



winter newsletter 2014

Winter 2014

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WELCOME TO OUR WINTER NEWSLETTER. Hopefully you will find some interesting articles and information in the following pages. 2014 has been a really good year for us at the Hospital, with referrals in areas such as orthopaedics and MRI expanding exponentially, creating a good caseload for teaching our final year students, while allowing our clinically allied research to flourish! During 2014 Eugenio Cillan-Garcia directed the re-development of our forge and farriery unit that was opened for the successful foot and farriery CPD day. The course brought together referring vets and farriers from all over Scotland and stimulated interesting discussion and debate. We are extremely lucky to be the only UK University to have an onsite forge and, with the added expertise of Alistair and Sandy Duff, can provide a truly collaborative approach to corrective shoeing. We hope to develop the facility further in the next few years to make sure we make the most of this valuable resource for clinical work as well as teaching

undergraduate students, farriers and vets. For example with the financial help of our colleagues in teaching we now have an 'Equibuddy' to teach our students about shoe fitting and removal.

Enclosed with this newsletter is an updated MRI client hand out (available as a PDF if you prefer; please contact EQH@ed.ac.uk) to provide owners with answers to some common questions. We hope to email this hand out to clients when all new MRI appointments are made so they have a little bit more information on what to expect when a horse is booked in for MRI. Some of you may be interested in our bone scan only service, providing a brief report (containing images) within 24 hours of admission. Please contact a member of the orthopaedics team to discuss these cases in advance. A letter for these cases is also sent to the client before the appointment explaining that the horse has been referred for imaging only.

An update on Atypical Myopathy

Equine atypical myopathy (AM), aka atypical myoglobinuria, is a frequently fatal condition that has gained much press recently, subsequent to a large autumnal outbreak of cases.

The aetiology is considered to be a toxin found in the seeds of some Acer trees including the sycamore tree in Europe and the box elder tree, in North America. The toxin (hypoglycin A), when ingested inhibits acyl-CoA dehydrogenase, a key enzyme required in fatty acid metabolism.

Atypical myopathy usually presents acutely with weakness manifest as lethargy, reluctance to move, increased recumbency difficulty rising and muscle tremors/ fasciculations. Other clinical signs include stiffness, tachypnoea/ dyspnoea, tachycardia, colic, dysphagia and sweating. Most symptoms of colic are usually relieved after resolution of bladder distension. The muscles primarily involved in AM are rich in type I fibres, including postural, cardiac and respiratory muscles, as opposed to exercise rhabdomyolysis which primarily affects type II fibres of the muscles of locomotion. Myoglobinuria will be present in all cases, however the presence of normally coloured urine does not exclude AM as myoglobin may not have yet been excreted in sufficient quantities to colour the urine at the time of initial examination.

Creatinine kinase (CK) analysis reveals levels > 10,000 U/l (ref 150-385), but usually levels are > 100,000. CK levels peak between 2 and 12 hours after muscle damage, so are a very sensitive marker of muscle damage in the acute stages, or in the screening of co-grazers to a case of AM. AST and LDH will also be markedly increased, but peak later. Although CK levels indicate the degree of muscle damage, they

do not necessarily reflect the severity of clinical signs or the prognosis. No specific treatment is available so supportive therapy only can be instigated including analgesics, anti-inflammatories and intravenous fluid therapy to restore hydration and prevent renal failure (pigment nephropathy). Serial monitoring of electrolytes and acid-base balance and treatment with e.g. calcium and intranasal oxygen can be useful. Patients that are anorexic or dysphagic require enteral or parenteral nutrition. Intensive nursing care is very important including care of the recumbent patient and evacuation of faeces and urine.

Poor prognostic indicators include prolonged recumbency, dyspnoea/ hypoxia, tachycardia/ arrhythmia, inability to urinate and defaecate. Horses that die do so because of cardiorespiratory arrest from diaphragmatic/ intercostal myodegeneration and cardiomyopathy. This is either as a direct consequence of muscle degeneration or biochemical alterations, e.g. hypocalcaemia.

Literature prior to 2006 reported mortality rates up to 90%, however this rate appears to be reducing year on year. We have had cases in the hospital that have been recumbent for many days with marked hypoxia which have then gone on to make full recoveries.

The most important contributing factors to horses becoming poisoned by hypoglycin A is the availability of seeds in the field combined with lack of other feeding options. As such avoid letting horses graze pastures contaminated with sycamore seeds or instigate daily removal of the seeds. Supplementary feed should be provided, avoiding wet forage on the ground.

Identification of a new cause to an old problem

Dr Richard Reardon and Professor Paddy Dixon

With the advent of standing CT scans of horses' heads, it has become possible to accurately identify the cause of many disorders that were previously difficult to diagnose using conventional radiography, due to the complexity of the many overlying structures. Recent work at the R(D)SVS using head CT scans to further investigate the anatomy of the equine paranasal sinus region in health and disease, has allowed recognition of two poorly described



Figure 1: Transverse CT slice of an equine skull at level of the second cheek tooth. The horse was suffering from unilateral right sided mucopurulent nasal discharge. The horse's right ventral conchal bulla (*) is filled with exudate. The dorsal conchal bullae (db) and left ventral conchal bulla (vb) are air filled as normal.



Urine samples from a case of atypical myopathy demonstrating myoglobinuria. The left most sample was collected on the day of admission with serial daily samples collected towards the right.

Staff News

Justine Kane-Smyth whom many of you may have spoken to as a resident, will be covering Sarah Taylor's maternity leave from November 2014 following the completion of her ECVS surgical residency training. This leaves a space open for a new surgical resident and we hope to have someone new in place by January. Congratulations to Lucinda Meehan, our equine diagnostic imaging resident on passing the theory

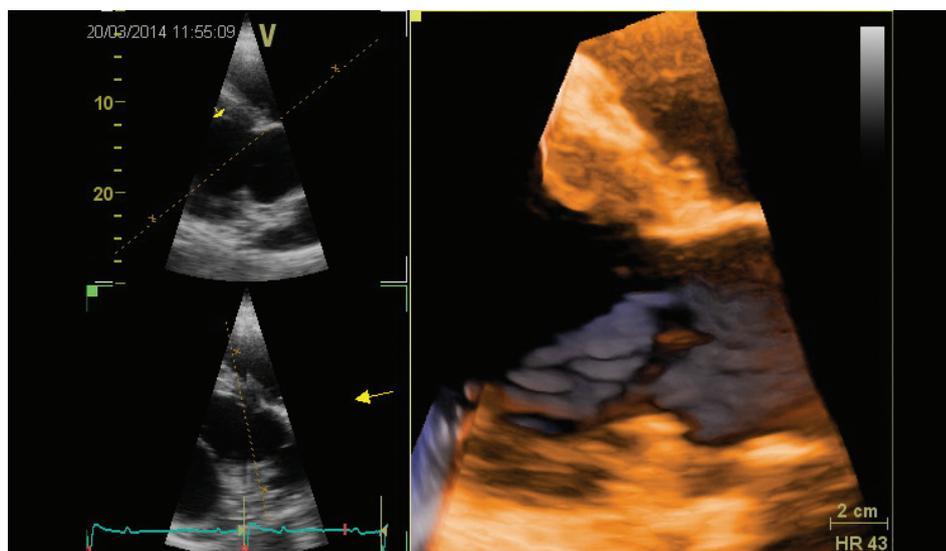


Figure 2: Endoscopic image showing laser fenestration of the dorsal aspect of the left ventral conchal bulla per nasum in a horse with chronic empyema of this bulla.

structures: “the dorsal and ventral conchal bullae” that lie fully within the nasal conchae. Further, it has been recognised that, similar to the paranasal sinuses, these two structures can develop disease, which can contribute to chronic unilateral nasal discharge in cases of sinusitis; or less commonly be a primary cause of malodorous unilateral nasal discharge. A recent case series submitted from the R(D)SVS reports on successful treatment of eight cases with empyema of the conchal bullae. These cases all had inspissated material within the conchal bullae which required physical debridement to remove and would have been unlikely to resolve without treatment. Infection of these structures should be considered in cases with chronic unilateral nasal discharge. Whilst diagnosis can be challenging, standing sedated CT is a well-tolerated procedure in most horses and provides a hugely useful tool in diagnosing and guiding appropriate treatment of conditions of the equine head.

part of her large animal European College Diploma in veterinary diagnostic imaging (LA ECVDI); she is now part way to becoming one of the first LA ECVDI diplomats. Also congratulations to both Tim Froydenland (resident in Equine Surgery) and again Lucinda Meehan on completing their Cert AVP's. Coming along to our free CPD on the 19th November 2014 (see info enclosed) is a good way of meeting our senior clinicians and residents so that you can put faces to names/voices.

4D Echocardiography: gimmick or ground-breaking?



3 dimensional image of the left ventricular outflow tract (right colour image) with the cut planes shown in the 2D (greyscale image) on the left). The left coronary cusp of the aortic valve is visible (red arrow) and to the right of this is the inside wall of the aorta. To the left is the underside (i.e. from the ventricle side) of the anterior leaflet of the mitral valve (red dashed arrow). Angles such as this are impossible to achieve with 2 dimensional imaging and will hopefully allow us to identify cardiac pathology in more detail.

Real-time 3D ultrasound (4D ultrasound) is rapidly becoming the ultrasound modality of choice in human medicine for evaluating cardiac valves as well as other key aspects of cardiac form and function. Moreover, it is replacing technologies such as cardiac MRI and CT in selected cases where real time information about cardiac valve structure is paramount. Preliminary evaluation of this novel and exciting clinical tool in horses by Drs John Keen and Karen Blissitt has shown that acquisition of high quality 4D images of the equine heart is possible. The ultrasound probes acquire a pyramid rather than a line of scan data and due some amazing computer processing, can display the image in real time. The images acquired can be spun in 360° allowing us to view structures from all sorts of unusual angles. We feel that 4D ultrasound will provide much more detailed information on valve structure and function in horses with valve disease than standard 2-dimensional ultrasound. Additionally, although there are limitations, it may also be very useful compared to 2D technology for more accurately determining chamber dimensions (e.g. the left atrium) and for congenital defects such as ventricular septal defects. This is one of the most exciting innovations in cardiac ultrasound for a while and Karen and John will be continuing to investigate this tool alongside their normal clinical caseload. Watch this space!

‘Our charges explained’: a document for clients



We are very sensitive to the fact that veterinary care is often considered expensive by equine clients. Nevertheless as part of the University and in keeping with

our key aims of education, research and furthering clinical excellence, we are not driven by profit, and aim to keep our charges for this Specialist service as cost effective as possible. Of course providing such equipment, and a 24 hour referral service, does cost something and providing this would not be possible without us covering our costs. With these thoughts in mind we have produced a document for clients entitled ‘Our charges explained’ which hopefully answers many of the questions they may have about the breakdown of our charges. This document is also freely available on our website at:

edin.ac/1feeGkj

Investigating Quittor With MRI

Infection of the cartilages of the foot (quittor) is a rare, yet potentially fatal condition. Horses frequently suffer recurrences of lameness after treatment, which may result in multiple surgical procedures in attempt to remove the affected tissue. A study being performed at the R(D)SVS is investigating the use of magnetic resonance imaging (MRI) in cases of quittor. We hypothesise that MRI will allow more accurate identification of the extent of tissue affected and assist with surgical planning. It is hoped that this will reduce the number of surgical procedures required for successful treatment and thus increase the chances of a complete cure.

The clinical signs of quittor are a chronic discharging tract from the coronary band or just proximal to it, combined with lameness of varying degrees. There is often a history of cessation of discharge following antibiotic treatment and recurrence when medication is discontinued. The inciting cause may be unknown, or it may be secondary to a previous penetrating injury, trauma or wound.

Diagnosis of the condition has traditionally been based on radiography, fistulography and clinical signs, but more recently ultrasonography has been reported to be useful to assess the proximal portion of the cartilage. None of these diagnostic techniques are able to assess the cartilage within the hoof capsule, nor the surrounding soft tissues such as the collateral ligament of the distal interphalangeal joint. Similarly radiography is insensitive for detection of bony pathology, requiring a marked loss of mineralisation before changes become visible. MRI allows imaging of the soft tissue and osseous structures within the hoof capsule and is exquisitely sensitive for detection of fluid within bone, which can signify infection or inflammation. Using the information gained from MR images we can plan the site of incision and the extent of tissue debridement required. Additionally, we have identified tracts of inflamed tissue that have not been visible with other imaging modalities. These tracts have also been debrided at surgery.

Radical surgical debridement of the affected tissue is the recommended treatment. Two surgical approaches are reported, firstly a curvilinear incision may be made proximal to the coronary band, which allows access to the proximal portion of the cartilage, but may not allow access

to the more distal structures. Additionally a window in the hoof wall may be made to enable better access to the distal portion of the cartilage. Inadvertent penetration of the distal interphalangeal joint is possible when resecting the collateral cartilages, owing to the proximity of the palmar pouch of the distal interphalangeal joint to the cartilages. Distension of the joint is advised post-resection in order to confirm integrity of the joint capsule.

Post-surgical treatment includes medication with broad-spectrum antibiotics such as procaine penicillin and gentamicin or oxytetracycline. Intravenous regional perfusions are also performed on alternate days for at least 3 treatments.

In summary quittor can be a challenging condition both to diagnose and treat. MRI has proved to be useful in determining which cases benefit from a second surgical window through the hoof wall. We hope that by utilising advanced imaging techniques the prognosis following surgical treatment will improve. If you would like to discuss treatment or management of a similar case, please do not hesitate to contact us.

Free CPD day

The next free CPD Day will be on 19th November 2014. Topics in the afternoon will be: what to do next if your lame horse doesn't block to the foot; equine allergic skin disease, allergy testing and immunotherapy; and what's new in equine dentistry – transbuccal oral extractions and endodontics. Find more details on our website or contact Morven at the Equine Hospital: EQH@ed.ac.uk. Our morning sessions are aimed at refresher or new graduate level and this time will focus on nerve blocks of the limb and skull.

Our Clinicians

Medicine

Professor Bruce McGorum
BSc, BVM&S, Cert EM, DipECEIM, MRCVS

Dr Scott Pirie
BVM&S, PhD, Cert EM, Cert EP, DipECEIM, MRCVS

Dr John Keen
BVetMed, PhD, Cert EM, DipECEIM, MRCVS

Dr Karen Blissitt
BVSc, PhD, DVA, DipECVAA, MRCVS

Surgery

Professor Paddy Dixon
MVB, PhD, Dip EVDC (Equine), MRCVS

Dr Sarah E. Taylor
BVM&S, PhD, Cert ES (Orth), DipECVS, MRCVS

Dr Raphael Labens
MagMedVet, MVM, PhD, CertES(Orth), DACVS, DECVS, MRCVS

Mr Eugenio Cillan-Garcia
DVM, MRCVS

Dr Richard Reardon
BVetMed (Hons), MVM, PhD, Cert ES (Orth) DipECVS, MRCVS

Our Residents

Lucinda Meehan
BVSc, MSc, Cert AVP, MRCVS

Justine Kane-Smyth
BVM&S, MRCVS

Rachel Jago
BVM&S, MRCVS

Tim Froydenlund
MA, VetMB, Cert AVP, MRCVS

Gemma Pearson
BVMS, MRCVS

Apryle Horbal
VMD, MRCVS
(postgraduate veterinary surgeon)