Lynne Hill to join Willows as CEO

We are delighted to announce that Lynne Hill is soon to become the new CEO of Willows.

Lynne is a veterinary surgeon of great experience, both in primary small animal practice and subsequently as Head of Clinical Services at the Royal Veterinary College and, for the last six years, as CEO at Bristol Vet School’s Langford Veterinary Services. Lynne has also been President of the RCVS and of BSAVA.

When asked about her appointment, Lynne commented “Having known Malcolm and Peter for many years, I am very excited about joining Willows and carrying it forward, whilst upholding its ethos of a commitment to excellence and continued improvement. I have always held Willows in the highest regard and, having already met the staff and indeed worked with a number of Willows’ clinicians previously, I am sure that we will work really well together and build on what is already an outstanding business”.

Lynne will take over responsibility for day to day management at the practice, with the previous partners at Willows, Malcolm McKee and Peter Renwick, taking up a directorial role. Under Lynne’s leadership, Willows will continue to work to the highest standards, striving to provide excellent care for every patient and every client, and delivering the levels of service and support to referring veterinary surgeons for which Willows has become renowned over the last 25 years.

Malcolm and Peter are delighted that Lynne is to be the new CEO of Willows. Malcolm commented “Peter and I have always had the greatest respect for Lynne and her outstanding record of achievement within the profession. It is great to know that she will be managing Willows on a day to day basis and continuing what Peter and I have established here. Lynne’s central concerns are for providing excellent patient and client care, as well as providing the highest levels of service to referring veterinary surgeons – these values are completely in line with what Peter and I have striven to put into practice over the last two decades. We are both really looking forward to working with Lynne and seeing Willows go from strength to strength.”

Sally Birch  BVSc CertAVP DipECVDI MRCVS
European Specialist in Veterinary Diagnostic Imaging

We are very pleased soon to be welcoming imaging specialist Sally Birch to Willows as a member of our diagnostic imaging team. Sally will join us from Langford Veterinary Services where she undertook her Residency training. Sally enjoys all aspects of diagnostic imaging but is particularly interested in the cross-sectional imaging modalities of CT and MRI.

Kirsty Roe  BVSc CertSAM DipACVIM DipECVIM-CA MRCVS
American and European Specialist in Small Animal Internal Medicine

We are delighted to announce that, following her maternity leave, Kirsty Roe has recently returned as a full time member of the Internal Medicine team. Kirsty is particularly interested in feline medicine and endocrinology, but welcomes referral of all types of medical case.
WILLOWS CASE STUDY:

A 2-year-old F/E Pointer

Feathers, a 2-year-old F/E Pointer, was referred with a four week history of a soft, occasionally productive cough which had proven non-responsive to broad-spectrum antibiotic therapy. Clinical examination revealed no significant findings. High quality right lateral and dorsoventral thoracic radiographs had been obtained by the referring veterinary surgeon (see figure 1).

Based on the clinical findings, history and radiographs, describe the radiographic findings. What are your differential diagnoses? What would you do next?

...for the answer see page 5

Willows online Referred Case Registration Form – £1,000 prize draw winner

Our online Registration Form is proving to be increasingly popular amongst referring veterinary surgeons. Routine case referral can be done at any time of day or night – you just need to fill out some straightforward details and we will contact the client at the earliest opportunity and do the rest for you! It is even quicker to complete the form if you are already a registered member on the Veterinary Professionals section of our website.

As a bonus, using the form automatically qualifies you to enter our free quarterly £1,000 draw! The latest winner was Ruth Webb of McGettigan & McGettigan Veterinary Surgeons, Astwood Bank. On hearing the news of her win, Ruth said, "Willows’ online referral system is quick and easy to use, and during busy surgery times it means I can refer patients much more rapidly, reassuring owners that immediate action is being taken."

To use the system and save yourself time, just visit the Veterinary Professionals section of the website at www.willows.uk.net/vp and follow the link to the Referred Case Registration Form.

You could win £1,000!
Craniocaudal vs. caudocranial projection of the femur?

Conventionally, a craniocaudal (Cr-Ca) projection of the femur is obtained with the patient in dorsal recumbency and the pelvic limb extended caudally. However, a key problem with this view is that it is not possible to position the femur parallel to the radiographic cassette and perpendicular to the X-ray beam, even when there is a normal range of extension of the coxofemoral (hip) joint. This problem is exacerbated when the range of extension of the hip joint is reduced, for example, secondary to hip dysplasia/osteoarthritis or muscle contracture. Failure to image the femur parallel to the cassette and perpendicular to beam results in it appearing shortened (this in effect is an oblique view). One consequence is that important pathology may be missed e.g. fracture of the femoral head/neck or non-union of the shaft. Misrepresentation of the morphology of the proximal femur can be particularly problematic when templating the bone for hip joint replacement surgery. Although a craniocaudal projection of the femur may be obtained by using a horizontal beam technique with the patient in lateral recumbency, this method is cumbersome, not all X-ray tube heads have horizontal beam capability and there may be Health & Safety considerations.

With the patient in dorsal recumbency and the hip joint flexed (and the pelvic limb alongside the abdomen) the femur lies parallel to the cassette and perpendicular to the X-ray beam – the resultant caudocranial (Ca-Cr) radiograph of the femur therefore avoids artefactual shortening. Overcoming the limitations of the craniocaudal projection may reveal pathology that would otherwise have been missed. The caudocranial projection is also advantageous when imaging the femur following hip replacement surgery, since it not only gives a truer representation of the femur and prosthesis/bone cement but it also places less stress on the coxofemoral joint, prostheses/bone cement and femur (reducing the risk of iatrogenic luxation or fracture).

### RADIOGRAPHIC TIP

Caudocranial projections of the proximal femora following hybrid cementless/cemented (left) and totally cementless (right) hip replacement surgery in two dogs. Avoidance of shortening of the femora with this projection is advantageous when assessing positioning of the prostheses and cement.
After two episodes of collapse during his daily walks, Archie was presented to his primary care vet. A spot blood glucose measurement revealed marked hypoglycaemia of 1.8mmol/L. A comprehensive blood profile including basal cortisol, dynamic bile acids and insulin levels was submitted to look for an underlying cause. Following a further hypoglycaemic crisis at home, Archie was referred to Willows as a same-day emergency.

On arrival Archie was collapsed, tachycardic and tachypnoeic. His mucous membranes were pink with a normal capillary refill time. The remainder of the physical examination was unremarkable, aside from a mildly elevated body condition score (6/9). Blood glucose was immediately assessed and was again low at 1.7mmol/L. A bolus of dextrose was administered leading to a rapid improvement in Archie’s demeanour. The dextrose was continued as a constant rate infusion to avoid rebound hypoglycaemia.

Although results of the insulin assay had not yet been reported, Archie’s age and clinical presentation were highly suggestive of the excessive secretion of insulin or insulin-like factors. Conditions associated with decreased glucose production such as hypoadrenocorticism and hepatic insufficiency could be excluded, based on the results of the preliminary blood work. Advanced imaging was therefore proposed 1) to search for a primary insulin secreting tumour, 2) if identified, to assess the feasibility of surgical removal and 3) to stage the disease thoroughly for potential metastases. Optimal imaging techniques have not been defined in dogs with insulinoma; however, computed tomography (CT) was recommended as it is reported to be more sensitive than ultrasound in detecting the primary lesion and it is capable of identifying smaller pulmonary metastases compared to thoracic radiography.

CT revealed a 10mm diameter focal enhancing region at the tip of the right pancreatic limb. An adjacent pancreatic lymph node was also enlarged (22mm x 32mm) and rounded, and three small (5mm – 8mm diameter) enhancing nodules were seen within the spleen. The liver was unremarkable and no changes suggestive of intrathoracic metastatic disease were visible. These findings were consistent with a pancreatic tumour (likely an insulinoma) within the right limb of the pancreas, with probable metastases to the local lymph node and spleen (stage III disease). Despite the serious nature of his problems, Archie’s owners were keen to give him the best chance of prolonged, good quality life.

Surgical resection of the tumour and all gross metastases is the treatment of choice for insulinoma. Anaesthesia was induced with propofol as this drug may provide cerebral protection during periods of hypoglycaemia. Opioid analgesia was administered to control pain, limiting potential hyperglycaemia due to catecholamine release. Via an exploratory coeliotomy the enlarged pancreatic lymph node was excised and a partial pancreatectomy and splenectomy were performed. No other gross evidence of metastatic disease was identified at the time of surgery. A 5% dextrose solution was administered throughout the procedure and blood glucose levels were monitored intra-operatively to avoid the possibility of unnoticed hypoglycaemia.

Post-operative management is a critical aspect of the care of insulinoma patients, as disturbed glucose homeostasis and pancreatitis are common complications. Archie recovered rapidly from surgery: throughout regular monitoring of his glucose levels he remained euglycaemic. He was discharged after four days with instructions to return to see his primary vet for monthly blood glucose measurement. Approximately 10% of dogs develop diabetes mellitus following insulinoma removal, whilst hypoglycaemia may serve as an indicator of tumour recurrence. Histopathological confirmation of the primary islet cell neoplasia and locoregional metastasis was received several days later.

Archie soon resumed his normal, active, boisterous life at home. Ten months later he presented new signs of hypoglycaemia with some facial twitching; his blood glucose level was a little low at 2.6 mmol/L. Sadly this suggested his malignant insulinoma had recurred. Repeat CT (fig. 4) confirmed diffuse hepatic involvement that was not amenable to repeat surgical intervention. An insulin assay confirmed hyperinsulinaemia (50µU/L ref 11.6-29) in the face of ongoing hypoglycaemia. While chemotherapy with streptozocin was proposed, the evidence for a favourable response is limited. Medical treatment with prednisolone, regular feeding of a protein, fat and complex carbohydrate-based diet and restricted exercise was started and Archie enjoyed several more months at home. He was put to sleep just over a year after his original diagnosis. Median survival time for dogs undergoing partial pancreatectomy is 12-14 months, although the presence of metastases at the time of surgery is considered a poor prognostic indicator, and stage III dogs, like Archie, generally have a poorer outlook. The use of advanced imaging to optimise early staging of his condition and aggressive surgical resection almost certainly contributed to his prolonged survival.

CT at 10 months: Multiple arterial phase contrast enhancing nodules are identified throughout all liver lobes. Often the nodules are characterised by ring like enhancement. Findings are consistent with metastases of the insulinoma.
The radiographs are taken under general anaesthesia and an endotracheal tube is identified. The dorsoventral view is slightly rotated and there is mild movement blurring, but otherwise both films are of high diagnostic quality. On the right lateral view, there is a subtle increase in soft tissue opacity in the caudodorsal lung field. However, more obvious abnormalities can be seen on the dorsoventral view. There is a poorly defined increase in soft tissue opacity identified in the left caudal lung field. Whilst a specific lesion is not identified, the intensity of the lesion (i.e. the region of most obvious increase in soft tissue opacity) is visible centred on the left caudal primary bronchus. On closer inspection, the soft tissue opacity is composed of a poorly demarcated region of numerous ring shaped regions (“doughnuts”) and double parallel linear regions (“tram lines”), compatible with a bronchial pattern. Furthermore, in the same area there is a poorly defined region of fluffy increased soft tissue opacity, which appears somewhat amorphous. This is most compatible with an alveolar pattern and as such, the lung pattern would most suitably be described as bronchoalveolar. There is also mild thickening of the caudoventral mediastinal reflection and the pleural fissure between the left cranial and the left caudal lobes. The radiological diagnosis is focal bronchoalveolar disease with localised pleural thickening. Differential diagnoses should include bronchopneumonia and pleuritis, or less likely neoplasia (e.g. bronchogenic carcinoma). In this particular case, a bronchial foreign body would appear the most likely diagnosis.

When performing thoracic radiographs it is essential to ensure that positional atelectasis (lung collapse) is kept to a minimum. In almost all cases of thoracic radiography, positional atelectasis is a problem. The lung collapse can easily mask pathology, or even lead to a misdiagnosis. When patients are anaesthetised or sedated, it is very important that they are kept in sternal recumbency and that the dorsoventral projection is obtained first. On satisfactory completion of this projection, the patient can be positioned in either left or right lateral recumbency. If the patient is positioned in right recumbency then the observed portion of lung field will be the left, and vice versa.

Bronchial foreign bodies are most usually identified in the right caudal primary bronchus. The reason for this is that this bronchus deviates the least from the trachea and so it is easiest for foreign bodies to pass into it. However, it is not unusual for other bronchi to be affected, and the second most common bronchus is the left caudal primary bronchus.

A computed tomography (CT) examination was carried out, allowing the radiologist to better evaluate the lung pathology (figure 2). The CT scan confirmed the presence of the 5 cm foreign body in the left caudal lobe bronchus and patchy areas of peribronchial alveolar pattern with thickening of the affected bronchial wall and a degree of bronchiectasis.

CT (especially multidetector CT, as used here) allows very high definition images to be obtained, without the frustration of superimposition of other structures that can be a problem in thoracic radiography.

Bronchoscopy was then performed, and the entire offending foreign body was removed. The prior CT scan not only allowed correct identification of the foreign body, but also enabled the medicine clinician to be sure that the whole foreign body had been removed.

Feathers was discharged on a five day course of antibiotics and went on to make a complete recovery.

Figure legends:
Figure 1: Referring veterinary surgeon’s thoracic radiographs:
- a Right lateral radiograph
- b Dorsoventral radiograph. Note the poorly defined region of bronchoalveolar pattern and the mild associated pleural thickening.

Figure 2: CT images of the thorax:
- a Transverse image at the level of the left caudal primary bronchus viewed with a lung window. A foreign body (head of a wheat awn) is identified within the bronchus. The bronchus is locally thickened and there is a patchy associated bronchoalveolar pattern present.
- b Dorsal multiplanar reformatted (MPR) minimum intensity projection (MinIP) of the thorax showing the foreign body in the left caudal primary bronchus. CT enables viewing of the images in any plane (so called MPR). MinIP is a way of manipulating the data set so that certain types of pathology are more easily identified.
Degenerative disc disease
a review

Disc disease (‘slipped disc’) is the most common cause of spinal cord injury and neck and back pain in dogs. Rupture of a healthy disc due to trauma is very uncommon, compared to disc disease resulting from degeneration of the disc. Discs may degenerate in one of two ways – chondroid metaplasia (most commonly recognised in chondrodystrophoid breeds such as Dachshunds and Pekinese) or fibroid metaplasia (most commonly recognised in non-chondrodystrophoid breeds such as German Shepherd Dogs and Labrador Retrievers).

Following degeneration, discs may cause problems by either extrusion of the nucleus pulposus of the disc (referred to as a Hansen type I disc lesion) or protrusion of the annulus fibrosus (referred to as a Hansen type II disc lesion). Annular protrusions are less common than nuclear extrusions in both the cervical and thoracolumbar spine, and they tend to cause gradual onset, chronic spinal cord compression, in contrast to nuclear extrusions where rapid extrusion of the nucleus into the vertebral canal can cause rapid onset, acute spinal cord injury. The latter is occasionally associated with secondary spinal cord injury mechanisms that may cause progressive (ascending-descending) myelomalacia and death from respiratory paralysis.

Cervical disc extrusions primarily cause neck pain, which can be extreme, rather than ataxia (incoordination) or paresis (weakness), although the latter features can be encountered, especially in conservatively managed cases due to progressive extrusion of the nucleus with resultant spinal cord compression (despite the relatively large vertebral canal compared to the size of the spinal cord in this region). In cases of lateralised disc extrusion in the caudal cervical spine, neurological lameness of the affected thoracic limb can also be seen. Plain radiographs may show evidence of disc degeneration, but more advanced imaging is necessary in order to detect compression of the spinal cord or spinal nerves. MRI is the imaging modality of choice, although CT or the more invasive (higher morbidity/mortality) technique of myelography may be considered in cases where distance or finance preclude obtaining an MRI scan.

Mild cases may be managed conservatively (strict rest, NSAIDs, +/- narcotic analgesics, +/- muscle relaxants, +/- neuropathic pain drugs) and many will improve. However, of those cases that do recover 1-in-3 will experience a recurrence, and whilst the spinal cord ‘forgives’ it does not ‘forget’, and as a result the spinal cord injury and neurological dysfunction at the time of recurrence may be more severe. Surgery (generally ventral slot decompression) provides a more rapid, controllable and predictable outcome and prevents future extrusion of the disc. It has a very high success rate when performed by an experienced surgeon.

Cervical disc protrusions may be associated with vertebral deformity (referred to as cervical spondylopathy), primarily causing ataxia and paresis which tend to be...
progressive. MRI is the diagnostic technique of choice and images may be obtained with the neck in traction in order to ascertain if the disc protrusion is traction-responsive. MRI, in contrast to other imaging modalities, can also be helpful in predicting outcome – for example, if a syrinx is detected at the site of chronic cord compression this may adversely affect the prognosis.

Conservative management in cases of cervical spondylopathy has a guarded prognosis and thus surgery is often indicated. Distraction-stabilisation, disc replacement and ventral slot decompression techniques may all be considered, and 80% of cases will improve following surgery. Subsequent protrusion of an adjacent disc occurs in approximately 20% of cases.

**Thoracolumbar disc extrusions** are a potentially life-threatening problem, as rapid extrusion of the nucleus pulposus into the relatively narrow vertebral canal may result in severe spinal cord contusion +/- compression, irreversible spinal cord injury and, on occasions, death due to progressive myelomalacia (this is in contrast to Thoracolumbar disc protrusions). As a result, owners of dogs (especially chondrodystrophic breeds, terriers and spaniels) with suspected thoracolumbar disc extrusions should be advised to consider investigations (preferably MRI) and surgery to minimise the risk of irreversible paralysis and myelomalacia. Mild cases may respond to conservative management (strict rest, +/- NSAIDs, narcotic analgesics, muscle relaxants, neuropathic pain drugs); however, of those that do respond, 1-in-3 will develop further extrusion of the affected disc with consequent progressive spinal cord injury (contusion, compression). The prognosis in dogs managed surgically is very good, provided they have evidence of pain perception in their pelvic limbs pre-operatively. In those cases that lose pain perception, 60-70% will make a functional recovery, provided the spinal cord injury was not peracute in onset and surgery is performed within 24-48 hours.

**Thoracolumbar disc protrusions** are often associated with marked spinal cord compression by the time the dog is presented with paraparesis and/or ataxia, because very gradual spinal cord compression is accommodated by the cord until a critical level is reached. The prognosis with conservative management is guarded and, as a result, surgery (corpectomy or hemilaminectomy-stabilisation) is often indicated. The prognosis with surgery is generally good, despite the tendency for thoracolumbar disc protrusions to be multiple in nature, and the technical difficulty of the surgical procedures.

**Lumbosacral disc protrusions** are often associated with spinal pain due to compression of the cauda equina. Gradual and sometimes severe cauda equina compression is accommodated by the nerve roots/peripheral nerves, until neurological signs are seen – these include pelvic limb lameness, paraparesis, tail paralysis, and urinary or faecal incontinence. The prognosis with conservative management is fair to guarded in cases of pain only. Surgery (dorsal laminectomy, foraminotomy, lumbosacral stabilisation) is indicated in cases where neurological signs are present. The prognosis with surgery is generally good, unless signs of incontinence are present prior to surgery.
Willows’ high quality CPD provision continues through to the end of 2014 and on into 2015. We have an entire year’s worth of exciting CPD meetings already planned for 2015, and you can see all the details by visiting our website.

If you would like to receive reminders of our meetings a few weeks before each event, all you need to do is sign up to our email list by registering as a member of the Veterinary Professionals section of our website. In addition to the benefit of email reminders of forthcoming CPD, being a member also allows you to manage your Willows CPD Certificates of Attendance, and rapidly to complete our online referred patient Registration Form.

Many of our CPD presentations will be enhanced by the use of an anonymous interactive voting system. You’ll be able to give your views without any potential embarrassment and also see how your colleagues are doing!

High quality food and refreshments are provided at our day meetings and evening forums, so why not come and join us for some very tasty CPD!!

www.willows.uk.net/vp