	Abstract	COMPLICATIONS AND POSTOPERATIVE VISUAL OUTCOME AFTER PHACOEMULSIFICATION COMBINED WITH VITRECTOMY IN HORSES WITH ACQUIRED CATARACTS	A. Kalinovskiy
2:20PM - 2:40PM	Abstract	INFRARED FUNDUS PHOTOGRAPHY IN HORSES	C.B. Breaux
2:40PM - 2:55PM	Case Report	Mycotic Sphenopalatine Sinusitis with Concurrent Compression of the Optic Chiasm and Associated Blindness in a Horse	N. Holz
2:55PM - 3:15PM	Break with Vendors		
3:15PM - 3:30PM	Case Report	Bilateral exacerbated inflammatory reaction to cyclosporine implants and bacterial infections of the surgical site in an Appaloosa mare with equine recurrent uveitis	M. Sanchez-Garcia
3:30PM - 3:45PM	Case Report	Suprachoroidal injection of triamcinolone in eleven horses with different types of uveitis	B. Müller
3:45PM - 4:00PM	Case Report	Presumed heterochromic iridocyclitis with secondary keratitis (HIK) associated with equine herpesvirus-1 (EHV-1) infection – update 1 year later	R. Allbaugh
4:00PM - 4:15PM	Case Report	Sector iridectomy for treatment of iris melanomata in 2 horses	T. Knott
4:15PM - 4:45PM	"Hot Topics" Discussion		
4:45PM- 5:15PM	IEOC Member Business Meeting	All attendees are approved members and are encouraged to participate in this brief meeting. Trainees will receive presentation awards during this time.	
5:15PM	Adjourn		

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“Equine Recurrent Uveitis (ERU) - Current Research Directions and Results from my Group”

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State of the Art Lecturer

Prof. Dr. Cornelia A. Deeg

Chair of Animal Physiology, Department of
Veterinary Sciences, LMU Munich

Prof. Dr. Cornelia Deeg studied veterinary medicine at the University of Munich until 1994 and did her doctorate at the veterinary faculty from 1995 to 1997. She remained true to her university as a postdoc and habilitated there in 2006 with a thesis on immune reactions in horses with uveitis. The work was awarded the best habilitation by the Academy for Animal Health in 2007.

Since 2013, the double specialist veterinarian - for immunology and for physiology - has been an adjunct professor for veterinary physiology without a time limit and heads a working group at the Chair of Animal Physiology at the University of Munich.

Her outstanding insights into the pathogenesis of equine uveitis, an autoimmune disease of the horse's eye, gave her an unusual career path in human medicine, since the disease has a similar course in humans. In May 2015, Deeg was appointed university professor (W2) for experimental ophthalmology at the University of Marburg – in the medical faculty.

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**Notes will be provided digitally
by speaker post-conference**

FRIDAY SESSION
ABSTRACTS & CASE REPORTS

COMPARATIVE SAFETY AND EFFICACY OF LOW-VOLUME RETROBULBAR ANESTHESIA USING THREE COMMERCIAL ANESTHETIC FORMULATIONS IN ADULT HORSES (ZC Tooley,¹ JS Eaton,¹ SM Grant-Counard,¹ SM Ilkenhans,¹ SJ Hetzel,² KJ Bartholomew¹) Department of Surgical Sciences, School of Veterinary Medicine, University of Wisconsin-Madison¹; Biostatistics and Medical Informatics, School of Medicine and Public Health, University of Wisconsin-Madison.²

Purpose. To compare safety and efficacy of retrobulbar anesthesia using 5ml of lidocaine, mepivacaine, or bupivacaine via direct retrobulbar injection (DRI). **Methods.** A block-randomized, masked, controlled, crossover design was used with ≥ 1 -week washout between injections. A single ultrasound-guided DRI was performed under intravenous sedation in five eyes per treatment group (2% lidocaine (Sparhawk®; Lenexa, KS), 2% mepivacaine (Zoetis®; Kalamazoo, MI), or 0.5% bupivacaine (Hospira®; Lake Forest, IL)). Contralateral eyes served as untreated controls. Endpoints performed at baseline and timepoints post-DRI included: intraocular pressure (IOP), vertical pupil diameter (PD), corneal and periocular esthesiometry, and any observed adverse effects. Comparisons within/between groups were performed using repeated measures ANOVA with Tukey pairwise adjustments ($p < 0.05$). **Results.** Compared to controls, IOP was not significantly different at any timepoint post-DRI in any group. Pupil diameter increased significantly in all groups by 5 min post-DRI ($p \leq 0.003$), persisting through 4 hr in eyes receiving lidocaine or mepivacaine ($p \leq 0.038$), and 6 hr in eyes receiving bupivacaine ($p \leq 0.001$). Corneal anesthesia (CTT=0mm filament length) was achieved post-DRI in eyes receiving lidocaine, mepivacaine, and bupivacaine by 10, 45, and 5 minutes, respectively. Significant CTT reduction was observed through 4 hr in eyes receiving lidocaine or mepivacaine ($p < 0.001$), and 24 hr in eyes receiving bupivacaine ($p < 0.001$). No clinically significant periocular anesthesia was observed at any timepoint in any group. All injections were well-tolerated with low incidence of chemosis post-DRI. **Conclusions.** A single DRI using 5ml lidocaine, mepivacaine, or bupivacaine is safe in horses. Bupivacaine induces rapid corneal anesthesia with comparatively prolonged duration of effect. **None.**

EFFECT OF VOLUMES OF ANESTHETIC AND GENTAMICIN SOLUTIONS ON INTRAOCULAR PRESSURE AFTER RETROBULBAR BLOCK AND INTRAVITREAL INJECTION IN HORSES WITH RECURRENT UVEITIS: A RANDOMIZED CONTROLLED STUDY (Thomas Launois¹, Fanny Hontoir², Alexandra Dugdale³, Marion Dedieu¹, Jean-Michel Vandeweerd^{2*}) Clinique du Lys, 77190, Dammarie-Lez-Lys, France¹; Integrated Veterinary Research Unit (IVRU) – Namur Research Institute for Life Sciences (NARILIS), Department of Veterinary Medicine, Faculty of Sciences, University of Namur, Namur, Belgium²; Paragon Veterinary Referrals, Paragon Business Village, 1 Red Hall Crescent, Wakefield, WF1 2DF, UK³.

Purpose. Horses with recurrent uveitis can be treated by intravitreal injection of low dose gentamicin under sedation and after local anesthetic techniques including the retrobulbar nerve block. The current randomized controlled study was carried out in order to investigate the changes in intraocular pressure (IOP) following retrobulbar anesthesia, with either of two different volumes of local anesthetic solution (lidocaine 2%), as it is reported that retinal degeneration can be secondary to an acute increase of IOP. IOP changes were also measured after subsequent intravitreal injection of two different volumes of gentamicin (6 mg). **Methods.** Eighteen horses with unilateral uveitis were randomized into three groups. All horses were, at the time of referral, in a quiescent stage of disease. Group 1 (n = 6) received 0.15 mL of gentamicin solution after a 10 mL volume retrobulbar block, group 2 (n = 6) received 0.15 mL of gentamicin solution after a 5 mL volume retrobulbar block, and group 3 (n = 6) received 0.30 mL of gentamicin solution after a 5 mL volume retrobulbar block. IOP was the primary outcome and measured with a rebound tonometer set to equine mode, bilaterally at different timepoints: (1) at baseline, (2) immediately after sedation, (3) immediately after the retrobulbar block (4), and finally one hour after the retrobulbar block (5). **Results.** Desensitization and akinesia was achieved in all patients. Multivariate regression analysis showed that IOP was significantly lower in the pathologic eye at baseline (negative estimated β -6.1 mmHg; $P= 0.0001$) and after sedation (estimated β -9.4 mmHg; $P<0.0001$). The IOP was significantly higher after a 10 mL block ($P 0.0002$) but this effect was very small (0.5 mmHg). There was no significant difference in IOP after the injection of 0.15 or 0.3 mL solution of gentamicin. There was no significant combined effect of the volume of local anesthetic used for the block and the volume of the gentamicin solution. **Conclusions.** Injection of 5 mL of lidocaine solution for retrobulbar block showed similar efficacy to injection of 10 mL of lidocaine solution prior to intravitreal injections and neither volume was associated with a significant rise in IOP. The smaller volume of local anesthetic may be preferable to use in clinical cases. Intravitreal injection of 6 mg of Gentamicin in a volume of either 0.15 or 0.30 mL was not associated with a significant change in IOP in treated horses. **None.**

SUB-TENON'S ANESTHESIA IN EQUINE CATARACT SURGERY AND VITRECTOMY: A RETROSPECTIVE CASE SERIES (2018-2022) (Orquidea Kiese,¹ Paul Torgerson,² Simon A. Pot,² Silvia Stadler³) Pferdeklinik Dalchenhof, Talchenweg 7, 4805 Brittnau, Switzerland;¹ Vetsuisse Faculty, University of Zurich, Winterthurerstrasse 260, Zurich, CH-8057, Switzerland;² Pferdeklinik Tillysburg, Bruck bei Hausleiten 11, 4490, Austria.³

Purpose. To investigate the sub-Tenon's anesthesia as an alternative to neuromuscular agents or retrobulbar block as a valid alternative for surgical procedures performed on the equine globe under general anesthesia. **Methods.** A retrospective analysis of the case records of 12 horses (15 eyes) which underwent a Sub-Tenon's injection for a phacoemulsification or pars plana vitrectomy under general anesthesia between 2018-2022 was performed. Effect and duration of globe rotation and pupil dilation was recorded. Intra-operative and post-operative complications and post-operative vision were assessed. A linear model was used for centralisation and mydriasis and the effect of 7ml lidocaine (Xylocain, 2% lidocaine hydrochloride, 20mg/mL, Aspen Germany GmbH) and 7ml mepivacaine (Mepinaest purum 2%, mepivacaine hydrochloride, Gebro Pharma GmbH). **Results.** Time from injection of local anesthetic to pupil dilation took 6 minutes to 13 minutes. Pupil dilation was incomplete in 6 eyes and duration of mydriasis was 15 to 135 minutes. Centralization took a significant longer time when mepivacaine was used compared to lidocaine (5-10 minutes), on average it took 3.4 minutes longer from injection to centralization. The duration of centralization (14 to 41 minutes) was longer by an average of 16 minutes with mepivacaine compared to lidocaine. Mydriasis was shown to take significant longer time (on average 3.1 minutes) with mepivacaine compared to lidocaine. The duration of mydriasis showed no significant difference between these two agents. No significant difference of intra- or postoperative complications was found between mepivacaine or lidocaine. Severe chemosis as an intraoperative complication was noted in one case followed by low-grade retrobulbar inflammation as a long-term postoperative complication. Temporary blindness was diagnosed in 2 cases. **Conclusions.** Sub-Tenon's anesthesia is a feasible alternative to systemic neuromuscular blockade for critical procedures on the equine globe. Further investigation of the influence of sub-Tenon's anesthesia on intraocular pressure and as an alternative to retrobulbar block in horses is desirable. **None.**

EFFECT OF VACCINATION ON A LEPTOSPIRAL UVEITIS OUTBREAK – 18 MONTH FOLLOW-UP: THE PARADOX STUDY (JP Gerras,¹ G Waldman,² JH Salmon,¹ D Roberts,¹ K Young,¹ BC Gilger,¹) College of Veterinary Medicine, North Carolina State University, Raleigh, NC USA;¹ Rivendell Mobile Large Animal Veterinary Services, Mocksville, NC USA.²

Purpose. To determine if vaccination prevents equine ocular disease on a farm exposed to leptospirosis-associated uveitis (LAU). **Methods.** A randomized, double-blinded, placebo-controlled study was used. Ocular examination (OE) and blood was collected (serum leptospiral titer [SLT]) from each animal prior to vaccination. Six leptospiral serovars were tested for. Horses and donkeys were randomly divided with half receiving leptospiral vaccination (Zoetis) or saline followed by boosters 4-weeks later. OEs and SLTs were collected every three months for 18 months. Farm water sources were analyzed for presence of *Leptospira spp.* by quantitative PCR. **Results.** 11/53 horses (5/27 vaccinated, 6/26 horses unvaccinated) had negative titer values prior to treatments. All horses had SLT for 18 months post-treatment, regardless of treatment. At the start, 21/100 eyes had uveitis (11 unvaccinated, 10 vaccinated). Eight eyes in both groups developed uveitis during the study. At 3 months, *L. pomona* titer was significantly higher ($p < 0.006$) in vaccinated horses while unvaccinated horses had slightly higher incidence of uveitis. Horses with uveitis had significantly higher SLT ($p < 0.046$) at each evaluation except vaccinated horses at 3 mos. Mules and donkeys differed from horses in that they had high SLT but no uveitis. Leptospiral DNA were detected in 2/5 water sources. **Conclusions.** A short-term effect of the vaccine against LAU may have been observed (~3mos). Some horses and all donkey/mules, even those with high titers, did not develop uveitis suggesting a resistance. Further work may determine a resistant genetic link. Funding supported by the NCSU Equine Uveitis Fund. **None.**

THE EFFECT OF MORPHINE ON POSTOPERATIVE PAIN AFTER TRANSPALPEBRAL ENUCLEATION IN HORSES. (H Hermans^{1,2}, EMS Visser¹, RL van Soest¹, NCR te Moller¹, JC de Grauw^{1,3}, JPAM van Loon^{1,4}). Department Clinical Sciences, Faculty of Veterinary Medicine, Utrecht University;¹ Equine Eye Care, the Netherlands;² Department of Clinical Science and Services, Veterinary Anaesthesia and Analgesia, University of London, Royal Veterinary College;³ Sporthorse Medical Diagnostic Centre (SMDC), the Netherlands.⁴

Purpose. To assess postoperative pain in horses after transpalpebral enucleation and the analgesic effect of intravenous morphine using the Equine Utrecht University Scale for Facial Assessment of Pain (EQUUS-FAP). **Methods.** Forty-seven client-owned horses undergoing unilateral enucleation during standing surgery (n = 37) or general anaesthesia (n = 10) were randomly assigned to receive morphine (0.1 mg/kg bwt, IV) (Group A) or no morphine (Group B) 4 hours after pre-operative retrobulbar administration of levobupivacaine. Videos were recorded pre-operatively (T0), postoperatively 5 hours after the retrobulbar block (T1), and every hour thereafter for 6 hours (T2-T6), as well as before (T7) and after oral administration of meloxicam (T8) one day postoperatively. Video recordings were randomised, blinded and scored by three observers using the EQUUS-FAP. Intraclass Correlation Coefficients (ICC) were calculated. A mixed effect model was used to compare pain scores between group A and B at different time points (T0-8). **Results.** The ICC was moderate (0.74, $p < 0.001$). At T5, significantly lower pain scores were seen in group A than in group B ($p = 0.025$). Within group A, pain scores did not change significantly over time; however, horses in group B showed higher postoperative pain scores at T3 ($p = 0.026$), T4 ($p = 0.044$), T5 ($p = 0.001$) and T6 ($p = 0.026$) compared to T0, with scores returning to baseline at T7. **Conclusions.** Enucleation is a painful procedure warranting adequate analgesic treatment. Morphine reduces postoperative pain, but additional pain medication may be necessary. The EQUUS-FAP helps objectively assess postoperative pain and tailor analgesia to the individual patient. **None.**

Title: A Case of Ectopia Lentis, Microphakia and Spherophakia in a 3-day old colt foal.

Author and address:

Houston, K¹; Hartley, C¹; Scurrel, E²;

¹Royal (Dick) School of Veterinary Studies, Roslin, Edinburgh, EH25 9RG, UK

²Cytopath Ltd., PO Box 24, Ledbury, Herefordshire, HR8 2YD

Topic Area:

Lens

Case Summary:

A 3-day old Oldenburg x Thoroughbred colt foal was examined by the Royal (Dick) School of Veterinary Studies, Edinburgh, UK due to concerns over bilateral abnormally appearing eyes and visual deficits. Menace responses and pupillary light reflexes were absent but brisk dazzle reflexes were bilaterally present. There was bilateral microphakia and spherophakia with medioventral lens subluxation. Sparse elongated zonular fibres were present in the left eye. In the right eye hyphaema, a presumed fibrovascular membrane in the anterior vitreous and a suspected partial retinal detachment were noted. Intraocular pressures were 24mmHg bilaterally

The foal was euthanised due to his hopeless prognosis. Blood samples were taken and submitted for potential future genetic investigation. Both globes were submitted for histopathology, which identified subluxated lenses with focal areas of flattening at the lens equator, presumed to be small lens colobomas potentially secondary to an abnormality of the lens zonules. In the posterior segment, the retinas were detached but considered artefactual; the inner retinal nerve fibre layers and ganglion cell layers remained robust.

There is only one report of equine ectopia lentis in the literature (Gerhard *et al.* 1992), although descriptions can be found in some reference textbooks (Leiva, M & Pena. 2016).

Key Words:

Ectopia lentis, lens coloboma, congenital lens luxation, microphakia, spherophakia

Discussion Points:

Congenital lens luxation and abnormal zonular fibre formation leading to dislocation
Genetic investigation of ectopia lentis

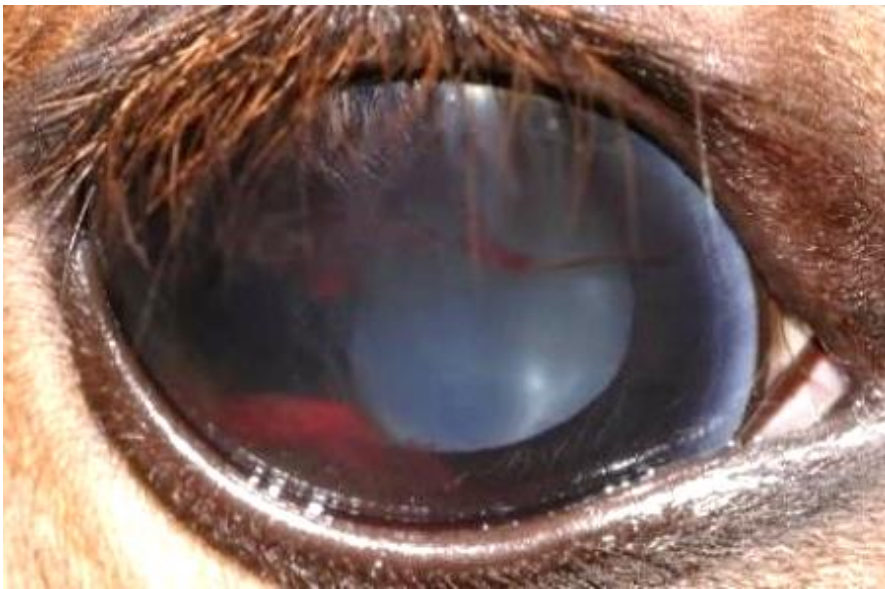


Figure 1: Right eye displaying hyphaema and a medioventral subluxated lens



Figure 2: Left eye displaying a medioventral subluxated lens

Title: A severe ocular nodular sarcoid under treatment for 1.5 years.

Author and address:

Sauvage, Aurelie

Ophthalmology Equine private practice, Brussels

Equitom, Lummen

Liège University, Belgium

Topic area:

Adnexa

Case Summary:

A seven-year-old Hanoverian warmblood mare was presented in August 2021 for rapidly growing multiple ocular nodules around the left eye. A lower eyelid sarcoid was surgically removed from around the left eye six month prior to presentation at another veterinary hospital. Histopathology confirmed recurrence of the sarcoid, and ultrasonography showed the multinodular aspect of the tumor, with a deep orbital extension. Brachytherapy was performed in September 2021. Unfortunately, the disease process worsened, with the extension of new nodules nasally, dorsally, and the lower eyelid had necrosed. Further treatments included several sessions of electrochemotherapy, local infiltration of carboplatin suspension, multiple sessions of debulking which were complicated with abscesses, and required a surgical reconstruction of the lower eyelid. Recently, the eye is still functional, and the sarcoid is controlled but requires carboplatin infiltration on a regular basis. We were not able to stop the chemotherapy, as recurrence was observed when treatment was eliminated.

Key Words: Sarcoid, brachytherapy, chemotherapy, complication, skin grafts

Discussion points:

Unusual nodular adnexal sarcoid, malignant behavior

Ocular sarcoid treatments and their complications, with the aim of preservation of a functional globe

Blepharoplasty procedures in horses

INITIAL PRESENTATION, AUGUST 2021



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Title: H-FIRE as adjunctive therapy for an adnexal atypical vascular tumor

Author and address:

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Topic area:

Adnexa

Case Summary:

A 20-year-old Tennessee Walking Horse gelding was presented to the NCSU Ophthalmology Service for evaluation of a cutaneous mass associated with the right medial inferior eyelid measuring 2.5cm x 1.7cm x 1cm. The remainder of the ophthalmic exam was normal. The mass was excised under general anesthesia via a skin incision made along the ventral aspect of the mass and submitted for histopathologic evaluation. Immediately thereafter, 1.5 units of bleomycin was injected into the surgical site, followed by high-frequency irreversible electroporation (H-FIRE) to target microscopic disease. H-FIRE utilizes high-frequency bipolar electric pulses to destabilize cancer cell membranes and induce cell death. The surgical incision had fully healed at exam two weeks post-operatively. The tumor was diagnosed as an atypical vascular proliferation, with characteristics of benign vascular angiomas lesion and more malignant features including marked pleomorphism and a high mitotic figure count. Thus, treatment with intralesional bleomycin followed by H-FIRE was repeated two additional times at 2-week intervals. To date (~8 months), no tumor recurrence has been noted.

Key Words:

H-FIRE, bleomycin, vascular angiomas, blepharoplasty

Discussion points:

- H-FIRE as an adjunctive therapy for treatment of adnexal tumors
- Atypical adnexal vascular tumors in horse
- Blepharoplasty for treatment of adnexa tumors



Figure 1. Pre-operative appearance



Figure 2. 2 weeks post-operative

Title: Uveitis as a long-term complication after corneal grafting using acellular porcine corneal stroma (APCS) for veterinary use (BioCorneaVet™) in two horses.

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Topic area:

Cornea

Case Summary:

Description of uveitis as a long-term complication in two patients that underwent keratoplasty with APCS graft to repair a deep corneal defect following corneal fungal infections. Both cases had a history of eosinophilic keratitis treated with topical steroids.

After re-epithelization of the BioCorneaVet™ within 8-10 days since the surgery, both cases were discharged from the clinic. After 4-7 weeks, both cases were presented with moderate blepharospasm, vascularized graft with cellular infiltrates around the graft, marked flare and cells in the anterior chamber, and IOP of 5-7 mmHg.

Treatment of the uveitis included topical dexamethasone and bromfenac twice daily for a period of 3 weeks and oral meloxicam for 5 days, which resulted in a comfortable, visual eye.

Follow-up time ranged from 10 to 12 months. Both cases were visual with significant corneal fibrosis in one case and moderate fibrosis in the other one.

Key Words:

Corneal transplant (BioCorneaVet, petseyes), long-term complication, eosinophilic keratitis, fungal infection

Discussion points:

Complications in corneal transplants (BioCorneaVet, petseyes)

Suspected immune-mediated uveitis – foreign material/suture material induced?

Comparison to other corneal transplants (BioSiS, Acell, heterologous/homologous transplant)

Title: Bovine pericardium membrane (Tutopatch®) combined with a conjunctival flap for the management of deep corneal ulcers in horses: experiences from two cases

Authors and addresses:

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Topic area:

Cornea and Surgery

Case summary:

Two horses presented to Royal (Dick) School of Veterinary Studies, Edinburgh, UK, with deep corneal ulcers and underwent surgical repair using bovine pericardium (Tutopatch®) and a conjunctival flap. Case 1 was a 20 year 2 month old Friesian gelding with a descemetocoele in the left eye, suspected to be due to Friesian corneal dystrophy. Case 2 was a 9 year 9 month old Warmblood mare with a history of immune-mediated keratitis and chronic topical corticosteroid application in the left eye that subsequently presented with a deep-stromal ulcer. Cytological examination diagnosed a secondary bacterial and fungal keratitis.

Surgery was performed under general anesthesia in both cases. Following gentle debridement of the corneal defects (minimal in case 1, more extensive in case 2), the Tutopatch® material was trimmed to appropriate size, and sutured into the ulcer bed using a simple interrupted pattern with 8-0 Vicryl® (polyglactin 910). A conjunctival flap (pedicle in case 1 and advancement in case 2) was subsequently placed over the stromal defect in both cases.

The combined use of Tutopatch® and a conjunctival flap was found to be a safe and effective surgical technique for the treatment of deep corneal ulcers in these two cases.

Key Words:

Deep corneal ulcer, descemetocoele, bovine pericardium, Tutopatch®, corneal grafting

Discussion points:

What are people's preferences regarding corneal grafting materials?

And why? Cost? Tectonics? Anti-malacic properties (amniot)?

Would a 'free' Tutopatch® graft alone be sufficient in Case 1?

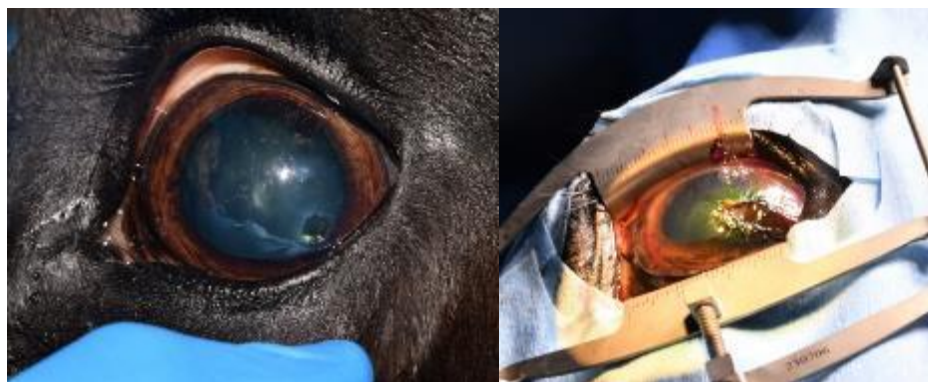


Figure 1: Case 1 before and after Tutopatch® and pedicle conjunctival graft



Figure 2: Case 2 before and after Tutopatch® and advancement conjunctival graft

Title: Anterior Displacement of the terminus of Descemet's Membrane in a Poitou Donkey

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Topic Area:

Cornea/Anterior segment

Case Summary:

16 year old Poitou donkey presented for incidental finding of bilateral symmetrical medial and temporal corneal edema. Eyes comfortable, visual, normotensive. Corneal edema present 9 mm medially and 5 mm temporally bilaterally. Several fluorescein negative staining bullae were present in both edematous medial corneas. Bilateral incipient anterior cortical cataracts present. Symptomatic treatment with 5% sodium chloride ophthalmic ointment OU BID was started. Recheck 4 months later revealed slight decrease in the edematous areas and resolution of all bullae. Treatment was continued with recheck every 6 months, with no change in comfort, vision nor edema for the next 2 years. 5 months after last examination diffuse edema developed. Shortly thereafter, the donkey's physical condition declined and was euthanized. Eyes were submitted to COPLOW. Related donkey relatives were thought to have been affected.

Microscopic lesions were similar in both eyes and included: anteriorly displaced termination of Descemet's membrane with exposed deep corneal stroma peripheral to the terminus and anterior displacement of the ciliary body plicae. There was associated corneal stromal edema and vascularization. These changes are consistent with a form of anterior segment dysgenesis with resulting corneal stromal edema.



OS Affected Poitou donkey. Medial and temporal corneal edema.



Histopath photo:

Image of abnormal iridocorneal angle. The limbus is indistinct. Descemet's membrane arborizes (white arrow) anterior to the limbus and corneal stroma continues posterior to where Descemet's membrane arborizes (asterisk). The ciliary body plicae extend from the peripheral posterior iris surface (black arrow).

Key Words:

Hereditary anterior segment dysgenesis, donkey, corneal edema

Discussion Points:

Consider hereditary cause when multiple related in herd affected? Other known hereditary causes of corneal edema in the horse?

Other reports of equine anterior segment dysgenesis?

Title: An uncommon case of lipid keratopathy in a thoroughbred foal

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Topic area:

Cornea, internal medicine

Case Summary:

A 3-week old Thoroughbred foal was presented for an abnormal opacity of the right eye without any evidence of ocular pain or impaired vision. A small (approx. 2mm) focal white, dense corneal opacity was noted on the ventral aspect of the cornea, surrounded by a wide area of neovascularization, mild corneal oedema and a two-toned concentric translucent corneal opacity involving the ventral third of the ocular surface (Figure 1). Slit-lamp examination revealed deposits in the anterior corneal stroma, suggestive of lipid deposits (Figure 2). Fluorescein staining was negative. No other significant ocular abnormalities were detected. Left eye examination was unremarkable. Lipid keratopathy was strongly suspected. Differential diagnosis may include a congenital abnormality or an ocular trauma with atypical scar variant. To assess the hypothesis of lipid keratopathy secondary to systemic hyperlipemia, blood biochemistry was carried out and revealed hypercholesterolemia and mild hypertriglyceridemia. Blood biochemistry of the mare was within normal limits, but milk biochemistry revealed increased cholesterol.

To the authors' knowledge, there is no other reported case of lipid keratopathy in foals and causes of hypercholesterolemia in foals are unknown. The etiopathogenesis in this case is unclear, a congenital, traumatic or nutritional origin can be suspected. A 2-month follow-up showed no evolution of corneal deposits but a progressive decrease of corneal vascularization.

Key Words:

Cornea, lipid deposits, hypercholesterolemia, horse

Discussion points:

Corneal lipid deposits etiopathogenesis in foals?

Hypercholesterolemia etiopathogenesis in foals?



Figure 1: Right eye : aspect of the cornea.



Figure 2: Right eye : aspect of the cornea – focus on neovascularization and lipid deposit

SATURDAY SESSION
ABSTRACTS & CASE REPORTS



State of the Art Lecturer

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I graduated from the Complutense University of Madrid in 2001 followed by 6 years in mixed practice in East Yorkshire, UK. In 2008 I moved to the University of Liverpool where I completed an ECEIM residency in Equine Internal Medicine. I am a European Specialist in Equine Internal Medicine since 2011 and currently work as a senior lecturer at the University of Liverpool. In 2021 I completed a PhD on the Epidemiology of Uveitis. I am interested in all aspects of Equine Medicine but have a particular interest in general ophthalmology, ophthalmic oncology and ophthalmic imaging.

Equine Recurrent Uveitis (ERU)

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Peri-ocular and ocular tumours account for approximately 10% of all equine neoplasms. Most of these affect the eyelid and periocular structures but neoplasia affecting the globe is also encountered occasionally. Ocular tumours can be challenging from a diagnostic and therapeutic point of view. Obtaining tissue for histopathologic investigation prior to surgery can be difficult depending on the location of the tumour. Fortunately, tumour location and appearance can assist in tumour identification in a large number of cases. In addition, complete excision of these tumours with adequate margins without significantly compromising the eye is often impossible.

There are published case reports on neoplastic disorders for almost every ocular structure of horses even though there are relatively few specific tumour types.

For this presentation I will consider only those tumour types that can affect the globe. Whilst the commonest periorbital tumour on horses is undoubtedly the sarcoid, this condition will not be covered.

Squamous cell carcinoma

Squamous cell carcinoma (SCC) is a slow-growing malignant neoplasia of the skin, mucous membranes and mucocutaneous junctions. It can affect the eyelids, the conjunctiva and the cornea. In an epidemiological study SCC affected the nictitating membrane, nasal canthus, or both in 28.1% of cases, the limbus in 27.5% and the eyelids in 22.8% (Dugan et al., 1991b).

Eyelid SCC can present as proliferative masses or ulcerative lesions, typically affecting the eyelid margins. SCC in the third eyelid present as proliferative masses on the outer surface of nictitating membrane. Corneal squamous cell carcinomas typically appear as raised, pink-white masses with an irregular surface affecting mainly the corneal epithelium (Montgomery 2014). A second, less frequent form has also been described affecting the corneal stroma. These corneal stromal invasive squamous cell carcinomas appear clinically as smooth lesions which grow directly into the corneal stroma and which may be confused with immune mediated keratitis (Kafarnic et al., 2009). Diagnosis mostly relies on the characteristic clinical appearance. Confirmation is easily achieved by histopathological examination after excisional surgery.

Ultraviolet (UV) radiation exposure is a well-documented risk factor for the development of squamous cell carcinoma in any species, with the risk rising with increasing exposure to solar radiation and higher altitude (Dugan et al., 1991b). The condition appears more frequent in breeds with the least periocular pigmentation such as Appaloosas and American Paint Breeds, although horses with a chestnut coat colour and some heavy horse breeds, such as Clydesdale, with darkly pigmented periocular regions also show an increase in incidence (Dugan et al., 1991a; Lassaline 2021). In addition, data suggest that Haflinger horses are also over-represented. Recent genetic studies in Haflingers have identified an association between a mutation in a gene associated with repairing UV-irradiated DNA damage (DNA-binding protein 2 (DDB2)) and limbal squamous cell carcinoma (Bellone et al., 2017). More

recently, mutations in this gene have been shown to also be a risk factor for ocular SCC in Belgian horses (Knickelbein et al., 2020).

Sex has also been associated with an increased risk of development of SCC, with castrated males 5 times more likely to develop ocular/adnexal squamous cell carcinomas than stallions, and 2 times more likely than females (Dugan et al., 1991a). The specific pathophysiologic mechanism responsible for this is unknown, but could be related to concentrations of circulating androgens, estrogens or both.

Ocular SCC typically affects middle aged horses with the average range of 9.9 – 13.3 years found in most studies (Schwink 1987; Dugan et al. 1991a; Kafarnik et al. 2009). An increased prevalence of ocular/adnexal SCC with an increase in age has been proposed (Dugan et al., 1991a).

The management of ocular squamous cell carcinoma remains challenging. Local infiltration is common and metastasis rates vary between 6-18 % (Kafarnik et al., 2009). Endoscopic examination of the guttural pouches of horses presented for management of ocular and periocular squamous cell carcinoma for assessment of the regional lymphatic nodes prior to any treatment may be advisable. However, in several studies, metastasis to distant sites was identified several months following the treatment of the primary ocular lesion, with no evidence of recurrence at the original site, confirming the importance of long-term monitoring of these cases (Elce et al., 2011; Mair et al., 2015).

A large number of treatment options have been described. Different surgical techniques have been described, including surgical excision and keratectomy with or without bulbar conjunctival grafts or amniotic membrane transplantation (Rebhun 1990; King et al., 1991; Ollivier et al., 2006; Plummer et al. 2007). The recurrence rates for ocular SCC in horses following surgical excision alone have been reported to be 44.1% (Mosunic et al. 2004). Because of the impossibility to achieve adequate margins in most cases, surgical excision is typically combined with adjunctive therapy.

Radiotherapy with Strontium-90, Cobalt-60, Gold-198, Iridium-192, Cesium-137, Iodine-125 and Radon-222, with or without preceding surgery has been described (Frauenfelder et al., 1982; Wilkie and Burt, 1990; Theon and Pascoe, 1995; Chahory et al., 2002; Mosunic et al., 2004; Plummer et al., 2007). When surgery has been combined with post-operative radiotherapy the recurrence rates have been reported to be 11.9% and 17% in different studies (Mosunic et al. 2004; Plummer et al. 2007). Interstitial radiotherapy is in many cases an effective mode of treatment for equine ocular SCC; however, it presents some important disadvantages such as substantial cost, limited availability, risks associated with human exposure and licensing restrictions for its handling.

Adjunctive chemotherapy is frequently used for the treatment of ocular SCC. Mitomycin C (MMC) has gained popularity in equine ophthalmology for the treatment of ocular neoplasia. MMC is classified as an alkylating agent that results in the formation of covalent linkages to DNA. Furthermore, under aerobic conditions, as occurs predominantly in ophthalmic use, intermediates react with molecular oxygen to generate free radicals causing cytotoxicity via lipid peroxidation, and DNA and protein damage (Abraham et al., 2006). MMC appears to produce cell death in ocular surface squamous neoplasia by apoptosis and necrosis. Cellular changes related to MMC mimic those caused by radiation (cytomegaly, nucleomegaly and vacuolation) (McKelvie and Daniell 2001). MMC related changes may persist in ocular surface epithelium for at least 8 months following MMC therapy (McKelvie and Daniell 2001). Used by topical application, MMC allows treatment of the entire ocular surface, including the conjunctival fornices, and may reach and destroy subclinical disease and prevent new tumours arising elsewhere on the ocular surface. The use of MMC has been reported in

horses, either on its own or as an adjunct following surgery (Rayner and Van Zyl, 2006; Malalana et al., 2010; Clode et al., 2012). Other chemotherapeutic agents used in the treatment of ocular SCC include cisplatin (Hewes and Sullins, 2006) and 5-fluorouracil (Offer et al., 2021).

Other reported therapy options are laser ablation (English et al., 1990), cryotherapy (Bosch and Klein, 2005), photodynamic therapy (Giuliano et al., 2008), and immunotherapy with bacillus of Calmette-Guerin (BCG) (McCalla et al., 1992).

Recently reported novel treatments for ocular SCC include intracyanine green photodynamic therapy (Hefner and McMullen, 2020) and immunotherapy with a liposomal TLR complex (Wotman et al., 2022).

In some cases, enucleation or exenteration is necessary to achieve complete resection (Montgomery, 2014).

Overall recurrence rates following treatment vary in the literature from 11.9% to 66.7% (Schwink 1987; Dugan et al., 1991b; King et al., 1991; Mosunic et al., 2004; Plummer et al., 2007).

Melanoma

Melanomas are common tumours in grey horses and the proportion of horses affected has been reported to increase linearly with increasing age (MacKay, 2019). Most equine melanomas exhibit benign behaviour, displaying rare mitotic figures, marked pigmentation and ambiguous cellular atypia (Fleury et al., 2000). Frequently reported predilection sites include the perianal area region, prepuce and penis, the lips, the eyelids and around invasion of the parotid salivary glands (Fleury et al., 2000; MacKay, 2019).

Ocular melanocytic neoplasms comprise about 9% of all equine ocular neoplasms and have been classified as adnexal, epibulbar, intraocular and orbital (Dugan, 1992).

Adnexal melanomas usually present as nodules in the eyelid and often involve the eyelid margin. They rarely ulcerate and are most often of a benign slow growing nature. Melanoma of the conjunctiva and third eyelid have occasionally been reported (Albanese et al., 2015), but the eyelids are more commonly affected. Although treatment with cryotherapy or chemotherapy has been reported, surgical excision followed by reconstructive surgery is probably the most appropriate treatment (Rose and Mair, 2022).

Epibulbar or limbal melanomas are rarely reported in the horse (Myrna and Sheridan, 2019). A malignant epibulbar melanoma has been described in a 6-month-old Hanoverian cross gelding (McMullen et al., 2008). Conjunctival melanomas have also been reported (Moore et al., 2000).

A case of primary corneal malignant melanoma has been described in a 13-year-old Missouri Fox trotter gelding (Strauss et al., 2019). The horse in this report presented with two irregular, pale pink, superficial corneal masses in association with faint areas of pigmentation throughout the entire cornea. The masses were removed via superficial keratectomy, followed by treatment with topical mitomycin-C and strontium-90 beta irradiation. No recurrence was noted over the follow-up period (10 months).

Intraocular masses are rare (Myrna and Sheridan, 2019). They typically arise from the iris or ciliary body. Whilst some can be static or slow growing, masses which contact the cornea have the potential to cause corneal oedema, with secondary keratitis, uveitis and recurrent ulceration. Glaucoma may also develop if the irideocorneal angle becomes obstructed (Myrna

and Sheridan, 2019). Sector iridectomy has been successfully reported, but carries a high risk of intra-operative complications such as haemorrhage or incomplete excision, which leaves a high potential for regrowth (Scotty et al., 2008). Enucleation is curative but invasive, and not preferred in cases of bilateral ocular pathology.

There are no medical treatment options with proven efficacy for intraocular melanomas. Oral cimetidine, a histamine H2 receptor antagonist, administration of which in an early case series resulted in partial to complete remission in 3 horses with dermal melanomas (Goetz et al., 1990) has been traditionally used by some practitioners; however, a more recent controlled study documented no clinical effect (Laus et al., 2010).

A xenogenic DNA vaccine encoding human tyrosinase1 is licensed for treatment canine oral melanoma. Equine tyrosinase shares 90% homology to human, and is over-expressed in melanomas (Phillips et al., 2012). The treatment concept relies on the vaccine's ability to induce tyrosinase-specific immunoreactivity against the melanoma tumour cells (Lembcke et al., 2012). This has received attention as a non-invasive adjunct or alternative to surgical excision of cutaneous melanoma. One recent study compared melanoma growth between a group of vaccinated and unvaccinated horses using a linear mixed model, and found no significant increase in tumour volumes in the vaccinated group over a median period of 231 days, compared to the unvaccinated group where significant expansion of tumour volume was seen, but this is limited to a single population of Lipizzaner horses with cutaneous melanoma (Echelmeyer, J., 2019). The recommended course consists of four injections at two-week intervals, followed by six monthly booster injections, delivered via a needle-free injection device (Phillips et al., 2011). The canine melanoma vaccine is not licensed in horses and can only be obtained by certified specialists, which limits its utility to general practitioners. In the UK, the initial four vaccine course is costly, and to then continue with booster vaccinations every six months is a significant long-term financial commitment. The use of the canine melanoma vaccine in 4 cases of intraocular melanoma has been described, with questionable success in one case (Halliwell, et al.; 2023).

Lymphoma

Multiple cases of multicentric lymphoma affecting the eye have been described in horses (Schnoke et al., 2013; Martabano et al., 2019) but primary ocular lymphoma is rare (Trope et al., 2014; Gerding et al., 2015). Recently, three cases of corneal lymphoma have been described (Vallone et al., 2016; Opgenorth et al., 2022; Lisankis et al., 2022). Interestingly, in all of these cases of corneal primary lymphoma there was a suspicion of malignant transformation following treatment of presumed immune mediated keratitis with immunomodulating medications such as tacrolimus and cyclosporine. In the case described by Opgenorth and colleague's immunohistochemistry suggested a diagnosis of T-cell lymphoma, whereas the other two cases documented B-cell lymphoma. Surgical intervention, in the case presented by Vallone and colleagues (2016) followed by adjunctive therapy with mitomycin-C and electronic surface brachytherapy also, appeared curative in all cases. Also of interest, EHV-5 has been associated with ocular lymphoma in two cases (Miglio et al., 2018; Lisankis et al., 2022) although its precise role is not clear.

Haemangioma and haemangiosarcoma

Ocular vascular tumours are rare but a few reports in equine patients exist. Most of them extend into the cornea from lesions on the limbus (Pinn et al., 2011; Scherrer et al., 2018) but some primary corneal haemangiosarcomas have been described (Shank et al., 2019). The number of cases reported is too small to draw any conclusions but no breed, age or sex appears overrepresented. Interestingly, some of these tumours displayed solar elastosis on histopathological examination, suggesting ultraviolet light-induced damage (Scherrer et al., 2018). Complete surgical excision via keratectomy/conjunctivectomy, potentially followed with

treatment with topical mitomycin-C may be associated with resolution although at least one horse had to be euthanised due to recurrence (Pinn et al., 2011; Scherrer et al., 2018).

Mast cell tumour

Mast cell tumours are occasionally reported affecting the periocular structures, including the third eyelid (Shnaiderman-Torban et al., 2017). There is also a single case report of a mast cell tumour invading the cornea in a 3-year-old Marwari mare (Halse et al., 2014). In this case the tumour originated in the limbus behind the dorsal edge of the third eyelid and extended into the adjacent ventromedial cornea. The mass had an irregular, fleshy, red appearance and was removed via keratectomy. No recurrence was noted at last follow up (32 months).

Other tumours

A number of other tumours have been described affecting the ocular and periocular structures as single case reports or short case series.

Examples of other periocular tumours include neurofibrosarcoma (Strubbe, 2001) or adenocarcinoma (Scherrer et al., 2014).

A case of pleomorphic corneal sarcoma resembling malignant peripheral nerve sheath tumour invading the cornea has been described in a 14-year-old Haflinger (Kappe et al., 2009). In this case the affected eye was enucleated with no further follow-up information available.

Medulloepitheliomas are primary intraocular tumours that affect young horses and are classified as teratoid or non-teratoid (Eagle et al., 1978, Riis et al., 1990; Leiva et al., 2013; Monk et al., 2016).

Examples of retinal tumours include astrocytomas, gliomas, schwannomas, oligodendrocytomas or retinoblastomas (Allbaugh and Townsend, 2022).

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EQUINE CONJUNCTIVAL HAEMANGIOSARCOMA: CLINICAL FEATURES, MANAGEMENT AND OUTCOME OF SEVEN CASES IN THE UNITED KINGDOM (A Kashani-Carver,¹ C O'Halloran,² E Scurrrell,³ H Featherstone,⁴ R Lowe¹) Optivet Referrals, Havant¹; Royal (Dick) School of Veterinary Studies, University of Edinburgh²; Cytopath Ltd., Ledbury³; The Ralph, Marlow.⁴

Purpose. To describe the clinical features, management, and outcome for conjunctival hemangiosarcoma in seven horses in the UK. **Methods.** The Optivet database was searched for equine cases seen, or advised on, with a histopathological diagnosis of conjunctival haemangiosarcoma between January 2013 and March 2023. Medical records were accessed for details of signalment, history, management, and follow-up. Histopathology was used to confirm the diagnosis of haemangiosarcoma and assess the surgical margins. Immunohistochemistry was performed in a minority of cases with poorly differentiated solid tumours to support vascular lineage. **Results.** Seven eyes from 7 horses (5 geldings and 2 mares) with a mean age of 16 years (range 10-21y) met the criteria. Serosanguinous discharge was seen in 6 eyes. All eyes were managed surgically - 4 by exenteration and 3 by conjunctivectomy/keratectomy. Adjunctive cryotherapy was performed in 2 eyes. Metastatic disease in the ipsilateral parotid salivary gland, confirmed with histopathology, was seen in 1 horse. Surgical margins were clear in all but one eye. Solar elastosis was noted in 5 eyes. All horses were healthy at the last follow-up (0.2 - 5y, mean 2.9y). **Conclusions.** Equine conjunctival haemangiosarcoma is rare. Serosanguinous ocular discharge is a common clinical sign. Early surgical excision is highly effective. Solar elastosis was a common histopathological feature, suggesting a role for UV-light in the pathogenesis. **None.**

CLINICAL FINDINGS AND OUTCOMES OF HORSES PRESENTING WITH IMMUNE MEDIATED KERATITIS TO VETERINARY HOSPITALS IN THE UNITED KINGDOM AND FINLAND: 96 CASES (2009-2021). (JF Preston,¹ MP Mustikka,² B Dunkel¹ and MC Fischer¹) Royal Veterinary College, University of London;¹ Faculty of Veterinary Medicine, University of Helsinki.²

Purpose. To describe a case series of equine immune-mediated keratitis (IMMK) in the United Kingdom (UK) and Finland. To assess the prevalence of blepharospasm, corneal ulceration and uveitis and their impact on outcome. **Methods.** Horses diagnosed with IMMK were retrospectively identified and clinical records were extracted. Descriptive statistics were performed to assess prevalence of subtypes of IMMK and to compare clinical findings. Odds ratios were calculated for impact of blepharospasm, ulceration or presence of anterior uveitis (documented low intraocular pressure, miosis or aqueous humour flare) on enucleation and treatment duration. **Results.** A total of 96 cases were included. IMMK subtype was documented in 79 cases; 10/79 (12.7%) epithelial, 50/79 (63.3%) anterior stromal, 15/79 (19.0%) mid-stromal and 4/79 (5.1%) endothelial cases. Blepharospasm, corneal ulceration and uveitis were documented in 18/45 (40%), 13/45 (28.9%) and 15/45 (33.3%) of UK cases and in 18/51 (35.3%), 15/51 (29.4%) and 12/51 (23.5%) of Finland cases, respectively. Horses that presented with blepharospasm, corneal ulceration and uveitis had increased odds of enucleation of 5.4 (95% confidence interval 1.5-18.8, p=0.008), 3.3 (95% confidence interval 1.0-10.6, p=0.044) and 6.4 (95% confidence interval 1.9-21.5, p=0.003), respectively. In total 14/96 (14.6%) of cases resulted in enucleation in a median time of 41.5 days (range 0-571days). The presence of blepharospasm, corneal ulceration or uveitis did not impact the odds of ongoing medication. **Conclusions.** The clinical findings of IMMK were similar between The UK and Finland. Blepharospasm, corneal ulceration and uveitis occur with IMMK and increase the odds of enucleation. **None.**

WHAT HAVE WE BEEN MISSING, OR HOW CAN WE LOOK BETTER?

(RJ McMullen Jr) Auburn University, Department of Clinical Sciences, JT Vaughan Large Animal Teaching Hospital, Equine Ophthalmology, Auburn, AL, USA

Purpose. To present digital infrared and spectral domain optical coherence tomography (SDOCT) images of both common and uncommon equine ophthalmic findings that provide additional observational insight and information which may improve clinical interpretation.

Methods. Digital infrared images (Nikon Z6 full-spectrum conversion, Lifepixel.com; Mukilteo, WA) and SDOCT (EnVisu™, Leica Microsystems, Deerfield, IL) images were obtained as part of routine ophthalmic examination of adult horses presenting to the Auburn University Large Animal Teaching Hospital Equine Ophthalmology Service (AULATH-EOS) for a variety of ophthalmic conditions. All examinations were performed under sedation following frontal and palpebral eyelid blocks. Retrobulbar blocks were used for horses undergoing ophthalmic surgery, but not solely for imaging purposes. **Results.** Individual clinical signs such as keratic precipitates, deep stromal cellular infiltrate, retrocorneal membranes and iridocorneal deposits are visible in greater detail, specifically in relation to the tissue layers where they are found using SDOCT and infrared photography. New perspectives for evaluating a variety of specific ocular diseases such as invasive stromal squamous cell carcinoma, cataracts, uveitis, goniodysgenesis and glaucoma, and findings such as posterior synechiae and pectinate ligament fibril changes will be presented. Monitoring of postoperative corneal wound healing and remodeling will be discussed. **Conclusions.** The ability to quickly obtain high-resolution, non-contact images with near histopathologic magnification using SDOCT and visualization of lesions and changes which would otherwise be undetectable using digital infrared photography, allows for enhanced and improved observation of clinical ophthalmic lesions *in vivo*, ultimately improving diagnostic accuracy and case management efficiency. **None.**

TRANS CORNEAL ASPIRATION FOR MANAGEMENT OF PRIMARY IRIS CYSTS IN THE STANDING HORSE (SL Pratt¹, M Bowen², GD Hallowell³, R Pereira⁴, G Rapezzano⁴, A Redpath¹) School of Veterinary Medicine and Science, University of Nottingham¹; Medicine.vet UK²; IVC Evidensia³; Pool House Equine Hospital, Lichfield, UK⁴

Purpose. Iris cysts (ICs) are usually incidental findings but, if large, may require intervention. The use of laser (Nd:Yag or diode) has been reported in the sedated horse but requires specialised equipment. Trans corneal aspiration has not been previously evaluated in the standing horse. This retrospective study aimed to review outcomes of standing trans corneal aspiration of primary ICs (STAPIC) in horses. **Methods.** Horses were identified by searching billing codes for STAPIC from 2018-2023 across 4 collaborating centres. Clinical presentation and outcomes were identified from records and reported using descriptive statistics. **Results.** 16 Horses were identified with a median age of 11 years (range 7-18). 11 horses were geldings, five were mares. Behavioural signs of poor vision were reported in all horses and included changes in rideability often associated with jumping. One horse became anorexic when pastured during the summer. Single large ICs were present in ten horses (unilateral), bilateral ICs in three horses and multiple unilateral ICs in three horses. All horses were managed with standing sedation, topical analgesia and chemical mydriasis. A narrow bore needle (27g in five eyes, 25g in 11 eyes) was inserted from the limbus. One horse developed uveitis and fibrin in anterior chamber associated with needle (25g) contact with the iris stroma due to movement. One horse developed fibrin within the anterior chamber (27g needle). No other adverse effects were reported. Follow-up was available from all horses via phone call and photo (median 6 months, range 6 weeks- 3 years) with no recurrence of the cysts, although one horse developed an IC in the contralateral eye after 3 years. Owners reported improvement in clinical signs in all horses. **Conclusions.** STAPIC is an effective and safe method for treating ICs in horses. Effective sedation is required to prevent complications associated with damage to the iris. STAPIC is an easily accessible alternative to the management of ICs in the horse which does not require specialised equipment. No funding was required to perform this study. **None.**

USE OF RECOMBINANT TISSUE PLASMINOGEN ACTIVATOR (rTPA) FOR TREATMENT OF FIBRIN AND BLOOD IN THE ANTERIOR CHAMBER OF THE HORSE (R Pereira¹, M Bowen², G Rapezzano¹, A Redpath³, S Pratt³, G Hallowell¹) Pool House Equine Clinic¹; Medicine Vet Equine Referrals Limited²; Oakham Veterinary Hospital/School of Veterinary Medicine, University of Nottingham.³

Purpose. To evaluate the effect of intracameral recombinant tissue plasminogen activator (rTPA) administration for treatment of fibrin/blood in the anterior chamber resulting from trauma or inflammatory ocular disease. **Methods.** Retrospective multicentred case series from 2003–2022. Signalment, history, clinical examination, treatment and outcome were obtained from medical records. Regression analysis was used to identify association between time from onset of clinical signs and time for rTPA treatment to effect. **Results.** Twenty-nine treatments in 28 horses were identified. Twenty-six horses (93%) had no history of ophthalmic disease, one horse had an iridic cyst aspirated and one horse had equine recurrent uveitis (ERU). Trauma was the main cause (n=22;79%), followed by unknown (n=4;14%), iatrogenic (n=1;4%) and ERU (n=1;4%). Twenty-six horses (93%) had fibrin in the anterior chamber and two had blood accumulation. rTPA (21/29 20µg/0.1ml; 7/29 25µg/0.1ml; 1/29 40µg/0.1ml) was administered once in all but one eye, that was treated twice. Twenty-seven (93%) treatments had resolution of fibrin/blood accumulation. Median time to effect was 20 minutes (IQR = 10-45 minutes). Complications were seen in 13.8%: moderate pain in the first 24 hours (n=2;7%) and debris within the anterior chamber (n=1;3.4%). Mild haemorrhage in the anterior chamber occurred in the horse receiving 40µg/0.1ml (n=1;3.4%). No recurrence or signs of ocular disease were seen in 93% of cases. Earlier rTPA treatment was associated with earlier resolution of fibrin/blood accumulation (p=0.0007; R²=0.40). **Conclusions.** Intracameral rTPA was a safe and effective treatment resulting in resolution of fibrin/blood in the anterior chamber. Earlier treatment resulted in faster resolution, with efficacy up to 120 hours after identification of fibrin/blood. **None.**

COMPLICATIONS AND POSTOPERATIVE VISUAL OUTCOME AFTER PHACOEMULSIFICATION COMBINED WITH VITRECTOMY IN HORSES WITH ACQUIRED CATARACTS (A Kalinovskiy,¹ S Leser,² A Ehrle,¹ T Beck,³ S Reese,⁴ S Jones² and H Gerhards⁵) Equine Clinic, Surgery and Radiology, Freie Universität Berlin;¹ Hanseclinic for Horses;² Wolfratshausen, Germany;³ Veterinary Department, Institute of Veterinary Anatomy, Histology and Embryology, Ludwig-Maximilians-University Munich;⁴ Muenchen, Germany.⁵

Purpose. To report on the visual outcome and complications after phacoemulsification combined with vitrectomy in horses with uveitis-associated cataract. **Methods.** Twenty-eight horses with uveitis-associated cataract (age: 14 months-19.6 years) were treated with phacoemulsification and vitrectomy. All horses underwent presurgical, postsurgical and follow-up examinations. Ordinally and nominally distributed variables were tested for dependency using Chi-square test. Effective measure of association phi was calculated. Where the expected frequencies were lower than 5, Fisher's exact test was used. **Results.** Twenty-eight horses (32 eyes) of age 14 months to 19.6 years were included. The average time to last follow-up examination was 1.7 ± 1.8 years post-surgery (range: 1 month - 6.4 years). In the period <1 month postoperatively 25/32 (78.1%) eyes were visual. At the follow-up examinations $\geq 1 \leq 6$ months and $>6 \leq 12$ months postoperatively 23/32 (72%) and 10/19 (52.6%) eyes were visual respectively. At the long-term follow-up examinations $>12 \leq 18$ months and $>18 \leq 24$ months postoperatively 5/16 (31.3%) and 4/16 (25%) eyes were visual respectively. At the long-term follow-up examination >24 months postoperatively only 3/15 (20%) eyes were visual. A significant relationship was observed between retinal detachment and vision in all eyes and all time periods. In the overall population, a significant decrease of vision ($p < 0.001$) as well as a significant decrease in postoperative uveitis ($p < 0.001$) was noted as the examination period progressed. **Conclusions.** The combination of phacoemulsification and vitrectomy in cases of uveitis-associated cataract can significantly reduce the occurrence of postoperative uveitis. Retinal detachment is the most common cause of blindness when using both techniques combined. Additional techniques for prevention of postoperative retinal detachment are required to continuously improve the postoperative long-term vision. **None.**

INFRARED FUNDUS PHOTOGRAPHY IN HORSES (CB Breaux,¹ AL Labelle,² EL Tolar³)
WestVet Emergency & Specialty Center, Garden City Idaho and Mountain West Veterinary
Ophthalmology, Eagle Idaho USA;¹ Bright Light Veterinary Eye Care, Ottawa Ontario
Canada;² Bluegrass Veterinary Vision, Louisville Kentucky USA.³

Purpose. To obtain color and infrared photographs in a clinical setting of the equine fundus and evaluate their utility. **Methods.** Color and infrared photographs of the posterior segment were taken with the Optomed Aurora Retinal Module. Photographs were taken in the same darkened area as used for examination of the patient. Pharmacologic dilation was not used in clinical cases. Color and infrared photos of each patient were compared. The time it took to obtain images was recorded. **Results.** Infrared photography was a useful aid for visualization of fundus details through cloudy media, particularly regions of pigmentation. The time it took to photograph the fundus ranged from 1 minute 11 seconds to 4 minutes 6 seconds. Normal individuals and patients with various disease processes including keratitis, squamous cell carcinoma, uveitis and glaucoma were photographed. Fundus photography was well tolerated by patients. In non-dilated patients it provided a greater field of view of the peripheral retina compared to indirect ophthalmoscopy. Image review was useful for client education. **Conclusions.** Infrared photography of the equine fundus is useful in a clinical setting for documenting lesions of the equine fundus. **None.**

Title: Mycotic Sphenopalatine Sinusitis with Concurrent Compression of the Optic Chiasm and Associated Blindness in a Horse

Author and Address:

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Topic Area:

Neuro-Ophthalmology

Case Summary:

A 15-year-old Swiss Warmblood gelding was presented to the ophthalmology service of Zurich University because of severe visual deficits. Ophthalmic and neurologic examinations were performed suspecting post-retinal blindness. Standing contrast CT of the head revealed a partially calcified soft tissue attenuating mass in the sphenopalatine sinus with concurrent compression of the optic chiasm. Differential diagnosis included neoplasia and granulomatous disease. The horse was euthanized, and the head subsequently examined by MRI, gross- and histopathology. Histopathology revealed formation of fibrous granulation tissue, osseous metaplasia and pyogranulomatous inflammation in the sphenopalatine sinus. PAS reaction and Grocott silver stain demonstrated branching septate filament hyphae and fungal spores. Sections of the optic nerve showed mild gliosis and vacuolation. Sections of globes, right and left optic nerve, optic chiasm, and brain did not reveal any evidence of inflammatory processes. The retinal nerve fiber- and ganglion cell layer showed vacuolation, likely due to autolytic changes and the photoreceptors showed slight autolysis.

Key Words:

Horse, Blindness, Mycosis, Sinusitis

Discussion Points:

Atypical visual impairment?

Mycotic sinusitis as a cause of post-retinal blindness in horses?

CT or MRI to confirm the presence, and distinguish post-retinal lesions?

Possible ascending degeneration of the nerve fiber- and ganglion cell layer because of optic nerve compression?

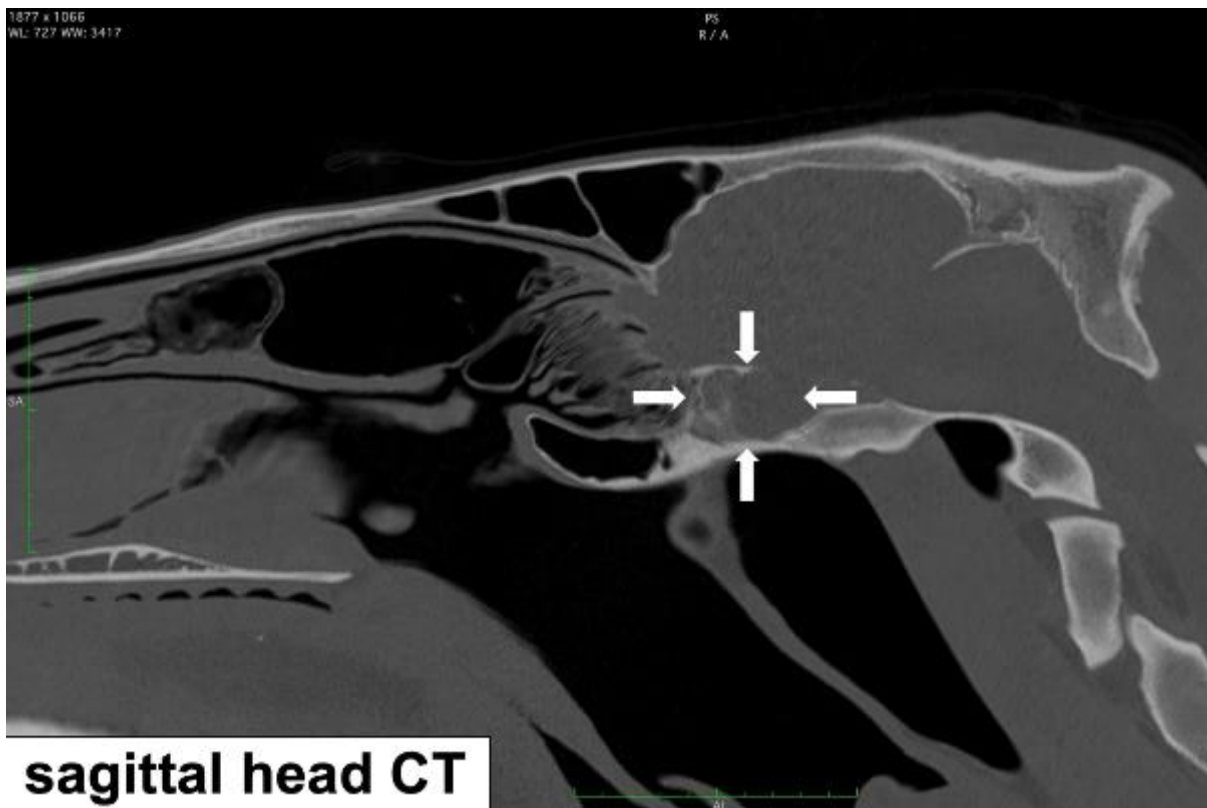


Figure 1. CT image of the partially calcified, soft tissue attenuating mass in the sphenopalatine sinus.

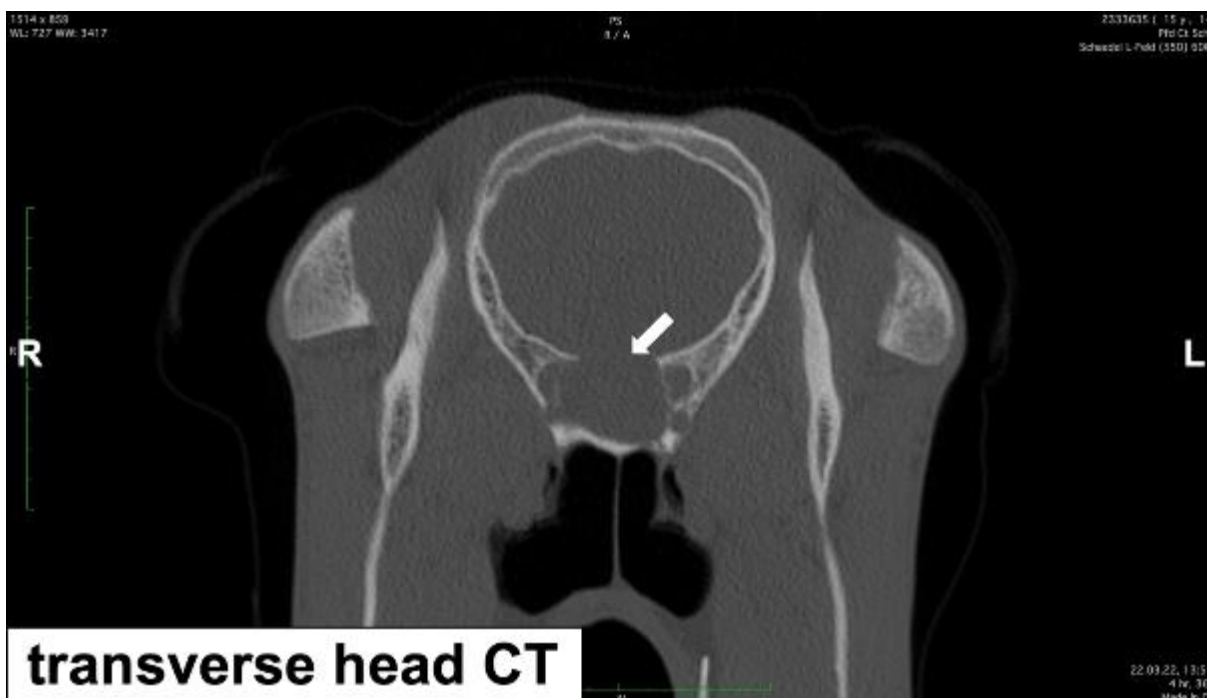


Figure 2. CT image of bone atrophy of the presphenoid bone.

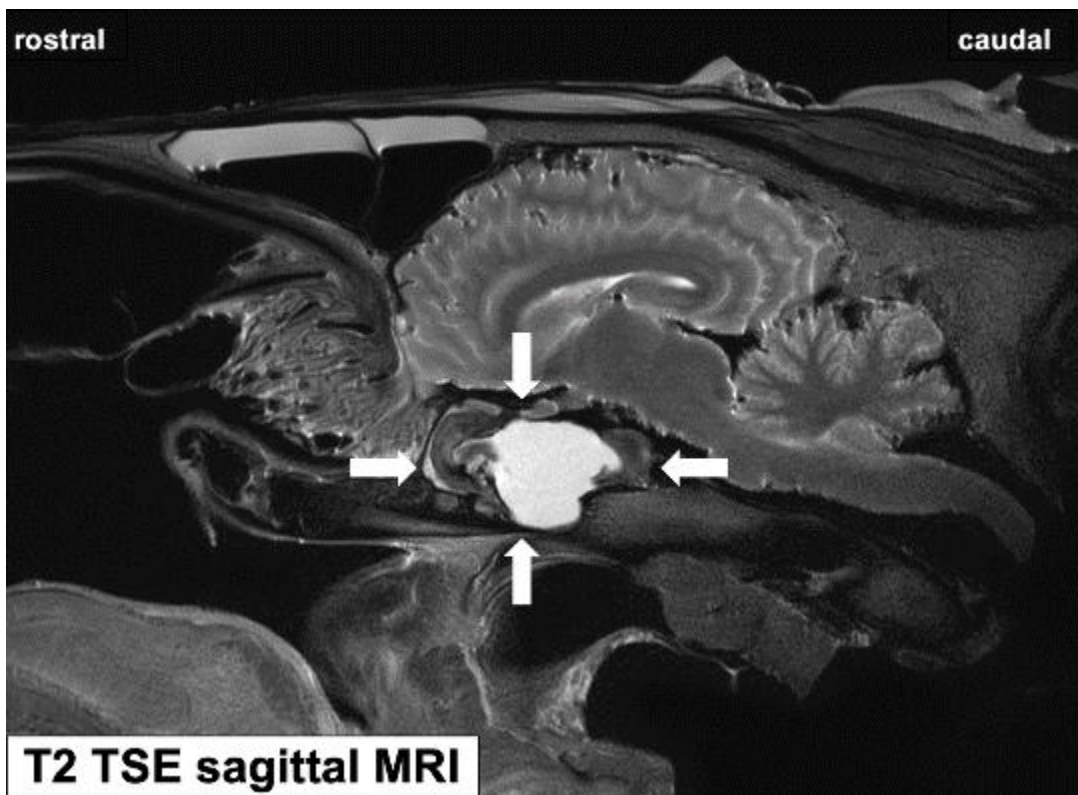


Figure 3. MRI image of the sphenopalatine mass consisting of heterogenous T2 hypointense and homogenous T2 hyperintense tissue representing fibrous granulation tissue and fluid accumulation respectively.



Figure 4. Histopathology of the sphenopalatine mass. HE staining shows osseous metaplasia and formation of fibrous granulation tissue. In the center there is pyogranulomatous inflammation where PAS staining revealed fungal hyphae.

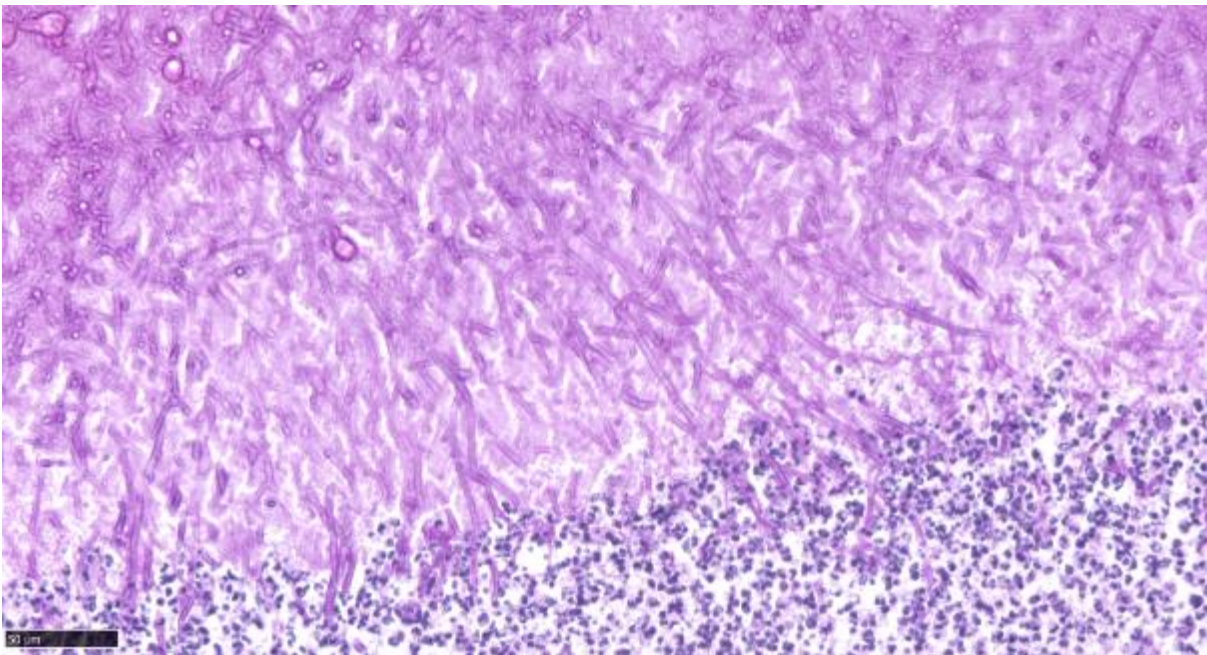


Figure 5. PAS stain showing septate filament hyphae.

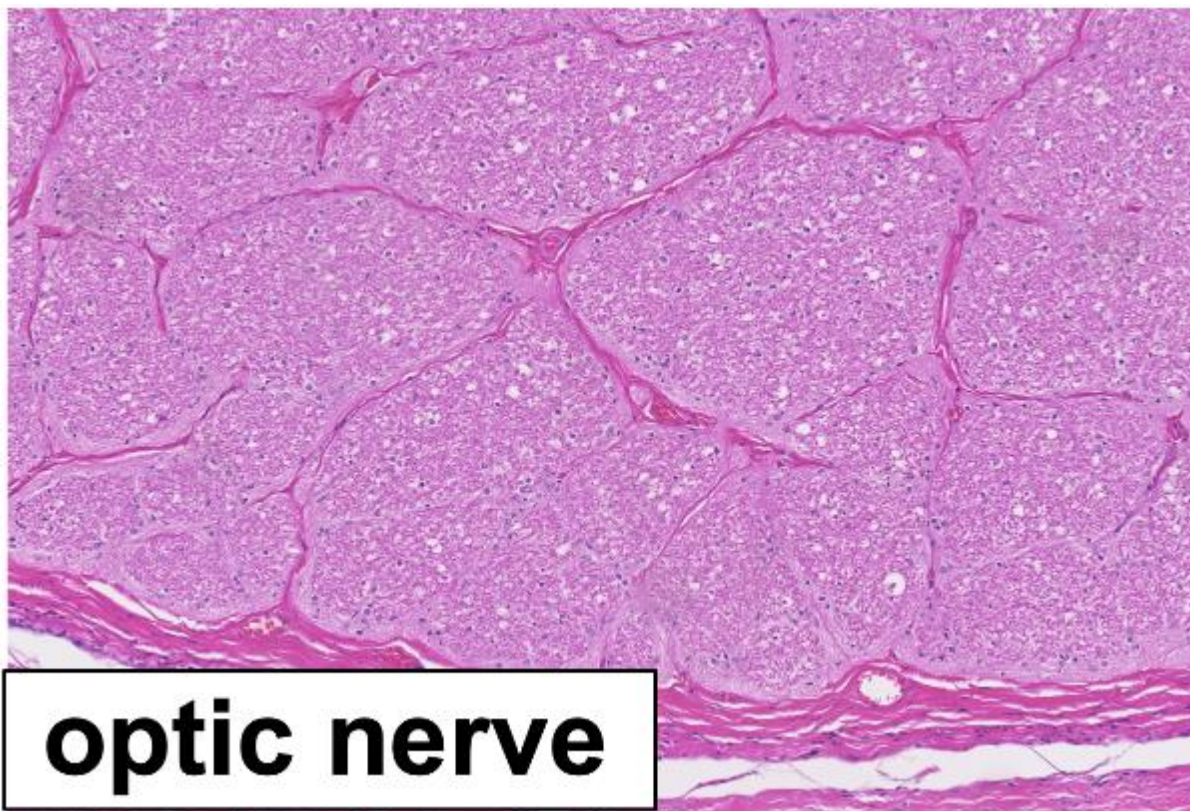


Figure 6. Mild gliosis and vacuolation of the optic nerve.

Title: Bilateral exacerbated inflammatory reaction to cyclosporine implants and bacterial infections of the surgical site in an Appaloosa mare with equine recurrent uveitis.

Author and address:

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Topic area:

Uvea

Case summary:

A 14-year-old Appaloosa mare presented to Auburn University Large Animal Teaching Hospital (AULATH) for suspected bilateral ocular infection and cyclosporine implant rejection after a two-year history of medically controlled equine recurrent uveitis (ERU). Bilateral suprachoroidal cyclosporine implants had been surgically placed under general anesthesia two weeks prior to presentation in a different practice.

Two days postoperatively severe ocular discharge, discomfort, and vision loss were present bilaterally. Aggressive immunosuppressive therapy unsuccessfully controlled ocular inflammation. Three days postoperatively, the implant spontaneously extruded OS and was surgically removed OD. Systemic and topical anti-inflammatories and antimicrobials failed to improve the clinical signs.

Upon presentation to the AULATH both eyes were uncomfortable and closed. Intraocular pressures were 9 mmHg OD and 4 mmHg OS, there was marked flare (+4/4) and marked keratic precipitates were present in both eyes. Inflammation and white, necrotic tissue were readily evident at the surgical sites of both eyes. Ocular ultrasonography was consistent with inflammation of both the anterior and vitreal chambers, and bilateral retinal detachment. Electroretinography confirmed extinguished retinal function. Due to the uncontrolled uveitis, bilateral blindness and grave prognosis, the mare was euthanized. Both eyes were diagnosed with bilateral fibro-suppurative endophthalmitis and suppurative scleritis on histopathology.

Key Words:

Equine recurrent uveitis, cyclosporine implant, complication, bacterial endophthalmitis, histopathology

Discussion points:

1. How common are postoperative (immediate, short-term, long-term) complications following suprachoroidal cyclosporine implant placement?
2. Can we successfully manage post-surgical infections?
3. What steps do we need to take when a horse has a post-surgical reaction?
4. Complications of suprachoroidal cyclosporine implants and the importance of histopathologic evaluation.

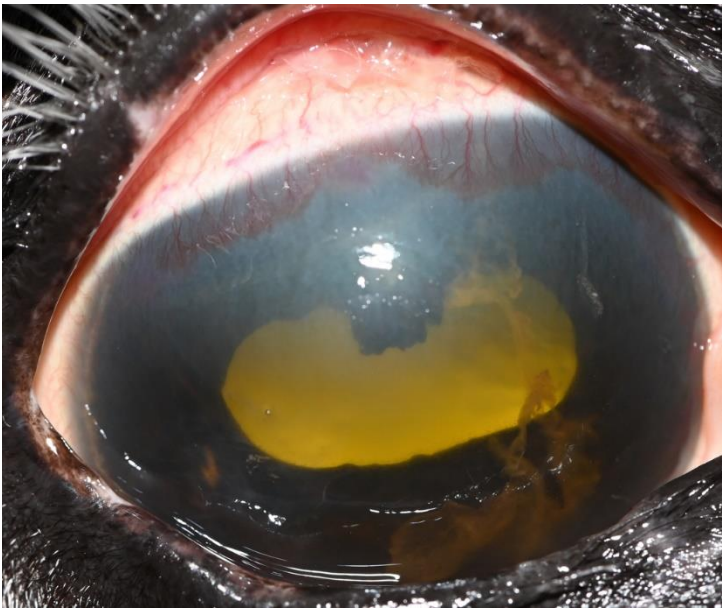


Figure 1. Right eye on initial presentation to AULATH.

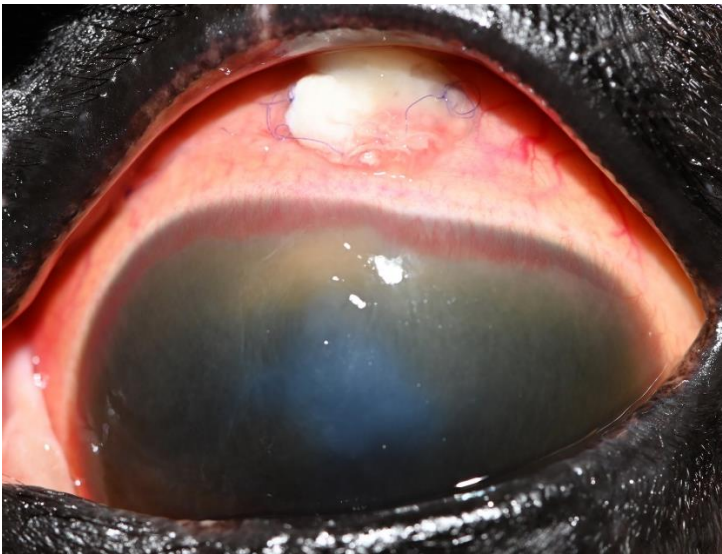


Figure 2. Left eye on initial presentation to AULATH.



Figure 3. Ocular ultrasound image confirming hyperechogenic material in the vitreal chamber and complete retinal detachment.

Title: Suprachoroidal injection of triamcinolone in eleven horses with different types of uveitis

Author and address:

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Topic area: Uvea

Case summary:

Eleven horses (3 Icelandic horses, 2 German ponies, 3 German warmbloods, 1 Irish Tinker, 1 Arabian horse and 1 Thoroughbred; mean age 13.5 years) with clinical signs of uveitis (classic equine recurrent uveitis and chronic endotheliitis/uveitis) presented to our practice were treated with suprachoroidal injections of 5 mg triamcinolone (Volon® A Solubile 40 mg) with the 11 or 14 µm an-SuproJec-microneedle®, nine horses in one eye and two horses in both eyes.

Suprachoroidal injection was done in the standing sedated horse with local anesthetic blocks. In those eyes which also had a paracentesis a retrobulbar block was performed additionally (10/13 eyes).

Aqueous humour and serum *Leptospira* titers were evaluated in all horses with MAT and in most cases with ELISA, and – where possible – the C-values were calculated.

Five horses showed clinical signs of chronic endotheliitis/uveitis and had negative *Leptospira*-titers in MAT and ELISA. Only three horses had positive *Leptospira*-titers tested with MAT the c-value was calculated in two of them. Three horses had classic signs of ERU without positive aqueous humour *Leptospira*-titers, tested with MAT.

The mean follow-up time was 89 days with a range from 11 to 211 days. In all horses, injection could be completed successfully. In most cases, the 14 µm needle was needed. Eight horses showed no complications in connection with the injection. One horse developed hyphaema one hour after injection and paracentesis, with the latter being the probable reason for the bleeding. One horse had a small superficial corneal defect one day after retrobulbar block, paracentesis and injection, which healed in two days. One horse developed a superficial corneal ulcer one day after injection, which failed to heal over weeks despite repeated debridement. Fungi were not detected in cytology, but mineralization occurred.

During the follow-up time, none of the horses showed any sign of acute uveitis again. In the chronic cases there was no recurrence of corneal edema, corneal defects or elevated intraocular pressure in any of the eyes. Owner satisfaction was good in all cases except in the horse with the non-healing corneal ulcer.

Key words:

Equine recurrent uveitis, endotheliitis/uveitis, alternative treatment, triamcinolone, suprachoroidal injection

Discussion points:

Is suprachoroidal injection a useful alternative treatment in equine recurrent uveitis?

Do *Leptospira*-negative forms in particular benefit from the triamcinolone-injection?

Is the an-SuproJec-microneedle® a usable device?

Is the crystalline suspension (versus the soluble variant) of triamcinolone necessary in order to achieve good results in the long term?

Title: Presumed heterochromic iridocyclitis with secondary keratitis (HIK) associated with equine herpesvirus-1 (EHV-1) infection – update 1 year later

Author and address:

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Topic area:

Cornea and Uvea

Case summary:

An 11-year-old Arabian mare presented for breeding management and contracted nosocomial EHV-1 systemically while hospitalized in the summer of 2021. Within less than one week uveitis developed OS>OD. Uveitis treatment was initially successful, but when treatment was tapered, signs of corneal edema and aqueous flare recurred. Subsequently pigmented keratic precipitates were noted in the more severely affected OS leading to the suspicion of HIK. Due to the owner's desire to have no persisting medication or follow-up needs, a variety of treatments were attempted alone or in combination over the course of 5 months to resolve the ocular condition, including: topical steroids (neomycin/polymyxinB/dexamethasone or prednisolone acetate 1%), topical bromfenac 0.09%, topical sodium chloride 5%, systemic flunixin meglumine, systemic dexamethasone, suprachoroidal triamcinolone injection, and low-dose intravitreal gentamicin injection. Though treatments could effectively control ocular signs, cessation of therapy resulted in severe corneal edema recurrence OS so a complete keratoleptysis and Gundersen graft was attempted OS to prevent the long-term risk of corneal bullae and ulceration. Graft dehiscence ensued despite attempts to repair and subsequent fungal corneal infection resulted in enucleation OS. Ocular histopathology showed ulcerative keratitis, chronic lymphoplasmacytic and fibrinopurulent uveitis with identification of multiple breaks in Descemet's membrane but no evidence of retrocorneal membranes. The OD remained healthy with no treatment necessary upon hospital discharge. Client communication 1 year following hospital discharge revealed no concerns with the remaining OD but perceived heightened systemic sensitivity to other allergens and stimuli suggesting greater immune system dysfunction.

Key words:

Corneal edema, uveitis, heterochromic iridocyclitis with secondary keratitis (HIK), equine herpesvirus-1 (EHV-1)

Discussion points:

1. Case still consistent with HIK?
2. Any new treatment options to “cure” HIK signs?
3. Consideration of heightened systemic immune system sensitivity?



Figure 1. Left eye image showing recurrence of ventral corneal edema and pigmented keratic precipitates on the endothelial surface following cessation of multiple therapies that had the eye previously completely quiet and looking normal.



Figure 2. Image of the left eye 1 month following cessation of therapy for HIK with diffuse corneal edema. The intraocular structures are difficult to visualize but pupil size was midrange and she retained positive menace response.

Title: Sector iridectomy for treatment of iris melanomata in 2 horses

Author and address:

Knott, Tim

The Equine Eye Clinic, UK

Topic area:

Iris neoplasia

Case summary:

Two cases of unilateral iris melanomata are presented, both cases were treated by en bloc resection (sector iridectomy).

Case 1, a 9-year-old grey Irish Sports Horse mare, was presented for evaluation of two pigmented iridal masses in the left eye which had been noted several months previously. A raised circular pigmented mass approximately 10mm round and 3mm thick was noted in the dorsal iris, a second pigmented mass approximately 15mm x 15mm x 10mm mass was noted in the ventral iris and was in contact with the ventral iridocorneal angle extending to the corneal endothelial surface. Prior to general anaesthesia the iris incisions were treated with transcorneal laser to reduce the risk of iridal bleeding. Both melanomata were removed by sector iridectomy, the anterior chamber being accessed by a perilimbal clear corneal 3 step incision. Follow up at 238 weeks postoperatively showed no recurrence of the resected mass although a 3mm de novo pigmented mass was noted.

Case 2, a 6-year-old Lusitano gelding, was presented for evaluation of an area of superficially ulcerated temporal corneal oedema. A pigmented temporal iris mass was identified filling the temporal anterior chamber, in contact with the corneal endothelium and associated with fibrinous anterior uveitis. The mass was approximately 30mm x 22mm x 10mm. Symptomatic treatment of the corneal ulcer (continuous ocular lavage with autologous serum, Ofloxacin & preservative free HA) and anterior uveitis (topical atropine & dexamethasone & meloxicam PO) was started and led to closure of the epithelial defect and improvement of the fibrinous uveitis by day four. The iridal mass was removed en bloc on day 4 via a lateral perilimbal clear corneal approach, no laser pretreatment was performed. More iridal bleeding was seen postoperatively than case 1 however this cleared by discharge at day 11. No recurrence of the iridal mass was noted at examination at week 32 although a small area of intrastromal pigment was noted at the site of corneal incision. Multifocal linear hyperreflective lesions were also noted at this time and presumed to indicate retinal folding due to surgical hypotension. The eye is reported as visual and comfortable with no gross evidence of recurrence noted by the owner at week 156.

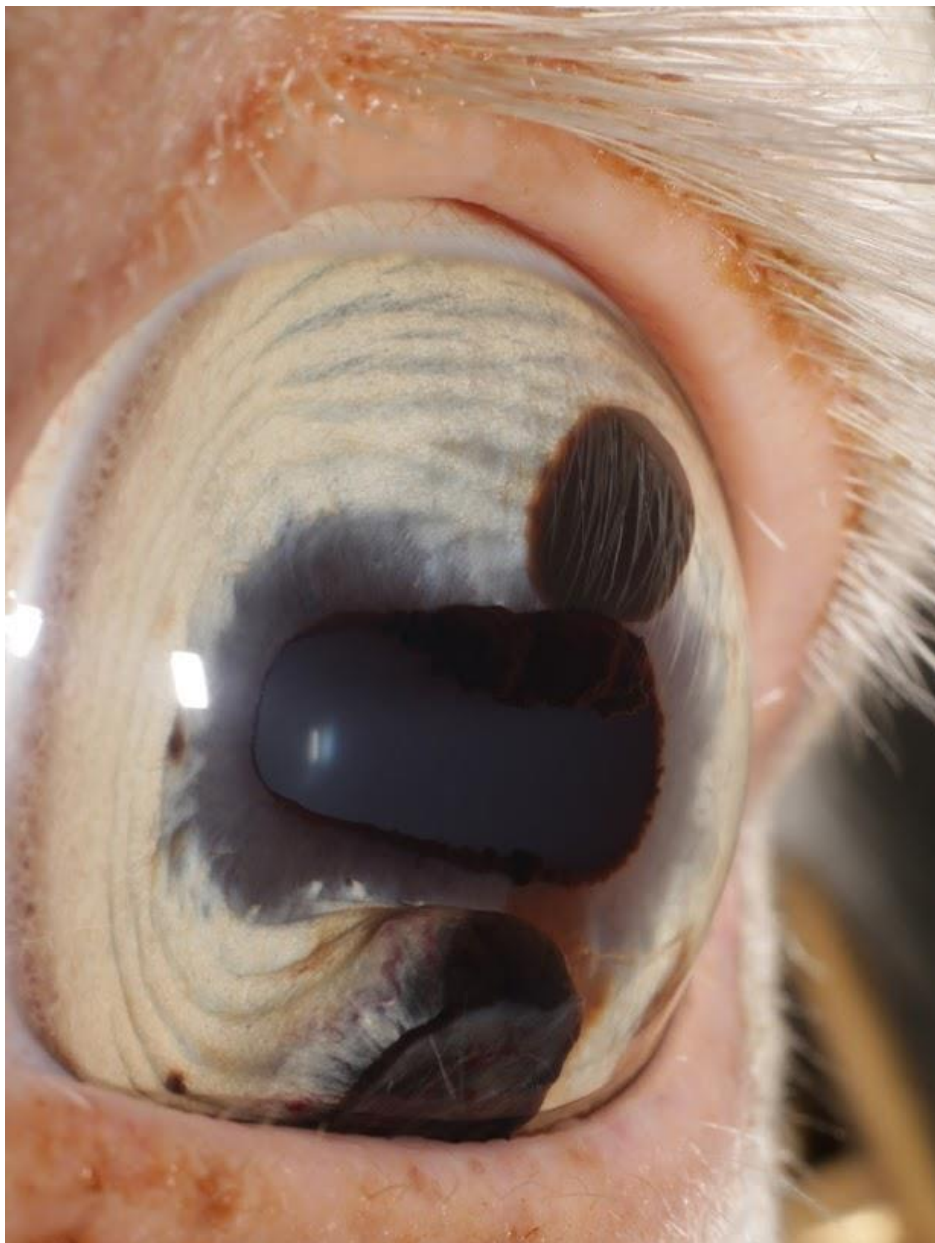
Key words:

Iris melanoma, sector iridectomy

Discussion points:

What other options for large iris masses are available?

What is the visual effect of pupil abnormalities?



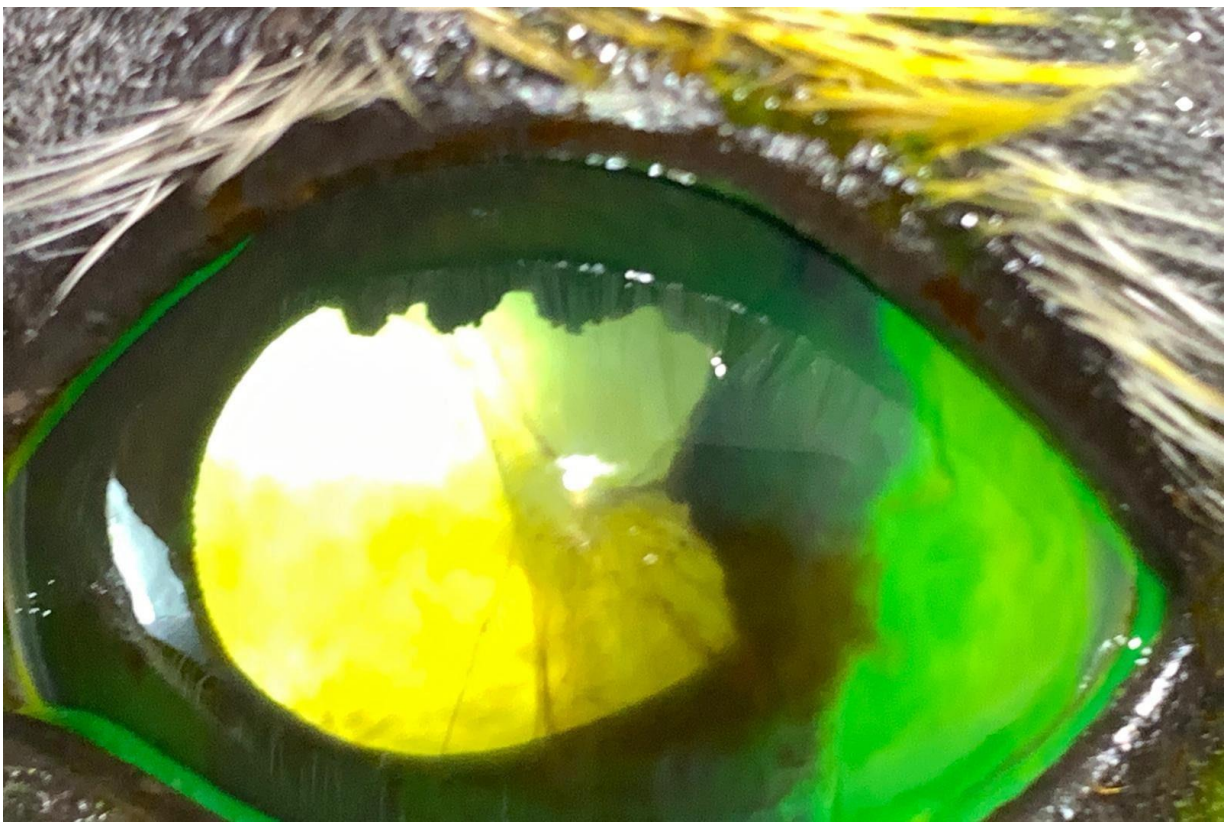
Case 1: Two discrete iridal masses noted. The larger ventral mass is in contact with the corneal endothelium.



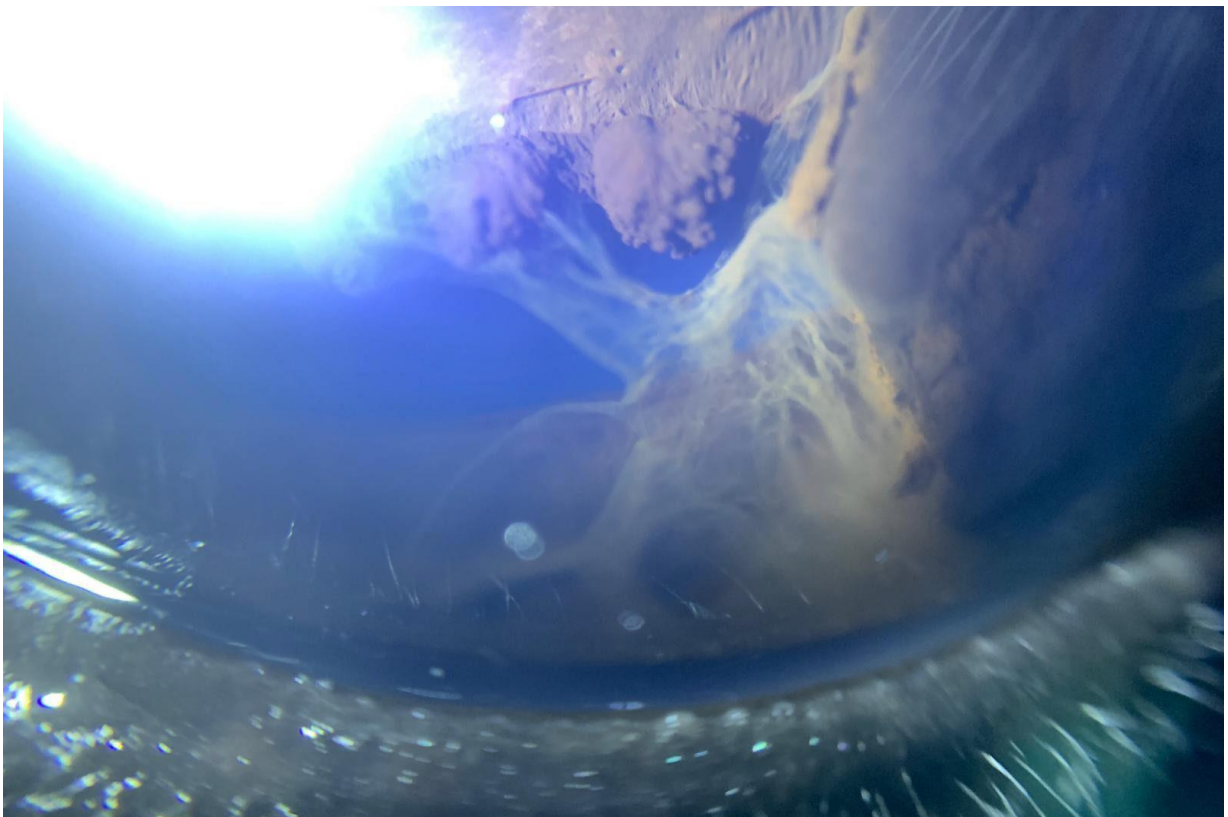
Case 2: Day 21 post surgery.



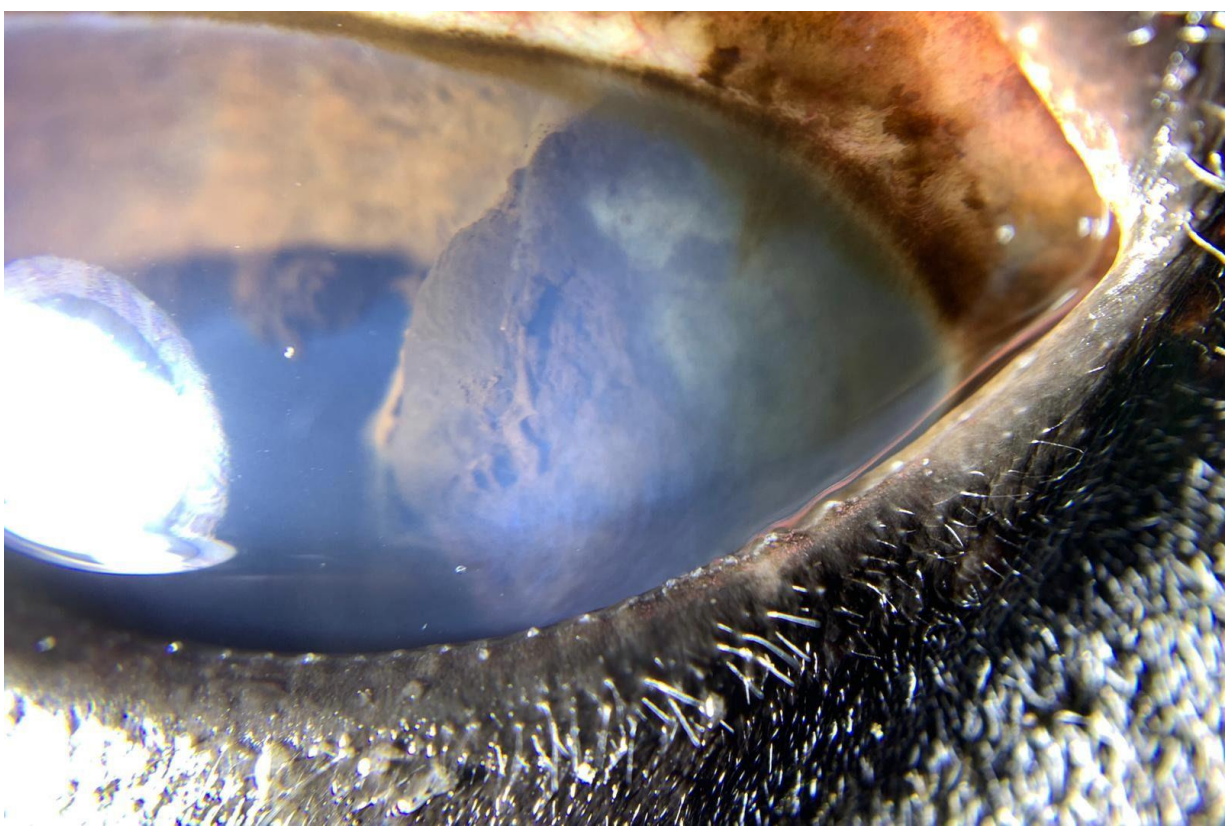
Case 1: 238 weeks post surgery. Note the ciliary processes and the nasal iridal pigmented lesion.



Case 2: Day 1, corneal ulcer over temporal cornea mirroring the contact area of the tumour and the endothelium.



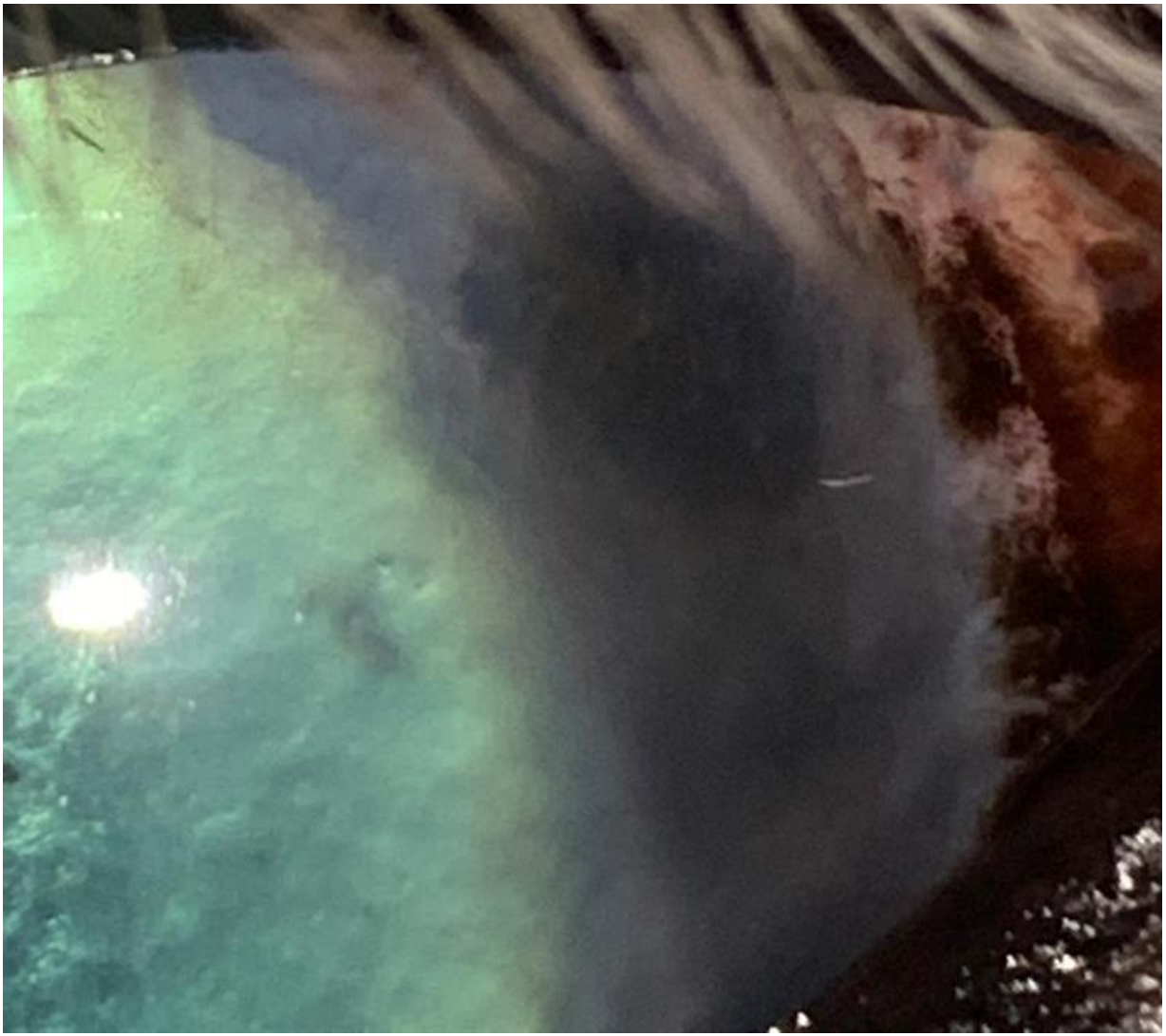
Case 2: Day 1, web of fibrin associated with nasal aspect of mass.



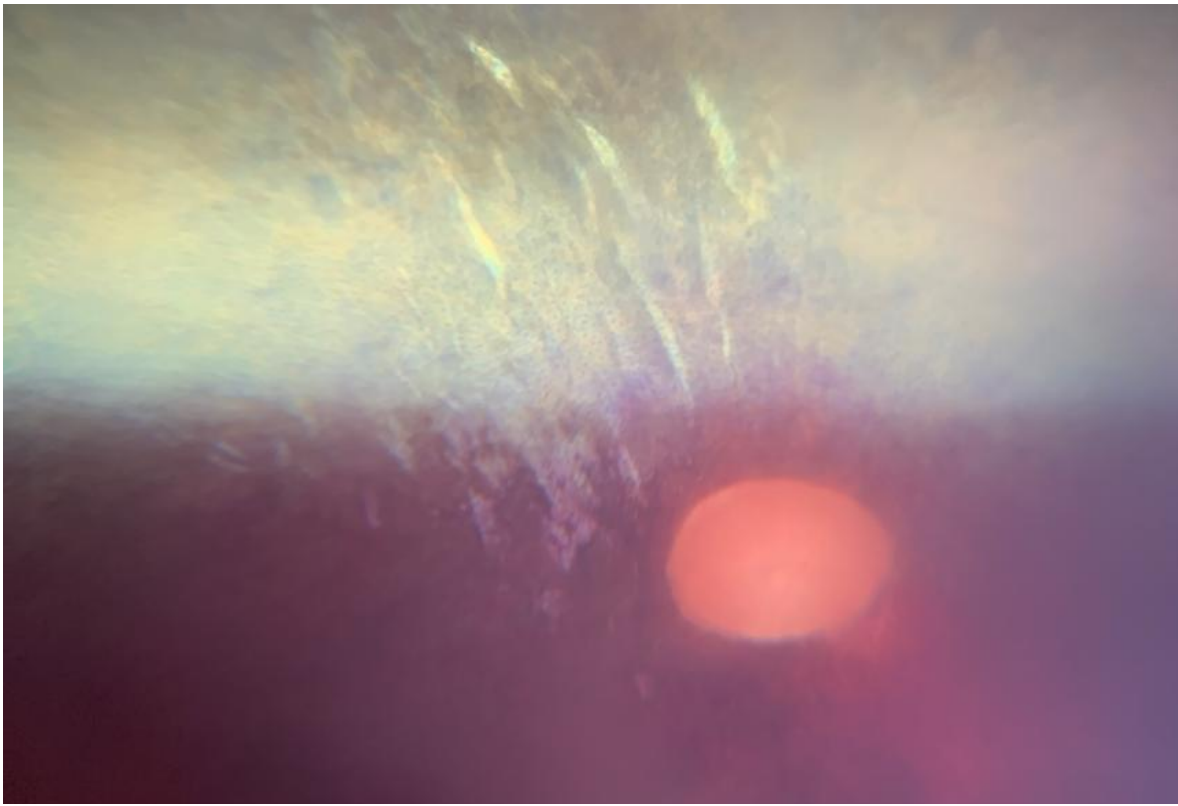
Case 2: Day 4, left eye - following systemic steroids and intensive ocular medication (continuous ocular surface lavage with autologous serum, preservative free hyaluronate and Ofloxacin) the cornea rapidly re-epithelialized. With this the corneal oedema associated with endothelial contact also improved allowing us to see the majority of the mass.



Case 2: Day +221 post surgery. Note iris rest and corneal scar.



Case 2: Day + 221 post surgery. Note intrastromal pigmented lesion in corneal wound.



Case 2: Day +221 post surgery. Note multifocal linear retinal hyperreflectivity presumed to be secondary to surgical hypotension.