Veterinary **Specialist** Group

The Next Step

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EXPERTISE • TECHNOLOGY • COMPASSION

Staff Focus: - Pam Catterall

Pam is part of the veterinary nursing team, working in the Imaging Department.

How long have you worked at VSG?

I started at Onewa Road Veterinary Hospital in November 1996 and came to the new VSG hospital in November 2000.

What do you enjoy about working at VSG?

The staff get along really well together. It's like being part of a happy family.
Every one treats each other respectfully.

What do you enjoy doing on the weekends?

Watching my son play rugby, or watching sport on TV. Getting away from the hustle & bustle of Auckland for some R & R. Boating, and walks through native bush.

Tell me about your family

My husband Dave is a chef who loves to cook at home which is handy because my daughter Heather, and son Paul both live at home. We are a very close family. The kids are all grown up, and are like our best friends.

What inspired you to become a veterinary nurse?

I grew up on a farm and have always loved animals. When Paul went to college, I decided it was time to pursue my interests and began training to be a veterinary nurse. Coincidentally, about that time, my cat became sick, and was diagnosed with toxoplasmosis by Chris Warman.

How many animals do you have at home?

I have two cats, Pumpkin & Ricky. I am fond of birds and have a cockatiel, budgie, lovebird & 2 canaries.

And your favourite TV programme?

I love to watch documentaries about animals on Animal Planet.

What is your favourite holiday destination?

The Bay of Islands. We stay in a secluded bach that is very peaceful and relaxing.
I also enjoy camping in a tent in quiet, secluded places. There is nothing like getting back to basics.

If you won Lotto tomorrow, what would you spend the money on?

I would take my whole family on a cruise through the Alaskan Passage.

Pam Catterall and Queso

Residency: The Pathway to Specialization - by James Sutherland-Smith

Following the completion of the Pfizer Internship at VSG in 2003 I entered the North American Veterinary Internship and Residency Matching Program (VIRMP) with the aim of obtaining a sought after residency in diagnostic imaging (radiology).

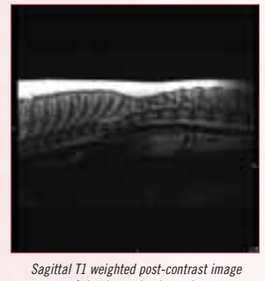
This advanced "matchmaking service" paired me with Tufts University's Cummings School of Veterinary Medicine in North Grafton, Massachusetts, USA. As well as having the longest name of any vet school in the US, it is also home to one of the stronger radiology residency programs in the country. The radiology department alone consists of five board certified faculty radiologists, four residents and nine technicians working on an annual hospital caseload of over 16,000 animals. The department has a particular strength in abdominal ultrasonography and neuroradiology. It is rare for a foreign graduate to be accepted directly into a three-year residency program. I believe such a breakthrough would not have been possible without completing the Pfizer Internship at VSG.

The Tuft's diagnostic imaging program is very "hands on" with a large responsibility placed on the residents from an early stage. The residents are on a four week rotation. Two weeks are spent on "the floor" which involves consulting with clinicians on their cases, generating written radiographic reports and performing special procedures (myelograms, cystourethrograms etc.). One week is spent running the ultrasound service. The final week is spent in the other modalities on-site including CT, MRI and nuclear medicine. One week a month is also spent on call, servicing the busy emergency medicine department. The large and varied hospital caseload is an excellent training ground. In the past 12 months I have read and reviewed with faculty over 1500 radiographic studies, 60 MRI or CT studies and performed over 500 ultrasound studies. These case numbers and the access to a wide variety of expert opinions are what make these residency programs so valuable. As part of the program residents are also responsible for teaching and conducting original research. The transition to life in the US has gone smoothly (yes, even the five months of snow) and I am looking forward to the next two years.Thank you again to the team at VSG and Pfizer New Zealand for your ongoing support.

James Sutherland-Smith

Nuclear Medicine bone scan (99m) Tc-HDP): metastatic carcinoma

Axial CT image post contrast: cystic cranial mediastinal thymoma



Sagittal T1 weighted post-contrast image of the thoracolumbar spine

Axial CT image: multilobular osteochondroma

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Five Years of Experience

with leveling of the Tibial Plateau for Cranial Cruciate Ligament Rupture in the Dog.

- by Alex Walker

The old adage that you can tell the relative success of a surgical procedure by the number of techniques described to treat the problem is a truth. Total hip replacement was first described in the early 1960's and there are still only 2 basic techniques - cemented or non-cemented. On the other hand, surgery to treat rupture of the cranial cruciate ligament (CCL) has had a plethora of techniques including intracapsular, extracapsular (each using a myriad of implants and fixation), fibula head transposition, capsulorrhapy and now tibial osteotomies. I have done my time with them all.

Over ten years ago, Dr Barclay Slocum changed the way we think about stifle biomechanics. Previously, stifle stability and range of motion was thought to be controlled by ligaments with the CCL preventing internal rotation, hyperextension and cranial displacement of the tibia relative to the femoral condyles. Slocum described a model where the forces of weight bearing, thigh musculature and ligaments affect stifle stability. Slocum recognized the existence of "cranial tibial thrust" (when a force is created across the stifle joint the tibia wants to displace cranially), which is resisted primarily by the CCL. This force varies with weight bearing and the degree of a "tibial slope". The tibial slope varies between individuals and the degree of compression varies with weight and activity. He postulated that by reducing the tibial slope the cranial tibial thrust is also reduced eventually reaching a point where no cranial thrust is created on weight bearing. He designed a technique called "tibial plateau leveling osteotomy" or TPLO (Figure 1.). He patented this technique requiring veterinarians to attend his certified TPLO workshops before gaining the right to perform the procedure. This requirement plus the need for specialized instrumentation and implants slowed the uptake of the technique. This led to other techniques being developed to alter the tibial slope. In 2000 we started performing a modification of a technique developed at the University of Zurich by Dr Pierre Montavon, which we have called the proximal tibial intra-articular wedge ostectomy (PTIO) (Figure 2). To assess our results we designed a prospective study that followed 60 stifles for 12 months after surgery. We assessed complications, lameness scores, thigh muscle circumference, range of motion, progression of DJD and surgeon and owner assessment of limb function preoperatively and then at 6 and 12 months. Results showed rapid return of thigh musculature, no loss of stifle range of motion, slow progression of osteoarthritis over the 12 months and excellent limb function in 90% of the patients. Most patients were large breeds (mean weight 39kg) and 58% had bilateral cranial cruciate ruptures. The study has since been published in *Veterinary Surgery.*

Figure 1

Figure 2

Despite the success of this technique we have recently changed to the Slocum TPLO because this technique is the global "gold standard" and is actively being researched around the world. Over the last 5 years we have become firm advocates (from curious sceptics) of the TPLO technique for large and active dogs. The technique is technically challenging with a steep learning curve and the potential for complications that demand astute clinical decisions. As surgeons, we have advanced our understanding of stifle biomechanics and, although not the Holy Grail, TPLO does give us confidence that we can achieve normal or near normal function in most dogs with CCL rupture. The benefits are a more rapid return to exercise (without the anxiety of prosthesis breakage/loosening), maintenance of range of motion, ability to treat large dogs with good results and excellent limb function even after heavy exercise.

Specialist Surgery for Handy Huntaway - Straight Furrow

Huntaways Reg and Ben Laden have made owner Ken Smith proud in more than one way.

Ken and wife Audrey live and work on 'Meringa Station' near Taumarunui where a good team of dogs is essential. The country is big and steep and moving stock anywhere takes a lot out of dogs so taking good care of his team is a priority for Ken.

Both Reg and Ben Laden can usually be found earning a living on the station but they also compete regularly at dog trials around the North Island and both have been successful at club level as well as the New Zealand National Dog Trials.

Reg, a big black and brindle huntaway with an even bigger bark, won the Zig-Zag at the 2001 New Zealand Nationals at Gisborne. Ken says while Reg (11) qualified for the National Champs again this year he is getting slow compared to the younger competitors but thanks to some deft surgery by veterinary specialist Richard Jerram there is still plenty of life left in this old dog yet.

Last November Ken was pushing a mob of sheep down the side of a basin with Reg when the dog pulled up sore - "everything looked okay but when he came back up to me he was carrying his left back leg. Reg is usually as strong as an ox and not inclined to injury so I took him down to the local veterinarian Alan Brown at Taumarunui Vets."

He says Alan knew Reg's reputation both as a top trial and working dog and after discussing the injury Alan referred Reg straight through to the Veterinary Specialist Group (VSG) at Unitec, Mt Albert. "Reg has been a mate to me for over a decade and so I wanted any intervention to be done well - I didn't want him to suffer or not be able to get about and lead a normal life so, after talking it over with Alan, I took him up to VSG."

VSG specialist veterinarian Richard Jerram told Ken that while he could operate on and fix Reg's injury with a new cranial cruciate ligament technique, whether the ligament would ever strengthen up enough to hunt sheep straight up a hill again was an unknown. After discussing all the pros and cons Ken decided to go ahead with the surgery as Reg was a special sort of dog who was well worth the effort."I can't speak highly enough of the VSG team and the care Reg received - he was treated like a king. He really is a people dog and when I took him in (to be operated on) the staff made such a fuss of him that he just walked away with them and didn't bother looking back at me." Reg came through the operation with flying colours and Richard Jerram was very happy with the results. He gave Ken strict instructions as to post operative care which included keeping Reg as quiet as possible. - Ken went out and bought an arthritis collar which was entirely his idea and he believes this also helped Reg recover.

"We took him home and had to lock him up for a few weeks - he was septic about that and then to make matters worse he had to suffer the indignity of being taken for walks on a lead in front of his mates. He was not well impressed with this part of the programme but he made a full recovery which was just a matter of time and is as good as new."

Ken says without the expert intervention of Richard and the team at VSG things would have turned out very differently - "the service they offer is of the highest order on both medical and personal levels - I'd describe them as brilliant, caring and totally trustworthy. "Richard was honest and open from the start about both the costs, which were considerable, and the possibility that Reg may not regain the strength required to move sheep uphill. I was adamant that I didn't want the dog to suffer and Richard respected that. In the end it was not the injury that moved me to retire Reg, it was simply his age. Like all of us he is not as quick as he used to be but still gives 100% and no-one would guess he's ever had major surgery on a hind leg."

So Reg is now happily pottering around on 'Meringa' shifting the odd mob and living out a well earned retirement but he did take time out to send his own email to the team at VSG.

Hi Richard

It's Reg here.... I thought I'd better drop you a line and let you know what has happened since you operated on my leg about twelve months ago.

I really thought you and Ken were a couple of real mongrels for keeping me locked up for six weeks but I am full steam ahead now. I have qualified for the New Zealand champs at Taumarunui.

This year the photo is of me and my mate Ben Laden (the terrorist of the dog world at the club trials) Ben, the little upstart, won class 3 but I was third and picked up the rest of my points when he couldn't. I'm still putting up mid to high 90s runs and Ken reckons I will be retiring after Taumarunui but we will see.

Once again thank you one and all

REG, Ken and Audrey Smith

Immune Mediated Thrombocytopaenia - by Mike Coleman

Immune-mediated platelet destruction is a common platelet disorder. Primary immune-mediated thrombocytopaenia (IMT) occurs when antibodies are directed against normal platelet antigens. The cause of this is unknown and primary IMT is a diagnosis by exclusion of underlying diseases. Secondary IMT occurs in association with other disorders e.g. neoplasia, infection and drug therapies. IMT may also be one component of systemic lupus erythematosus.

Clinical Signs

IMT can occur in dogs of any age and breed. Some breed predispositions do exist (e.g. Cocker Spaniels, Scottish Terriers, Old English Sheepdogs and Poodles) and an underlying genetic cause is strongly suspected in these breeds. Female dogs are approximately twice as likely to develop IMT as male dogs. Typical clinical signs include petechiae of skin and mucous membranes, ecchymoses, epistaxis, bleeding of the sclera, hyphema, haematemesis, haematochezia, haematuria, pale mucous membranes and lethargy. If spontaneous bleeding is going to occur it usually happens when the platelet count is less than 50,000/uL. Dogs can have very low counts without signs of bleeding however.

Diagnosis

There are three general mechanisms that cause thrombocytopaenia - inadequate production, excess use or sequestration and destruction. A full history, physical examination and diagnostic workup is necessary to distinguish these, as well as ruling out secondary causes of IMT. The diagnostic workup includes a complete blood count, serum biochemistry profile, urinalysis, coagulation panel, thoracic radiographs and abdominal ultrasound. Bone marrow aspiration may be necessary to diagnose a production defect. A number of tests to detect antibodies against platelets have been developed. The most useful detect antibodies by flow cytometry or ELISA. These have good sensitivity, but are non-specific. They are not able to differentiate between primary and secondary IMT and false negative results could occur in animals already on steroid therapy. These tests are not currently available in New Zealand.

Treatment

Emergency management involves blood transfusions in dogs that are severely anaemic. Packed red cells or whole blood transfusions are appropriate to replace erythrocytes. Transfused platelets have an extremely short half life in dogs with IMT so platelet transfusion is rarely indicated. Also, platelet enriched plasma is not currently available in New Zealand. Hypovolaemic dogs with IMT can benefit from fluid therapy. Cage rest reduces the risk of further bleeding as well as reducing tissue oxygen demand. Supplemental oxygen may be necessary in severely anaemic animals.

Immune suppression is the most important part of therapy. The most commonly used treatment is prednisone at immunosuppressive doses (1.5 to 2 mg/kg PO bid). Other drugs also used include azathioprine, cyclosporine and cyclophosphamide. Of these azathioprine is most widely used as it is inexpensive and has less chance of adverse side effects. We always use azathioprine in conjunction with prednisone in dogs with IMT. A recent study showed that dogs with IMT given a single dose of vincristine had a more rapid increase in platelet count and a shorter duration of hospitalisation.

Monitoring

Ideally a CBC should be performed daily until the platelet count reaches >100,000/uL. Once this point is reached weekly checks are recommended until the platelet count is within normal range. Immune suppression is continued for 6 months or more with a gradual taper over this time.

Prognosis

One study showed a 25% mortality rate - due to haemorrhage or euthanasia. Around 25% will need chronic, long term treatment - mortality rate is higher in these animals. Unacceptable side effects from treatment are another cause for eventual euthanasia. However, prognosis for IMT is slightly better than in dogs with immune-mediated haemolytic anaemia. These cases can be very rewarding to diagnose and treat.

Jackson is Back - by Annie Wright - The Write One

If it wasn't for the superb veterinary skills and technology available at Veterinary Specialist Group (VSG) Jackson, a much loved Jack Russell terrier, could be just a memory for the Taylor family from Manukau.

Chris and Bev Taylor and daughter Claire have two dogs - Jackson and a Kelpie called Spot. Both are exuberant, enthusiastic dogs who like nothing better than nipping about, poking their noses into everything that moves.

Shortly after Christmas, while the Taylors were shifting into a new home, they received a call from the family who were caring for both dogs. Chris says his brother-in-law had let both dogs out for a run and noticed that while Jackson was happily running around with Spot he was coughing very badly as if he had something stuck in his throat.

"I took him straight down to veterinarian Sue Grant at South Auckland Veterinary Hospital who x-rayed him and ran blood tests. Later that evening she called us to say while Jackson had nothing in his throat that would have caused the coughing, his blood test results showed he had a very low red blood cell count and was a critically ill little dog. A low platelet count meant any sort of bleeding could lead to haemorrhaging."

He says Sue initially thought Jackson may have been poisoned and she put him on an intravenous drip while monitoring him hourly - test results subsequently showed this to be incorrect. He had bleeding gums and Sue was concerned about the chance of internal haemorrhaging if he got bumped or knocked in any way.

For the next week Chris and Bev took Jackson to the South Auckland Veterinary Hospital by day and to Papatoetoe Veterinary Clinic at night so he was monitored 24 hours a day. After showing some improvement in health his drip was removed and he was put on a course of steroids - at this stage he had lost weight but still did not act as if he was critically ill.

"We had to feed him soft dog roll so he would not scratch his gums or stomach lining which could cause haemorrhaging. We also had to carry him about which he objected to as he didn't appear to realise he was so sick."

Sue Grant referred Jackson to Veterinary Specialist Group (VSG) at Unitec in Mt Albert where he underwent further ultrasound and blood tests and was eventually diagnosed as having immune mediated thrombocytopaenia whereby his immune system had begun to attack his own body.

Sue says she referred Jackson to VSG as they have the specialist care necessary to deal with chronically sick animals plus the technology to back them up.

"I advised the Taylors that Jackson needed specialist intervention and referred him to VSG. We refer many of our clients onto VSG much the same as a GP would refer his patients onto a specialist in a particular area."

Chris says the news that Jackson was still quite ill came as a surprise as he was still so perky and up to his usual tricks.

"VSG had all the latest equipment needed to treat Jackson. They were so kind to him and they kept us informed as to what was happening every step of the way. They explained it would be expensive to treat him but he had a good chance of survival so we just went with their advice. VSG kept Jackson for a couple of days and then once he started to improve we were allowed to take him home, provided we kept him quiet."

Chris said this was easier said than done.

"Jack Russells are not known for sitting quietly for any length of time. We put him in a basket in our garden shed but he kept leaping up to the window to see what was going on outside. We then bought him a special cage and put him in there, inside the shed and left the door open so he could see out so he settled down."

Jackson was monitored regularly for the next three months and when he returned to VSG at the end of July for a check up he had lost weight, which could be attributed to the steroids, but was otherwise progressing well. He finished his course of steroids in mid August and is now back on track to being a healthy, happy dog again.

Chris says VSG were Jacksons saving grace - "without their assistance the outcome could have been much worse.

Spinal radiology: the evaluation - by Chris Warman

When contemplating a series of radiographs, the clinician is frequently drawn to an area of the radiograph where the most dramatic variance from normal anatomy is identified. In many instances, this anomaly is significant and its recognition instrumental in yielding a definitive diagnosis. However, it is mandatory that the rest of the radiograph should be examined, especially in order to reveal whether other roentgen signs are present which add support to the original tentative diagnosis. Likewise it is important for the clinician to recognize radiographic features that contradict the original tentative diagnosis or lead the examiner to consider other potential diagnoses. In order to fully evaluate features that may be present within the radiograph, both the experienced and inexperienced clinician needs to perform a systematic examination of the radiograph. The systematic approach for various body systems does vary between radiologists and is dependent on what the radiologist ultimately feels comfortable with, and is frequently influenced by the manner in which they were taught radiology.

Primary spinal neoplasia

When evaluating spinal radiographs, it is important that the reviewer identifies and mentally records all of the following criteria in order to achieve complete evaluation of the spine. When evaluating the spine, the mental checklist includes; vertebral numbers, vertebral shape, vertebral radiopacity, vertebral alignment, the intervertebral disc space, the true spinal articulation, the foraminal space and the surrounding soft tissue.

Alteration of the total number of vertebra is most commonly seen in the thoracic and lumbar spine. An additional vertebra is generally more common than a missing vertebra. Additional vertebrae are commonly transitional vertebra. The recognition of transitional vertebra, most commonly in the lumbar spine, is important, as a high incidence of clinical disease is associated with lumbar transitional vertebra, particularly in the German Shepherd. It is important that the reviewer recognizes normal variance in vertebral shape in the various segments of the spinal cord. Abnormal vertebral shape may be reflective of either congenital malformation or secondary to inflammatory, neoplastic and traumatic disease processes. Alteration of the vertebral shape secondary to accident, inflammatory or neoplastic disease is generally easily identified and a relatively uncomplicated diagnosis. The clinical significance of congenitally malformed vertebra can be more challenging and frequently myelography is necessary in order to define whether compression of the spinal cord is occurring secondary to this malformation.

Alteration in vertebral alignment is generally either associated with malformation-malarticulation syndromes associated with congenital vertebral anomalies or trauma. Whilst the diagnostic importance of vertebral malalignment following a road traffic accident is relatively self-evident, altered alignment in congenital disease processes is likely to require myelography, CT or MRI in order to evaluate its clinical importance.

Transitional lumbar vertebra

Vertebral radiopacity may be increased or decreased. Alteration in radiopacity may affect the total spine or just one of the vertebral bodies. Altered radiopacity of one vertebral body is typically indicative of either neoplastic or inflammatory disease. A generalized decrease in radiopacity is reflective of either nutritional, renal or neuroendocrine disease processes. Occasionally generalized vertebral radiopacity is recorded with medullary sclerosis secondary to feline leukemia virus, osteopetrosis or disseminated idiopathic skeletal hyperosteosis. The intervertebral disc space is a major area of interest in the examination of the spine. Generally inexperienced clinicians can appreciate abnormalities of the intervertebral disc. The intervertebral disc space may reveal calcified material within or dorsal to the disc space, narrowing of the disc space or widening of the disc space. Intervertebral disc space widening, with loss of the intervertebral endplate and associated vertebral body sclerosis, is strongly indicative of discospondylitis. Discospondylitis may involve more than one intervertebral disc space. Narrowing of the intervertebral disc space is frequently accompanied by both reduction in the foraminal size and the true joint space. Examination of both the foramina and the true spinal articulation for narrowing can be useful when the clinician is somewhat uncertain as to whether the intervertebral disc space is truly narrowed. It is critical to remember that a narrowed intervertebral disc space is not necessarily responsible for the current clinical signs.

Isolated enlargement of a foraminal space, commonly without enlargement of the intervertebral disc space, is an occasional radiographic finding. Enlargement of the foraminal space in a patient presenting with a unilateral lameness, frequently with significant muscular atrophy, is generally the hallmark of a nerve sheath tumour.

The above summary is a thumbnail sketch approach to spinal radiology. However, by examining the spine in small segments of three and adhering to the examination criteria above, I am certain that your ability and confidence to evaluate spinal radiographs will grow.

The Journal Club Concept - by Mark Robson

Journal Club is a concept that is widespread in the veterinary schools around the world. The specialists at VSG have supported a Journal Club for 8 years now, starting at Onewa Road Vet Hospital and moving to VSG in 2000.

The idea is that a group of vets (and perhaps nurses) meet regularly to discuss a paper from a peer-reviewed journal, a textbook chapter, an article from a conference or a VIN article. One member takes on the role of choosing the material, copying it to all participants and then leading the discussion. This role is rotated among all members.

Currently we have 2 Journal Clubs at VSG. One is on Tuesday mornings at 7.30 with approximately 20 members and covers all topics, the other is at 7.30 on Thursday mornings and is specifically for Internal Medicine discussions. Darren Fry also coordinates a South Auckland Journal Club at 7.30 on Tuesday mornings for participants from that area. New members are welcome for all these meetings, just contact the VSG front desk for details.

Journal Club provides an invaluable mechanism for continuing education in that one cannot help but absorb a large amount of information from 50-100 publications per year. There is also a great deal to be learned from collegiate discussion around the topic and inevitably someone has seen a case of the disease or syndrome being discussed and can illustrate the points made. Journal Club does not require a specialist to be present to be valuable, and ideally there would be Journal Clubs all over the country meeting on a regular basis to disseminate new ideas and information. Why not give it a go in your practice, group of clinics or town?

We are indebted to Pfizer New Zealand for their support of our Journal Clubs. They photocopy and mail out the papers each week, and Glen and the team provide a generous morning coffee service at the Tuesday morning VSG meeting, thanks Pfizer!