

Full day CPD at the AHT 2016 - £100/delegate

We would like to invite you to join us for a programme of CPD days at the AHT. Included is a full day of lectures, refreshments and buffet lunch.

Date	Title
12 May 2016	A day of case-based medicine and imaging
7 July 2016	Free recent graduate CPD day
13 October 2016	A day of case-based surgery
10 November 2016	A day of case-based neurology

FREE evening CPD at the AHT 2016

Where: John MacDougall Visitors Centre, Animal Health Trust
Time: Light refreshments available from 7.30pm, talk starts at 8.00pm

Date	Title
Thursday 21 April	Canine diabetes - the highs and the lows
Thursday 19 May	Still coughing – diagnostic approach to chronic cough
Thursday 16 June	Why is this dog lame? – a practical approach
Thursday 21 July	Surgery for GDV – how to have a good outcome
Thursday 15 September	Optimising chemotherapy in practice
Thursday 20 October	Ventilation and respiratory monitoring

To register for any of the above courses, or for further details, please visit our website: www.aht.org.uk/cpd or email: sacpd@aht.org.uk



Animal Health Trust

Veterinary News

Spring 2016

Animal Health Trust Small Animal Clinic Veterinary News

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Dear Colleagues,

It's a busy spring newsletter, with articles of two exciting new surgical techniques we can offer, how to manage dermatology cases as the 'spring itch' arrives, information on CPD offers this year and a laminated sheet that you might find useful to have around the practice.

I thought you might also want to know about the 'Give a Dog a Genome' research initiative we are undertaking, which seems to have gripped the press, along with a story on Jerky treats causing Fanconi syndrome. We have included information on the syndrome in the newsletter.

You may recently have heard about one of the AHT's latest canine genetics research programmes: Give a Dog a Genome. Through this, we are aiming to create the UK's largest canine genome bank by sequencing genomes of 50 different breeds of dog. By sequencing DNA from multiple breeds of dog the genome bank will be as diverse as possible and will vastly increase the pace of canine genetics research and the speed with which new DNA tests are developed. You can read more about the project at www.aht.org.uk/gdg

Finally...

Our small animal hospital is proud to have been using the Surgical Safety Checklist (SSC) since 2008 following a global initiative by the World Health Organisation to improve patient safety within the operating room environment which is recognised to be highly complex and prone to error.

The essence of the checklist is to ensure critical steps are met and where necessary, encourage a team discussion to deliver safe and effective care. The beauty of the SSC is that it is infinitely adaptable to suit local practices and its use is not limited to specialist environments. To find out more about our checklists, an implementation guide and an article about their use, please visit www.aht.org.uk/patientsafetyfirst

Best wishes,

Sue Murphy, AHT Head of Clinics

ADVANCING SURGERY AT THE AHT WITH 3D PRINTING

Adrien Aertsens, DVM, MRCVS, Clinician in Soft Tissue Surgery

Three dimensional printing is now widely used in many professions. Since the 1990s, printing of models, customised implants and devices has radically changed some procedures in human medicine. The technology is now starting to be used in veterinary medicine.

To get the best surgical outcome you need to plan your treatment in advance to minimise the risk of complications. Anatomical malformations and complex fractures are technically challenging and time-consuming. For these cases, good surgical planning is essential, and routinely includes CT-imaging. Three dimensional images can then be downloaded and used to "print" full-scale replicas of the anatomy. This technology is now readily available and the printed results are quickly obtained. 3D printing brings several advantages.

Firstly, the replica allows better understanding of the pathology and avoids unexpected intra-operative findings which could have been missed with traditional imaging.

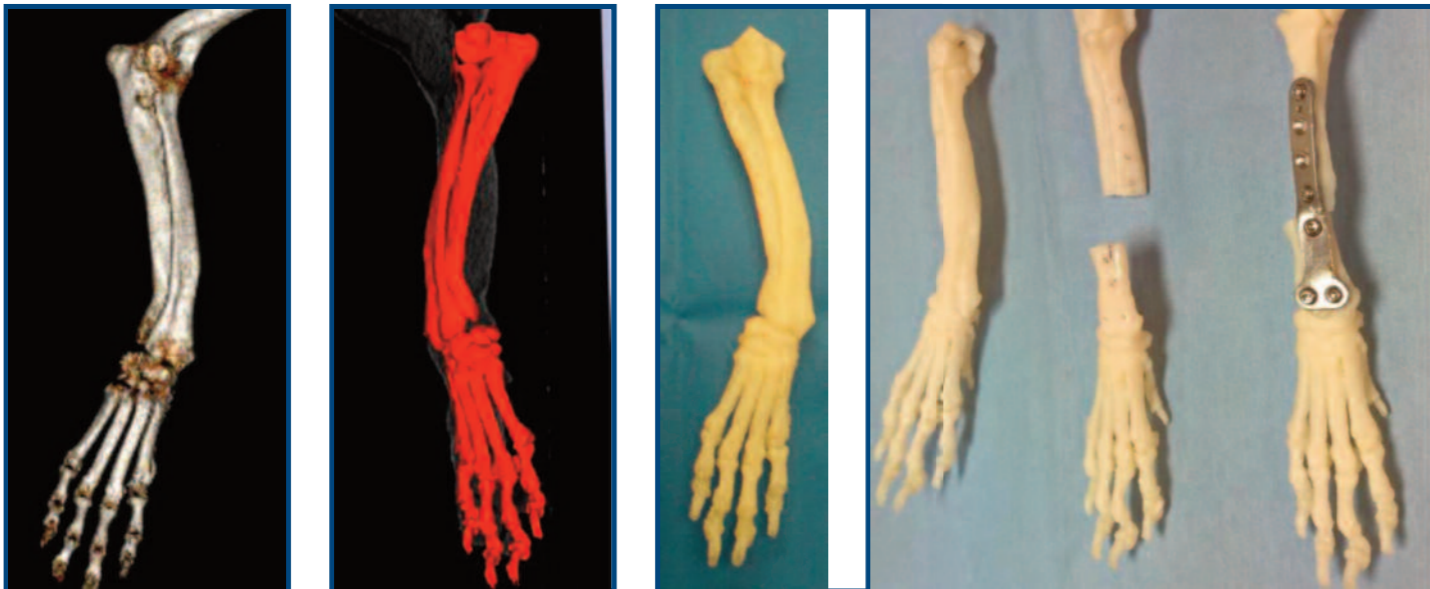
Secondly, the model allows the surgeon to explore the feasibility of the surgical procedure decided upon. The feeling of manipulating, cutting, drilling and applying implants into the replica is very close to the sensation of handling real bone.

The implants can be accurately selected, and bent or moulded, to fit perfectly. Radiography or more advanced imaging modalities can then be performed to examine the results obtained. Specific devices can therefore be created and accurately assessed prior to surgery. Implant selection and moulding is time-consuming and traditionally is performed during the surgery so this technology minimises the time the patient is anaesthetised during surgery.

Finally, including the model in the surgical planning process increases the chance of understanding how realistic the aim of the surgery is. The surgeon's confidence is increased, and the likely success rate can be more accurately communicated to the client prior to surgery.

When indicated, 3D-printing technology is now used at the AHT, allowing the team to achieve their goal more accurately, in a shorter time, with a lower risk of complications.

Find out more about our Small Animal Soft Tissue and Orthopaedics Surgery team at www.ahtreferrals.co.uk



A complex forelimb angular deformity with varus, procurvatum and external torsion of the radius and ulna in a small breed dog. Printed full-scale models during the pre-operative planning.

TACKLING SEASONAL ALLERGIES

Jane Coatesworth, MA VetMB CertVD MRCVS, RCVS Advanced Practitioner in Veterinary Dermatology, Head of Dermatology

The pollen season is here again. Dogs and cats with atopic dermatitis which are sensitised to pollens are likely to have allergic flares between February and August. Licking of the paws, rubbing the lips and muzzle, scooting on the perineum and otitis externa can all be signs of allergic skin disease. Allergic dogs and cats can also show recurrent skin and/or ear infections with bacteria or Malassezia.

Tree pollens are air-borne now. The season starts with alder and hazel in February and moves through ash and oak to lime tree flowers in June. Grass pollens usually start in May and continue through to August, with a peak in June and July. There is a wide variety of flowering weeds which release pollen from June to August.

It makes sense to treat short-term itchy flares with a rapid-onset drug and for a limited duration. Oral steroids are used for generalised lesions and topical steroid spray for localised lesions. Oclacitinib and anti-histamines are other options.

Itchy animals can get short-term itch relief from bathing in luke-warm water and a non-irritating shampoo. Bathing also reduces the bacterial and yeast population on the skin and washes away allergens. We know that allergic animals have poor skin barrier function, so regular bathing is a good option.



Recurrent bacteria skin infections can be a feature of an underlying allergic skin disease.



A young atopic Bulldog with extensive erythema of the muzzle and secondary Malassezia dermatitis.

Allergic animals with chronic itch are likely to have allergies to food or to non-seasonal allergens such as house dust mites and mould spores. Carefully-conducted food trials are important to look at the relevance of food.

Non seasonal, non-food, allergies are likely to benefit from allergen specific immunotherapy, based on the results of intradermal skin testing, or serology. Ciclosporine medication can also be an option for these cases.

LUNCH AND LEARN!

The most common reason clients visit their vet is for skin-related issues. We offer dermatology CPD over lunch in your own practice. Lunch and learn includes a 45 minute talk on a dermatology subject of your choice, plus time afterwards for discussion.

Find out more at www.aht.org.uk/cpd

FEATURE ARTICLE: PROXIMAL RENAL TUBULAR DISEASE

Dr Mellora Sharman, BVSc MVM PGradCert (Vet Ed) FANZCVS DECVIM-CA MRCVS, RCVS
Specialist in Internal Medicine



The renal tubules play an important role in regulating the body's fluid, solute and acid-base balance. The proximal tubule regulates various substances including urinary glucose, amino acids, electrolytes (potassium, sodium, calcium, magnesium, phosphate), bicarbonate, uric acid and organic acids. Amongst one of its most important functions, the distal tubule regulates excretion of ammonium and therefore is able to 'tweak' acid-base balance.

As a consequence of tubular dysfunction, a variety of water, electrolyte and acid-base disturbances can ensue. This may occur as primary or inherited disease, where there is often an association with particular breeds; OR can be an acquired entity secondary to other local or systemic disease. The clinical signs in dogs with proximal tubular disorders and regardless of cause include polyuria / polydipsia due to osmotic diuresis as well as anorexia or vomiting. A range of non-specific signs including lethargy or weakness may also be reported.

In its simplest form primary renal glycosuria reflects dysfunction of glucose transporters alone within the proximal tubules. This causes glycosuria, in the face of euglycaemia, but without any other solute losses. This condition is very rare, but has been reported in a variety of breeds including Scottish Terriers, Basenjis and Norwegian Elkhounds as well as some mixed breed dogs. Although still rare, more commonly generalised dysfunction of the proximal tubule is recognised, and is termed Fanconi Syndrome or Fanconi-like disease. As an inherited disease, the Basenji breed can also be affected with clinical signs and presentation being reported around four-eight years of age. Dogs with acquired forms of Fanconi-like disease can present at any age.

Fanconi Syndrome and Fanconi-like diseases result in reduced reabsorption of several solutes in addition to glucose and abnormalities may be seen on blood screening (hypokalaemia, hypophosphataemia, hyperchloraemic metabolic acidosis). However urinalysis is key to identifying the defect, and as well as glycosuria being present, testing to evaluate the excretion of amino acids and the fractional excretion of solutes can help to confirm proximal tubular dysfunction. Where distal tubular function is conserved, urine pH tends to be < 6.0 during acidaemia as hydrogen is excreted distally and therefore the metabolic acidosis is compensated to some degree. In advanced disease azotaemia secondary to tubular necrosis and atrophy can be present concurrently.

As Fanconi-like disease can be acquired, it is always important to evaluate for and exclude other possible causes, especially when an atypical breed is involved.

Acquired causes to consider include infectious diseases (pyelonephritis, leptospirosis), toxin exposure such as heavy metals (lead, cadmium), drug administration (expired tetracyclines, gentamicin), and in appropriate breeds, disorders of copper metabolism (copper storage hepatopathy – Labradors, Dobermans, Bedlington Terriers.)

It is particularly important to note that whilst pyelonephritis and urinary tract infections may be a cause of glycosuria and tubular dysfunction, they can also occur as a result of glycosuria and therefore not be a primary cause. In recent years jerky treats imported from China have also been associated with acquired Fanconi-like disease. This has mainly been reported in the USA and Australia, but sporadic cases have also been seen and reported in the literature in the UK and Europe. A dietary and treat history is therefore imperative.

Cases of acquired disease may respond to removal of the inciting cause alone. However in addition to identifying and treating any underlying causes, supportive therapy can be required and management of any concurrent renal failure with chronic disease should also be considered where present. The goals of treatment for Fanconi-like diseases are to identify and remove any inciting causes; correct dehydration and electrolyte imbalances and improve acid-base balance. Bicarbonate is ideally maintained at > 12 mmol/L. Where urinary tract infection or pyelonephritis is confirmed treatment with antibiotic therapy should be based upon culture and sensitivity testing results.

The preferred alkalinizing agent to correct acid-base balance is potassium citrate, as it both provides potassium supplementation and does not exacerbate bicarbonaturia as would occur with use of sodium bicarbonate. One 540 mg tablet of potassium citrate provides 5 mmol (5 mEq) of potassium and 1.7 mEq of citrate, metabolism of which subsequently yields 5 mmol (5 mEq) of bicarbonate. Management of any chronic renal failure present due to advanced disease should be performed based upon IRIS guidelines (www.iris-kidney.com) and according to both the IRIS stage and substage. The caveat being that because phosphaturia can occur in this disease, phosphate restriction may not need to be as strict compared with that recommended for CKD in order to avoid contributing to the development of hypophosphataemia.

In monitoring response to this supportive therapy, repeating electrolyte panels, acid-base evaluation, PCV/TP and urinalysis to evaluate the magnitude of glycosuria initially is ideal at least at fortnightly intervals. Urea and creatinine, can also be of benefit for dogs with identified azotaemia, or for cases suspected to have early non-azotaemic renal failure (IRIS Stage 1) to monitor progression. Once disease is stable, reassessment can be drawn out to every three months.

The prognosis remains variable for cases of proximal tubular disease, and can depend on whether disease is inherited or acquired, and also on whether disease is early or advanced with evidence of concurrent renal failure. Regardless, inherited disease can often be stable and managed medically for years. For acquired cases disease the prognosis may be reversible early in disease if inciting causes can be identified and removed. Cases of suspected jerky related Fanconi-like disease should be reported to the Veterinary Poisons and Information Service (<https://www.surveymonkey.co.uk/r/39QX6CJ>) to aid monitoring of this situation.

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CASE STUDY: CARLTON'S STORY

Dr Fabio Stabile, DVM, MRCVS, PhD, Clinician in Neurology / Neurosurgery

Carlton, a five month old Pug, was seen by his regular veterinarian because of progressive pelvic limb ataxia and paresis. Carlton was thoroughly checked and no major abnormalities were noticed apart from an ataxic gait on the pelvic limbs.

Carlton was initially started on treatment with a non-steroidal anti-inflammatory drug but according to his owners he continued to deteriorate. Despite this, Carlton did not appear to be in any discomfort. Carlton's owners were clearly extremely worried.

Because of the progression of Carlton's condition he was referred to the AHT Neurology and Neurosurgery Unit. At that stage Carlton had deteriorated to the point that he could still walk but any attempt to run resulted in him falling on his side. Whilst a general physical examination was unremarkable, Carlton's neurological examination was very abnormal!

Carlton's gait analysis revealed pelvic limb ataxia and paresis. General proprioception (paw positioning and hopping) was normal on the thoracic limbs but absent on both pelvic limbs. Spinal reflexes were unremarkable on all four limbs.

Cranial nerve assessment, cutaneous trunci reflex, tail movement and bladder function were normal.

Mild hyperaesthesia was elicited upon palpation of the cranial thoracic spine. Based on the history and on the deficits noticed at the neurological examination we suspected a lesion affecting the T3-L3 spinal cord segments.

Differential diagnoses for such a neurolocalisation in a puppy included: developmental anomaly of the spine/spinal cord, inflammatory/infectious CNS disease or neoplasia of young dogs affecting the spinal cord/spine.

Haematology and serum biochemistry were normal at presentation, therefore Carlton underwent further imaging of the spine. Radiographs of the thoracic spine revealed that T7 and T8 vertebrae were abnormal in shape (hemivertebra) and they were causing marked kyphosis with possible stenosis of the vertebral canal (*image 1 above*).

As plain radiography is not enough to determine whether the spinal cord is compressed by this abnormality Carlton underwent MR imaging of the spine under general anaesthetic. MRI revealed that T8 vertebra was indeed a hemivertebra. It was triangular/wedge-shaped in the sagittal plane. Moreover T7 and T9 vertebral bodies were shorter and slightly misshapen.

The T7-8 IVD space was extremely narrowed. As a result of all these changes there was marked kyphosis and scoliosis of the mid-thoracic spine and severe dorso-ventral stenosis of the vertebral canal which was causing severe compression of the spine at the level of T7-8 vertebrae. (*image 2*)

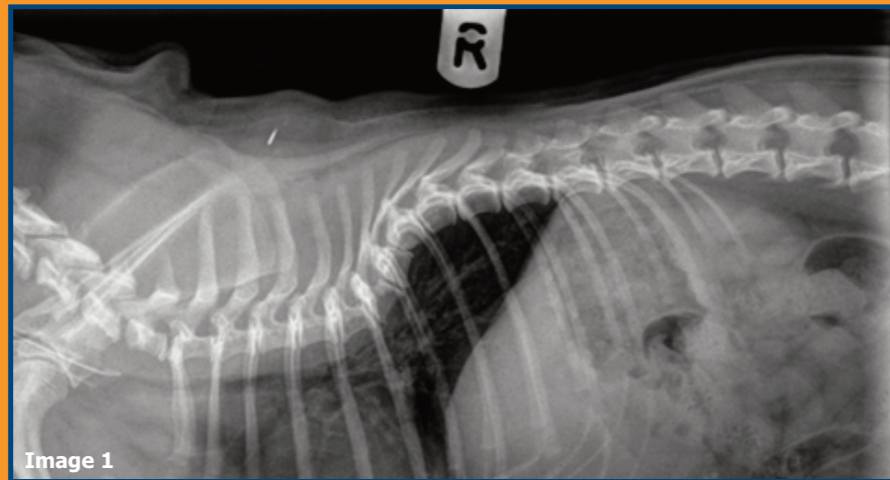


Image 1

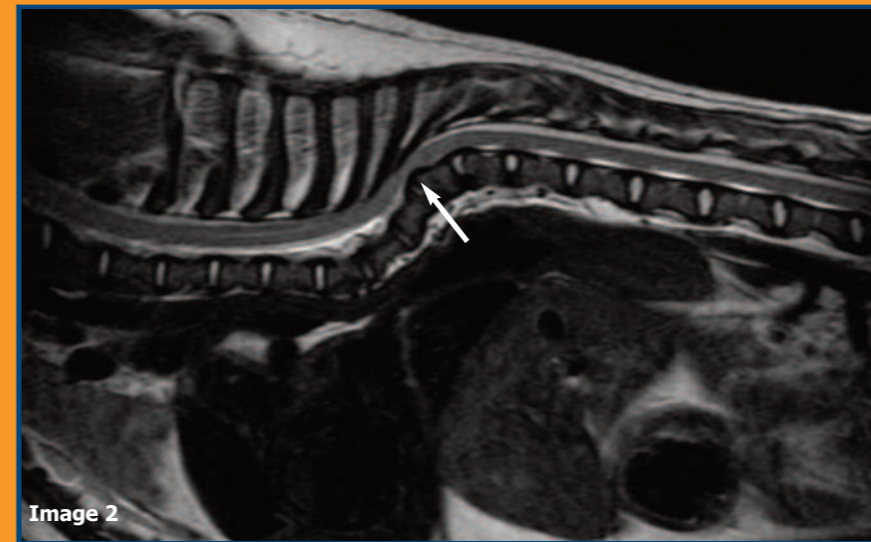


Image 2

However in Carlton's case these were causing compression on the spinal cord accounting for Carlton's neurological deficits.

Considering the severity of Carlton's clinical signs and the compression demonstrated on MRI of the spine we suggested two main treatment options:

1. Conservative management: strict rest and treatment with steroidal anti-inflammatory medication and intense physiotherapy might have provided stabilisation of Carlton's clinical signs. However deterioration of the neurological signs due to progression of the malformation was a very likely event considering the progressive deterioration of Carlton's clinical signs before referral.
2. Surgical distraction and stabilisation of the T6-T9 vertebral segments coupled with conservative management.

Whilst all spinal surgeries are extremely delicate procedures, this surgical procedure in particular is extremely challenging. In order to provide visualisation of the vertebral bodies affected from the malformation, an intra-thoracic approach via intercostal thoracotomy needs to be performed. The surgical procedure should be performed at a young age in order to take advantage of vertebral bone plasticity in the growing phase.

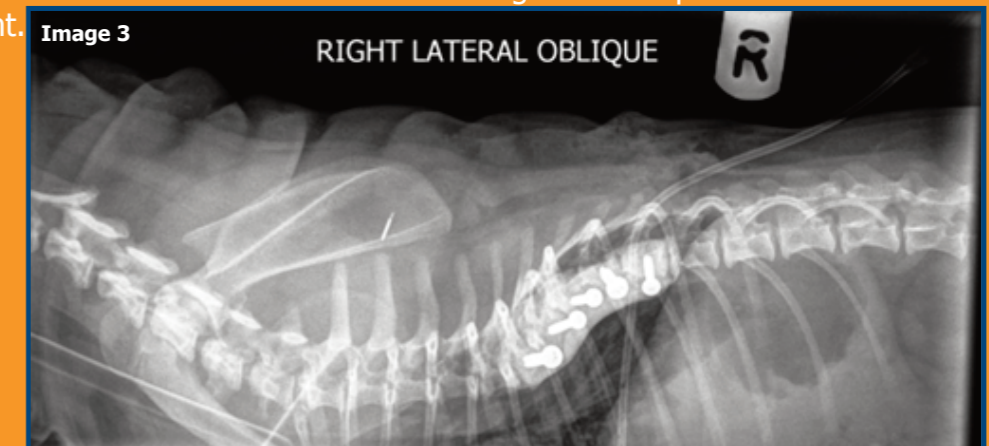


Image 3
Post-operative radiographs revealed a satisfactory degree of distraction of T7-T8. No complications were evident related to the implant or surgical procedure.

A joint effort between Luisa De Risio and Fabio Stabile of the Neurology and Neurosurgery team and of Daniela Murgia of the Soft Tissue Surgery team saw Carlton undergo spinal surgery with distraction and stabilisation by placing cortical bone screws in the vertebral bodies of T6-T7-T8-T9-T10. After distraction, stabilisation was obtained with polymethylmethacrylate (*image 3*). A Mila chest drain was placed and the thoracotomy site was routinely closed

His chest drain was removed two days after surgery. Carlton appeared comfortable after surgery and was already neurologically improved, showing a lesser degree of paresis and ataxia on the pelvic limbs. At his discharge four days after surgery Carlton's owner couldn't believe that Carlton was able to walk almost normally, and was even able to invite them to play!!!

One month follow-up revealed almost complete resolution of neurological deficits. Without this surgery Carlton would have not been able to go back and enjoy the normal happy life that we all want for every puppy!