

# CUT & PASTÉ

A newsletter from the  
Companion Animal Referral team at



**RVC**  
RANGIORA VET CENTRE

Enhancing Lives Together



**BESTPRACTICE**  
New Zealand Veterinary Association  
ACCREDITED HOSPITAL

Welcome to our first newsletter. We hope to provide a newsletter quarterly, with up-to-date info, case studies as well as hints and tips from the world of medicine and surgery, dentistry and CT imaging.

We are pleased to announce our referral service has expanded to include medicine referral with the arrival of our **Head of Medicine, Sarah Montgomery**.

Sarah has a post graduate certificate in small animal medicine and has previously worked in Christchurch, she comes to us from a large Referral clinic in Belfast, Northern Ireland. She has a comprehensive medicine background and a special interest in ultrasound, oncology, neurology and cardiology. Sarah is looking forward to helping you all with those challenging, puzzling, often never-ending cases. She is happy to chat on the phone if you have a quick query or we can book veterinary phone consults for the longer case discussions/complicated cases, as well as a normal referral physical consult service with the client.

We continue to offer surgical referral services in both soft tissue and orthopaedics with Ben, CT referral service through Bryn, and dentistry with Marcella. Please contact us for any cases you wish to send through.



EDITION ONE | Winter 2023

## Mid-winter catch up

At this time of year we appreciate that smaller consult rooms warm up faster, there's never as much snow on Mt Hutt as we'd like, and nothing beats a roaring fire. **We invite you** to spend a pleasant evening in the company of your local vets with a glass of wine, beer or hot chocolate and get some useful **CPD** signed off.

Following on from our successful CPD evening in 2022, we're holding another CPD event to introduce Sarah, provide you some useful educational presentations, and give you a chance to mingle with some tasty food and refreshments in a warm convivial environment.

## August 15th, 7:00pm

**What goes in,  
doesn't always come out!**

Management of GI foreign bodies from a medical, surgical and critical care approach.

**Please RSVP to:**

Rangiora Vet Centre, Referral Surgery Team  
Ph: 03 313 7438, Em: [surgery@rangvet.co.nz](mailto:surgery@rangvet.co.nz)

[surgery@rangvet.co.nz](mailto:surgery@rangvet.co.nz)

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[dentistry@rangvet.co.nz](mailto:dentistry@rangvet.co.nz)



Ben's  
**Useful Info**  
from the world of  
**JOURNALS**

## Is a TPLO with extra-capsular suture better than a TPLO alone?

This is something that I first thought about way back when I started doing TTAs in 2008. The aim of the osteotomy surgeries is to stop cranial tibial thrust and resultant tibial subluxation. However, the cranial cruciate ligament does so much more than that. It is important for detection of the amount of extension or flexion the limb is in for accurate limb placement and it stops internal and external rotation of the tibia so that the toes do not hit the front limb during motion. The rotational aspect of the ligament is not addressed in any osteotomy technique. The lateral suture techniques address rotation as well as tibial thrust. I always thought adding the ability to place a lateral suture to a TTA would improve the surgery. Recently TPLO plates have been made with a hole for placement of a lateral suture (using tightrope technique). A paper has been published that suggests that for acute and highly unstable complete CrCL ruptures this combination does provide beneficial additional stability to the TPLO. (Husi et al, Vet Surg, 2023).

## Gabapentin - does it provide pain relief?

A recent article in VCOT (Evaluation of Gabapentin in the Treatment of Postoperative Pain after a Tibial Plateau Levelling Osteotomy in Dogs. D. Almeida et al 2023) looked at post operative pain in dogs after TPLO treated with carprofen alone (4.4mg/kg/day) or carprofen plus gabapentin (20mg/kg TID) over the first 14 days post operatively. There was no difference in pain score nor weight bearing detected in the study. So, does Gabapentin have a benefit? Other papers have had mixed results. Veterinary use of Gaba is a bit of an extraction from the human medical field where it is used for chronic and chronic neurologic pain situations. It was initially developed as an anticonvulsant, and many are unaware of the need to taper off medication after chronic use to reduce the risk of seizure activity.

**Should we use it?** At RVC we continue to use it as a part of our multimodal analgesia post-surgery which includes a NSAID and paracetamol, but we will continue to assess responses via client feedback and ongoing literature regarding the usefulness of this treatment option.



**Ben Leitch**  
BVSc MVS(hons)  
MANZCVSc (Small Animal Surgery)

## Mammary tumours in cats

Epidemiology and risk factors for mammary tumours in female cats, P. Price et al, JSAP 2023. This article found an annual incidence risk of 0.104% of female cats seen in consult had mammary tumours with a median age of 12yrs. Older (>11yo) and purebred cats had a higher risk factor for mammary tumours. Median survival time if not operated was 8.7months and if operated ranged from 19.9 to 30.8 months depending on procedure. Death was by euthanasia due to the tumour in 95% of cases.

## The value of routine follow-up radiographs for osteotomy procedures of the stifle.

Recent papers have looked at whether follow-up radiographs at the 8+ week post-surgery period provide useful information and would result in changes to the treatment plan for the dog. I do not routinely perform 8+ week TTA radiographs in dogs under 8yrs old as it has been reported (and from my experience) that there is a very low incident of delayed healing in these cases. Radiographs are performed in older dogs to ensure bridging callus has started to allow an increase towards unrestrained exercise in dogs with a physiologically slower healing rate expected. In procedures like TPLO, CWO where we have surgically broken a limb, I prefer to radiograph to document that healing has progressed sufficiently to allow confinement to cease. In MPLs radiographs are not expected to show any complication but rather to document healing and implant stability. The published papers would suggest that radiographs are warranted if a) owner is concerned with progress, b) dog is still on NSAIDs at time of radiographs, c) vet concern or abnormal finding noted at consult, or, d) mobility of pet is subpar for this stage post-op. In these instances, radiographs revealed information that resulted in a change to the post op recovery plan in 1/3 cases. What does that mean for our referred patients? It suggests that we can reduce the need to perform follow up radiographs, especially those who have had no post-surgery setbacks and are showing good comfort and mobility at the 8-week check. This can reduce unnecessary procedures and x-ray exposure for the patient and the vet.



## INTRODUCING Sarah Montgomery

BVMedSci, BVM, BVS, PGCertSAM, MRCVS  
Medicine Special Interest Veterinarian

I have a postgraduate certificate in small animal medicine (PGCertSAM) and I have worked in referral practice in the UK, first as a rotating intern at a large referral practice in England and then as a medicine/imaging clinician in a hospital in Northern Ireland. Prior to this I have worked in general practice in the UK and NZ for over 5 years.

I'm very excited to be able to offer a medicine referral service at RVC. Due to the 24 hour hospital facilities, patients get round-the-clock veterinary care in house, and the large team of amazing nurses means we can offer 1-to-1 care to the more intensive patients also. We are pleased to be able to offer treatments that are difficult to organise in general practice such as blood transfusions, chemotherapy and CT scans.

As we're just getting started we may not be able to accommodate every case but please feel free to give me a call at the clinic on 03 313 7438, if there's any case you would like to discuss. I'm very happy to help out in any way I can, as I know how tricky some medicine cases can be. You can reach me via email also: [medicine@rangvet.co.nz](mailto:medicine@rangvet.co.nz)

Sarah's

### Useful Info from the world of JOURNALS

Broadbridge, C. and Williams, T.L., 2023. Evaluation of haem dipstick pad, urine protein, urine pH and urine protein: creatinine ratio results as a marker of bacteriuria in dogs and cats with inactive urine sediment. *Journal of Small Animal Practice*.

Can we increase our suspicion for UTI with an inactive sediment using a dipstick? The gold standard method for diagnosing UTI is a culture and sensitivity but sometimes it can be difficult to convince clients to spend the extra expense on it. Most patients with urinary infections will also have an active sediment - defined as more than 5 red/white bloods cells per high power field. Sometimes dogs that have a urinary tract infection may have an inactive sediment and many dogs with an inactive sediment may still have a positive culture. The paper by Broadbridge et al (2023) discusses if there is any way we can predict if these patients actually have a UTI and if we should send their sample for culture and sensitivity testing. A dipstick is a quick and easy test that most practices will already be doing for most urine samples. The haem pad can yield a positive result if exposed to erythrocytes, sperm, leucocytes, myoglobin, bacteria and certain chemicals. This study found that a positive haem pad reading of trace or above with an inactive sediment increased the odds of bacteriuria in dogs. Alkalinuria was not predictive of a positive culture. Proteinuria also had a significant association between a urine protein dipstick results of >1 and a positive urine culture. These results are not massively surprising but I always find it helpful to have more justification for a test that some owners may not want to pay for but that can so often be so important in getting the diagnosis and allowing us to be better informed in our antibiotic choice.



## Root Canal Therapy & Vital Pulpotomy: Endodontic Therapies an Alternative to Tooth Extraction at RVC

The Dentistry Team at RVC is proud to be able to offer Endodontic treatment as an alternative to tooth extraction for dogs and cats.

Endodontics is a specialized branch of human and veterinary dentistry involving treatment of diseased pulp to preserve tooth function. These procedures serve as a viable alternative to tooth extraction particularly for teeth considered structurally or functionally important in dogs and cats.

The mandibular canines in dogs and cats are the most common teeth to receive endodontic therapy. These teeth provide a significant amount of structural support to the lower jaw and the most common complication when extracting these teeth can be accidental jaw fracture particularly in older patients. Other teeth to encourage saving with endodontics are the maxillary canines and carnassials.

Dental radiographs under general anesthesia are an essential part of the initial work up to determine if a tooth is a viable candidate for endodontic therapy. Radiographic findings such as root fractures, abnormal root or pulp anatomy, or advanced periodontal disease would mean extraction is a more appropriate option.



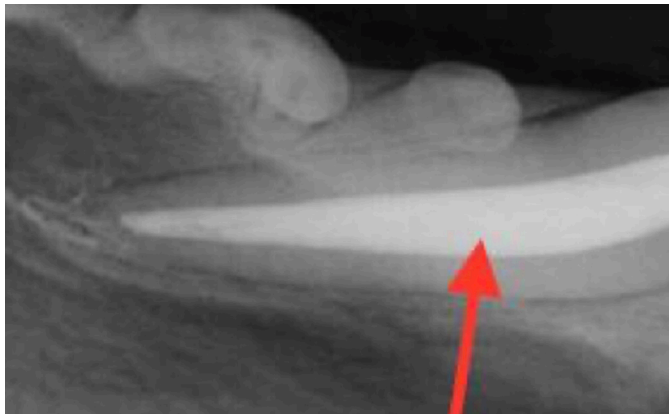
**Marcella Cassiani Lowe**  
BVSc MANZCVS (Dentistry)

## What is Root Canal?

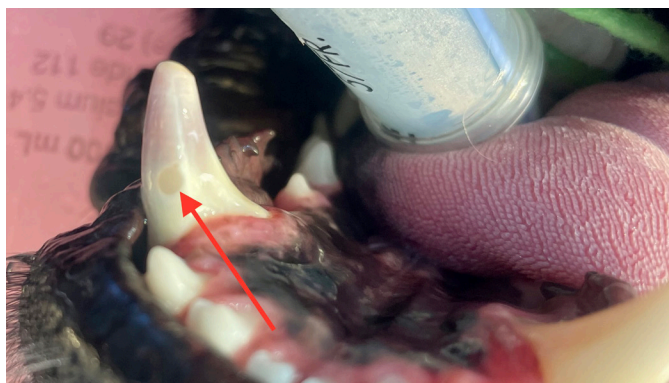
A Root Canal is a procedure recommended for fully developed permanent dentition that have suffered pulp damage either due to trauma or systemic infection. The procedure involves using specialized endodontic files to debride and shape the pulp canal, fill it with an inert substance called gutta percha then seal the canal to prevent infection. Despite the tooth no longer having blood or nerve supply, it still remains functional allowing the animal to keep the tooth, in most cases, for the remainder of its life. Follow up xrays once a year for at least 3 years is recommended to monitor the tooth. Infection and tooth re-fracture are the most commonly encountered complications which are treatable via repeat root canal, advanced surgical endodontics or tooth extraction.



A German Shepherd with purple intrinsic stain to 404 indicating necrotic pulpitis.



An x-ray of the completed root canal. Red arrow indicates the gutta percha filling in the pulp canal that is bright white on x-ray.



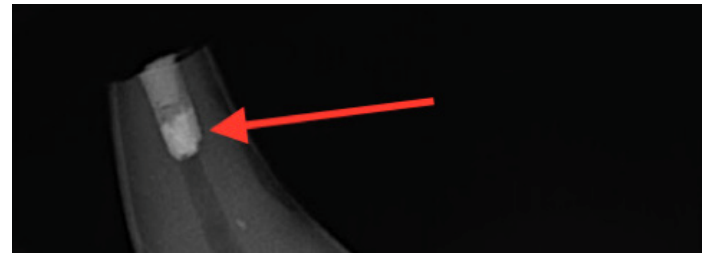
The finished root canal. Red arrow showing the circular hole made to access the pulp canal now sealed over with restorative material to prevent infection.

## What is a Vital Pulpotomy?

A vital pulpotomy is a procedure performed with the intention of preserving the nerve and blood supply to a developing tooth with an exposed pulp. The pulp may have been exposed either due to tooth fracture or intentionally as with crown reduction surgery. For this procedure the exposed pulp is debrided then covered with a specific material that stimulates the formation of a protective dentinal bridge. A protective cap made from an enamel-like composite material covers the top of the pulp to further protect it from bacterial ingress. **In animals less than 18 months of age, the procedure needs to be performed within 48 hours of pulp insult.** Animals >18 months of age may be better candidates for root canal therapy. As with root canal therapy, vital pulpotomy is less invasive and less painful than tooth extraction. Once performed, follow up involves radiographs at 3 months post op to assess dentinal bridge development, then annual monitoring radiographs annually for as long as feasible. Should the vital pulpotomy fail, treatment options involve root canal or tooth extraction.



A common malocclusion in dogs where the lower canine digs into the palate causing pain when the mouth is closed. The lower canine's crown height was reduced and a vital pulpotomy performed.



An xray of the tooth after vital pulpotomy performed. Red arrow indicates material placed to encourage protective dentinal bridge formation.



The finished product showing the crown with a smooth cap covering the pulp for further protection.



All our dental vets are supported throughout the procedures by two nurses.  
*Vet Nurse, Fiona Wallis pictured.*

## Why we may recommend endodontic therapy

The most common reason an endodontic therapy may be recommended is due to tooth fracture or pulp damage.

Dogs and cats surprisingly have a thinner protective layer of tooth enamel ranging anywhere from 0.1 to 1mm thickness compared to humans which have enamel upwards of 2.5mm! Because of this, dog and cat teeth can be easily fractured by trauma or inappropriate chewing activity. It is important to note that any damage to teeth warrants investigation rather than the “wait and see” approach as tooth damage is just as painful in animals as it is for humans.

One other fairly common reason for endodontic therapy, is to relieve a painful malocclusion.

Malocclusion means the teeth aren't pointing in the right direction so that when they close their mouth, one or more teeth cause damage to other teeth or soft tissues. This can be developmental or due to trauma. The lower canines tend to be common culprits for this with a condition called “base narrow” canines. The bottom canines grow slightly

inwards towards the tongue so that when the mouth closes, the canines dig into the palate creating deep holes, sometimes even oronasal fistulas.

An option for correcting this, is to reduce the length of the canines and perform a vital pulpotomy. This stops the crown tips from digging into the palate but also keeps their long roots in place to continue to provide bony support.

Any tooth can technically receive endodontic therapy however it is important to note that not every tooth (or pet) is the best candidate.

An initial consultation with our veterinary dentist is the most important step as it allows for a detailed discussion around treatment options, potential risks and complications, post operative management, follow up requirements as well as a discussion about cost and payment options.

If you have specific questions around referring a patient for endodontic treatment please feel free to email Dr. Marcella: [dentistry@rangvet.co.nz](mailto:dentistry@rangvet.co.nz)

# Non-cardiogenic pulmonary oedema

Non-cardiogenic pulmonary oedema (NCPE) was recently reviewed in JVECC. Defined as pulmonary oedema that does not directly result from cardiogenic causes or fluid overload, NCPE can be a challenging problem to manage, but it is important not to leave it off of your differentials list when an animal shows signs of dyspnoea. There are a wide variety of causes, the most commonly seen in general practice are probably 'neurogenic', and 'post-obstructive' pulmonary oedema.

Neurogenic pulmonary oedema occurs following a severe head trauma or following severe or prolonged seizure activity. Substantial sympathetic stimulation following these events causes massive hydrostatic pressure changes as well as stress-induced endothelial injury within the pulmonary circulation leading to protein rich exudation into the interstitium.

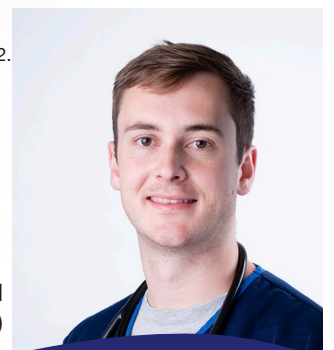
Post-obstructive NCPE is caused by conditions that cause a brief but severe upper respiratory tract obstruction. Distress caused by laryngeal paralysis, tracheal collapse, a laryngeal/tracheal foreign body, or even a strong leash pull can all trigger this condition. It is believed to be due to massive negative pressure within the thorax leading to an increased pressure gradient between capillaries and the interstitium.

Diagnosis of NCPE relies on ruling out cardiac causes and determining a potential underlying cause based on historical findings. Radiographic signs can vary, but typically a diffuse, or patchy alveolar/interstitial pattern is seen in the caudodorsal lung fields. Diffuse B lines would be seen on TFAST bilaterally, with more B lines likely seen in the caudodorsal fields.

Treatment relies on management of the underlying condition, and provision of supportive care. Oxygen therapy should be provided, but no medical treatment has proven to be beneficial in these conditions; Furosemide, bronchodilators or glucocorticoids, unless indicated for another reason, are currently not recommended. Mechanical ventilation is indicated in severe cases, but unfortunately not available to many of us outside of specialist centres.

Unger, K., & Martin, L. G. (2023). Noncardiogenic pulmonary edema in small animals. *Journal of Veterinary Emergency and Critical Care*, 33(2),156-172.

**Billy Fitzgerald**  
BVSc, MANZCVS (ECC)



**Don't miss the  
Mid-winter  
catch up!**

August 15th, 7:00pm

**What goes in, doesn't always come out!**

**Please RSVP to:**

Rangiora Vet Centre

Referral Surgery Team

Phone: 03 313 7438

Email: [surgery@rangvet.co.nz](mailto:surgery@rangvet.co.nz)



**Bryn Morgan**  
BSc (hons) BVSc  
PGcertSAS MRCVS

## CT Scanning at RVC

We're pleased to announce that our referral CT service is now fully operational. Our up-to-date Canon Aquilion Lightning 16 slice scanner allows us to obtain truly beautiful patient images.

CT is probably the most versatile imaging modality available to us as vets, and is particularly useful for staging and surgical planning in oncology cases as well as for assessing complex fractures and limb deformities in 3 dimensions. Because it shows structures in 3 dimensions it is also great for areas where a number of structures overlap such as in the head, neck, elbow, shoulder and pelvis.

Since we have had the scanner we have used it in a number of oncology and orthopaedic cases as well to diagnose sino-nasal Aspergillosis and an intra-hepatic porto-systemic shunt. We have also found it useful to rule out gastrointestinal foreign body where radiographs and ultrasound were inconclusive.

Our CT scanner is also able accommodate very large patients including our equine patients. As the CT is located within our equine hospital theatre, the full range of emergency anaesthetic equipment is on hand should a problem arise. All our CTs are performed with a vet and nurse on hand so there is no need to send staff from your practice with the patient.

Do not hesitate to contact our team for current pricing or to discuss if a case is likely to benefit from CT.

Thanks for being part of our referral network. We hope you have enjoyed this newsletter.

Please let us know if there is anything you would like us to cover in future newsletters, we'll make every effort to see it is included.

**The Referral Team, RVC.**

**CUT & PASTE**

EDITION ONE | Winter 2023



## Case Study: Milo

'Milo' an 8 month old Bengal kitten was brought to RVC post trauma, after likely being hit by a car. On presentation his jaw was hanging open with his tongue hanging out of his mouth. There was a moderate amount of upper respiratory noise audible and bleeding from the mouth - we were concerned about possible jaw fractures. However, he was comfortable on palpation around the face and jaw and no instability was noted. The owner was given the option for radiographs or CT imaging to investigate further, she elected for CT imaging given the head trauma.

By being able to create a 3D model image of Milo's skull, we were able to identify damage to the roof of his mouth and a small non-displaced fracture of the sphenothmoidal plate, which would unlikely have been found on radiographs.

Milo has continued to improve over his regular checkups.

