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MEASURING OPTICAL NERVE DIAMETER IN PERSIAN CAT USING MRI AND THREE DIMENSIONAL ULTRASONOGRAPHY

The ocular structures are detectable using ultrasonography and magnetic resonance imaging (MRI) due to the presence of a considerable amount of fluid around vitreous and anterior chambers. Using modern techniques may be helpful in assessing accurately normal structures of the retrobulbar space.

A total of ten normal Persian cats, (5 males, 5 females), weighting 3±1.1 kg, underwent ultrasonographic examination. A GE Voluson ultrasonography machine and three-dimensional (3D) linear array transducers (5-10 MHz) were used. MRI was performed with a 1.5 T GE scanner and a phased array human eye coil. The field of view ranged from 4 to 8 cm. Transverse, sagittal and dorsal spin-echo T1 and T2 weighted images were acquired in all samples.

The mean optical nerve diameter in males by 3D-Ultrasoundography and MRI were 1.85mm (SD=0.002) and in females it was 1.86mm (SD=0.001). No significant difference was observable between ocular nerve measurements in male and female cats and left and right eyes using 3D-Ultrasoundography or MRI (p-value<0.05).

The 3D-Ultrasoundography provides useful images for diagnostic purposes and lesions of the caudal part of the orbit. The results of the eye 3D-Ultrasoundography in cats showed marked advantages in image acquisition for interpretation of all aspects of the ocular structures. This study suggests that using 3D-Ultrasoundography in veterinary ophthalmology may be better than MRI because the images of 3D-Ultrasoundography are more flexible and can provide all the voluntary views. On top of that, the scanning period is shorter and anaesthesia is not required when using 3D-Ultrasoundography.

References:
SURGICAL REPAIR OF AN AXILLARY SKIN DEFECT BY USAGE OF TRANSPOSITION FLAP IN RABBIT

Transposition flaps are rectangular, local flaps that bring additional skin when rotated into defects. Forelimb fold flap is a transposition flap harvested to close axillary or sternal wounds. In Forelimb fold flaps, the size and length of the skin flap vary depending on the body conformation of the animal (1).

In spring 2011, a 10 months old New Zealand white rabbit was found with a deep wound in right axillary area. After lavage with normal saline and removal of all necrotic tissues, the wound was treated with routine open wound management for 11 days, including daily lavage with saline and usage of topical ointments. After this period of time, to repair the big skin defect, the decision was made on use of a forelimb skin flap. Then, two lateral and medial skin incisions were created to define the width of the flap and these incisions were connected together with a crescent-shaped incision proximal to the elbow. The flap was elevated, transposed, and sutured into the wound and the donor site was closed easily. Then the forelimb was bandaged to the body for 13 days. The surgical site was monitored for complications every 2-3 days. Antibiotic therapy was done. After 13 days, the bandage and the sutures were removed. The rabbit can use the forelimb very well and the appearance of the surgical site after about 20 days was perfectly acceptable. Dog ears occurred but were flatten with time.

The goal of using transposition flaps is rapid coverage of wound bed, prevention of delayed healing and contraction results from secondary healing (1).

References:
CASE REPORT: A SINGLE-PORT LAPAROSCOPIC OVARIOHYSTERECTOMY IN A DOG

Introduction
Minimally invasive surgery (MIS) has awakened great interest amongst veterinarians due to laparoscopic advantages presented to the patients: less surgical trauma, therapeutic safety and faster recovery (1). Regarding MIS approaches, single-port surgery constitutes an evolution of laparoscopic surgery, reducing even more the surgical trauma associated with every procedure (2). There are just a few bibliographic references about ovarioectomy in dogs through a single-port laparoscopic approach (3, 4).

Objective
The main goal of this study was to report and assess the feasibility of single-port laparoscopic ovariohysterectomy in a dog.

Methods
A 7-year-old, 13 kg, female Beagle dog was used to perform a single-port laparoscopic ovariohysterectomy with a commercially available device SILSTM Port. First, a 3 cm skin incision was performed on the periumbilical region to introduce the SILSTM™ port device. Then, insufflation of CO2 was initiated to establish pneumoperitoneum at an intra-abdominal pressure of 10 mm Hg. Next, specially-designed laparoscopic instruments were used to facilitate the procedure: The 5 mm Ligasure™ sealing device and a roticulated 5 mm grasper were used for dissection and vascular sealing of the ovarian pedicle, suspensory ligament, broad ligament and body of the uterus. All the mentioned instruments were introduced through the same access port. The ovaries and uterus were extracted by directly removing the SILSTM™ port.

Results
The total surgical time was 58 minutes and the only skin incision was 3.2 cm. Both ovaries and uterus were extracted directly with the SILSTM™ Port without any tissue rupture. At postoperative follow-up no lesions, hemorrhages, signs of pain or other surgical complications were observed.

Conclusions
After adequate acquisition of laparoscopic skills, the ovariohysterectomy by single-port laparoscopy is a feasible, safe and effective approach in dogs. The procedure needs similar surgical time when compared to the traditional laparoscopic ovariohysterectomy.

RESPONSES TO STRESS IN GREY PARROTS (PSITTACUS ERITHACUS) WITH AND WITHOUT FEATHER DAMAGING BEHAVIOR

In various animal species (e.g. laying hens, pigs) a high correlation exists between a proactive coping style (i.e. response to stress) and the occurrence of behavioral problems (e.g. feather pecking, tail biting) (1-5). Based on analogies with feather pecking in laying hens, it is hypothesized that a similar correlation between feather damaging behavior (FDB) and proactive coping styles is present in parrots (6). Findings of a pilot study, conducted under standardized conditions in a parrot refuge, support this hypothesis (unpublished observations). The current study was designed to determine whether the previously found correlation between FDB and type of coping style could also be demonstrated in a larger cohort of parrots.

Ninety-five privately owned grey parrots (with and without FDB) were subjected to three behavioral tests (i.e. Open Field Test, Novel Object Test and Manual Restraint Test, performed at the university clinic). In these tests both behavioral and neurophysiological parameters were analyzed to determine the birds’ coping styles.

In contrast to the previous pilot study, no significant differences were found between parrots with and without FDB. Results may, however, have been influenced by various external factors (e.g. stress due to traveling or separation from the owner) that could have influenced the parrots’ responses in the tests performed at the clinic. It may be concluded that the current study design has limited applications in future research and adjustments have to be made to enable analysis of coping styles in privately owned parrots with and without FDB.

INTEGRATION ABILITY OF STRAY DOGS INTO ADOPTIVE FAMILIES’ ENVIRONMENT: PRELIMINARY RESULTS

Introduction

Several researches investigated post-adoption period of shelter dogs in terms of integration into the new home and behavioral problems encountered by new owners (1,2,3). The most common behavior problems displayed by shelter dogs are suggested as fearfulness, escaping, sexual problems, excessive activity and barking (1,3). However, up till now no detailed investigation has been conducted on post adoption period of stray dogs.

The aim of this study was to identify behavioral characteristics of stray dogs in adoptive families’ environment during post adoption period.

Materials and Methods

The data were obtained from 25 item questionnaires completed by volunteer owners of stray dogs, i.e. the dog of an unknown breed was found loose on the street. Fifty five people responded to the questionnaire up until the present.

Results

The vast majority of respondents (75 %) reported that their dogs showed timidity when they first came home. Large majority of the owners (80 %), however, stated that temperaments of their dogs have changed throughout post adoption period, mostly in the first 6 months (73 %). Seventy five percent of the dogs were reported as becoming more self-confident. The most common behavior problems currently present in the dogs were indicated as hyper attachment to the owner (40 %), escaping (36 %), barking (22 %) and fearfulness (18 %). Majority of the owners reported that they did not have a trouble either in house training (75 %) or in leash training (69 %).

Discussion

Preliminary findings indicate that although majority of stray dogs tend to display behavior problems at the beginning of post adoption period, they show considerable improvements in their behaviors in a timely manner. Considering the preliminary results of the study, it can be suggested that stray dogs are highly adaptable to live in adoptive families’ environment.

References

CYTOPATHOLOGICAL DIAGNOSIS OF THE CANINE HEPATOID GLAND TUMORS

Introduction
A hepatoid (perianal) gland tumor is a type of tumor found near the anus in dogs that arises from specialized glandular tissue (1,2). It is also known as a hepatoid tumor because of the similarity in cell shape to hepatocytes (liver cells) (1,2,3). In this study, 23 tumors of dogs were evaluated and compared between cytopathologically and histopathologically.

Material and Methods
23 tumors of dogs were evaluated and compared between cytopathological and histopathological. For cytopathology examination FNAB technique were performed and slides were stained with May-Grünwald Giemsa. For histopathological examination tissue samples were fixed formaldehyde solution, after processed by paraffin technique sections were stained by Hematoxylin-Eosin.

Results
Total 23 tumors were diagnosed by cytology and confirmed by histology. Macroscopically, the masses covered with hairless skin and often ulcerated. Cut sections were pale brown and multilobulated. Cytopathologically, large and cuboidal epithelial cells have low nuclear/cytoplasm ratios. Nucleus were round to ovoid, pleomorphism were mild. Also, abundant, granular bluish cytoplasm were seen. The distinctive histopathologic feature of this tumor is differentiation to large hepatocyte-like cells, which have an abundant eosinophilic cytoplasm. Within the tumor cells trabeculae and islands subdivided by a well vascularized stroma.

Conclusions
Cytopathological examination is a quick and easy procedure to perform which needs minimum of special equipments and requires little training. It can be considered, in experienced hands and is reliable for the confirmation and differentiation of canine hepatoid gland tumors.

References
**FELINE PHARMACOKINETICS OF ORAL TRANSMUCOSAL AND INTRAMUSCULAR DEXMEDETOMIDINE AND BUPRENORPHINE**

**Introduction**
Plasma concentrations and pharmacokinetics of dexmedetomidine and buprenorphine after oral transmucosal (OTM) and intramuscular (IM) administration in cats were evaluated. The aim was to compare systemic absorption of this sedative-analgesic combination following OTM and IM administration.

**Material and Methods**
According to a cross-over protocol (1 month wash-out), a combination of dexmedetomidine (40 µg/kg) and buprenorphine (20 µg/kg) was given OTM (buccal cavity)(1) or IM (quadriceps muscle) in 6 female neutered cats. Plasma samples were collected through a jugular catheter during a 24-hour period. Plasma dexmedetomidine and buprenorphine concentrations were determined by liquid chromatography-tandem mass spectrometry. Plasma concentration-time data were fitted to compartmental models (MW/pharm, Mediware). Wilcoxon signed rank tests were performed ($p < 0.05$).

**Results**
For dexmedetomidine, the area under the plasma concentration-time curve from 0 to 12 h was significantly different between OTM (9.59 ± 3.88 ng·h/ml) (mean ± SD) and IM administration (38.56 ± 8.66 ng·h/ml). Maximum plasma concentration of dexmedetomidine was significantly lower after OTM (3.59 ± 2.02 ng/ml) than after IM route (22.07 ± 8.91 ng/ml). For buprenorphine, the area under the plasma concentration-time curve from 0 to 6 h was significantly different between OTM (16.91 ± 7.68 ng·h/ml) and IM (178.63 ± 71.50 ng·h/ml) administration. Buprenorphine achieved maximum plasma concentrations of 5.19 ± 3.09 ng/ml at 1.18 ± 0.34 h after OTM administration and of 104.31 ± 0.52 ng/ml at 0.15 ± 0.15 h after IM injection with a significant difference between both treatments. Dexmedetomidine and buprenorphine relative bioavailabilities after OTM compared to IM administration were 25.9 ± 11.2 % and 11 ± 6.4 %, respectively.

**Conclusions**
These data suggest that absorption of combined dexmedetomidine and buprenorphine is less after OTM administration compared to IM injection in cats. Clinical efficacy of this sedative-analgesic regimen after OTM administration is questionable.

INVESTIGATING THE COMBINED USE OF A MULTIVALENT LIVE VIRAL DHPPi VACCINE AND AN INACTIVATED RABIES VACCINE WITH A NOVEL TETRAVALENT CANINE LEPTOSPIROSIS VACCINE

Introduction
Recently, a novel liquid tetravalent canine leptospirosis vaccine developed in line with current independent vaccination recommendations (1) has been authorised in Europe. This new vaccine (Nobivac® L4 – MSD Animal Health) will commonly be used to reconstitute the respective routine injectable lyophilized viral multicomponent vaccines, and studies to support this simultaneous use have been reported (2). In this study we have investigated the possibility of any adverse effect or serological interference in dogs administered Nobivac L4, Nobivac DHPPi and Nobivac Rabies at the same time.

Materials and Methods
Twenty-one 9 week old SPF dogs were divided into three equal groups. Group 1 was vaccinated with DHPPi reconstituted with L4, group 2 with DHPPi reconstituted with L4 and also a separate inoculation of rabies vaccine, group 3 with just rabies vaccine. All dogs were observed for any adverse local or systemic signs post-inoculation. Serum samples were collected post-vaccination in order to compare the antibody responses to all the components between the different groups.

Results and Conclusions
No systemic reactions were observed in any of the vaccinated dogs. Some of the dogs vaccinated with all three vaccines showed small, painless local swellings at the sites of both inoculations which were considered to be minor and acceptable. The dogs in groups 1 and 2 showed similar antibody responses to the DHPPi and L4 antigens and thus there was no evidence of any serological interference arising from the rabies vaccination. Likewise the dogs in groups 2 and 3 showed a similar antibody response to the rabies component thus showing no evidence of any interference from the DHPPi and L4 vaccination. It can be concluded that Nobivac Rabies, Nobivac DHPPi and Nobivac L4 all appear to be well tolerated and serologically compatible when administered at the same time.

References
1. Ellis WA. Control of canine leptospirosis in Europe: time for a change? Veterinary Record 2010;167:602-5
2. Klaasen HLBM, van der Veen M, Molkenboer MJCH, Sutton D. A novel tetravalent Leptospira bacterin protects against infection and shedding following challenge in dogs. Veterinary Record published online November 23, 2012; doi:10.1136/vr.101100
REDUCED RISK OF ALLERGIC REACTIONS IN DOGS TO A NEW TETRAVALENT CANINE LEPTOSPIROSIS VACCINE

Introduction
A new tetravalent liquid inactivated leptospirosis vaccine (Nobivac® L4 – MSD Animal Health) has recently been authorized within Europe. It contains antigens of four different Leptospira interrogans (sensu lato) serogroups and is efficacious against relevant serovars of serogroups Canicola, Icterohaemorrhagiae, Australis and Grippotyphosa (1). It is recognized that all vaccines carry a risk of causing allergic reactions (2) and studies have shown that bovine serum albumin (BSA), is an important allergenic excipient in this respect (3,4). The Vaccipure™ filtration process is unique for MSD vaccines and actively removes excess BSA from the final product. In the following study the BSA content of several bivalent European canine leptospirosis vaccines was compared with the BSA content of the new Nobivac L4 vaccine.

Materials and methods
Samples from different batches of four bivalent leptospirosis vaccines were assayed for BSA content (Pierce® BCA Protein Assay – Thermo Scientific) alongside Nobivac L4 as shown in the table below.

Results and conclusions
As shown in the table below, the BSA content of all five batches of competitors A, B and C was much higher than that of any of the Nobivac Lepto or Nobivac L4 batches. Assuming that all of these batches are representative of the respective licensed products this implies that Nobivac Lepto and Nobivac L4 contain the lowest amount of potentially allergenic BSA. It can be concluded that after vaccination of dogs with Nobivac Lepto or Nobivac L4 there is a likely to be a lower risk of allergic reactions.

References
INTERACTIONS BETWEEN CARBAMAZEPINE AND TROXERUTINE IN A DOG AFFECTED BY IDIOPATHIC EPILEPSY

Carbamazepine (CBZ) represents a first line drug for partial epilepsy in people. Its use in veterinary medicine is limited by the short elimination half-life in plasma (1-2 h), although in the past has been used with good results in the dog. Trying to increase its plasma half-life we have associated to the therapy Troxerutin. Our study describes a case of psychomotor epilepsy in a dog treated with the association of these two drugs, and investigates the variations in plasma total CBZ with and without Troxerutin association.

Idiopathic epilepsy with complex partial seizures was diagnosed in a 4 years old, male, Labrador Retriever dog, based on history, clinical findings, laboratory results, EEG and MRI.

The first week, the dog received 3,3 mg/kg of CBZ (Tegretol) TID OS. At the end of the week 12 blood samples, one every 30 minutes were analyzed to measure the plasma total CBZ. During the second week, 16,6 mg/kg of troxerutine (Venoruton) BID OS were added. At the end of the second week plasma total CBZ concentration was re-evaluated in the same way.

The correlation between the two CBZ curves suggested an interaction of the drugs. In particular, an effect of troxerutin on the longer elimination half-life in plasma of CBZ, on the precocity of his absorption and on the shape of the peak of the drug in plasma can be hypothesized from the results of the study. The absence of a plasmatic peak after 3h and the relatively constant concentration of CBZ in the 7h after administration may have important practical implications. In facts, based on these findings we have chosen to continue the treatment with both drugs. Today, after three years of this therapy the dog experienced only three minor crisis without motor signs and any adverse effects.
CLINICAL, HEMATOLOGICAL FINDINGS AND TREATMENT OF CANINE LEISHMANIOSIS: A CASE REPORT

Canine leishmaniosis is a chronic, severe systemic protozoal disease caused by Leishmania spp. Leishmaniosis, transmitted by the bite of an infected Phlebotomus or Lutzomyia sandfly, is a zoonotic disease and dogs are considered the main reservoir for systemic leishmaniosis in humans. Leishmaniosis due to Leishmania infantum is one of the most common diseases of dogs in all countries around the Mediterranean Sea.

The aim of this study was to evaluate clinical and hematological alterations in Leishmania infantum in an infected dog and to diagnose it by polymerase chain reaction (PCR) and immunofluorescent-antibody test (IFAT) in blood serum samples.

A 3 year old mixed breed female dog was referred to the clinic with complaints of weakness, weight loss, ocular discharge and common skin lesions. In clinical examination, severe dry exfoliative dermatitis, ulcerations on the pinnae, nasal depigmentation and ulceration, onychogryposis, bilateral periocular alopecia and pale mucous membranes were observed. Bilateral blepharitis and severe keratoconjunctivitis sicca (KCS) were detected as ocular manifestations. There was generalized lymphadenopathy. Hematological findings were thrombocytopenia, anemia and eosinophilia. Needle biopsy was performed from popliteal lymph node and amastigote forms of the parasite were seen with Diff-Quick stain in samples. The diagnosis was confirmed by PCR and IFAT performed on blood serum samples.

For medical treatment of the disease, domperidone (2 mg/kg, SID, po) was used for one month and allopurinol (30 mg/kg, SID, PO) was applied for 6 months. In addition to systemic treatment, lomefloxacin, acetylcystein, cyclosporin and sodium hyaluronate ophthalmic solutions were used topically in each eye for treatment of KCS.

Canine leishmaniosis may be difficult to diagnose, hard to treat and its recurrence rates are very high. In this case report, treatment of a dog with leishmaniosis has resulted in disappearance of the clinical signs and there was no recurrence for two years.

References
DEVELOPMENT OF A REALISTIC SIMULATOR FOR MINIMALLY INVASIVE VETERINARY SURGERY TRAINING

Introduction
The interest of veterinary in minimally invasive surgery (MIS) has increased gradually for veterinarians and owners in the past few years (1). Nevertheless, the learning curve to overcome laparo-endoscopic surgery training challenges requires time and funds (2).

Objectives
1) To develop a high-realistic MIS simulator for veterinary 2) To use a CT-Scan to reliably measure the average spatial dimension of the canine species 3) To assess the subjective validity of the physical simulator with veterinary surgeons.

Material and Method
Three Beagle dogs were used for the CT-Scan study (Philips Brilliance 6 CT Scanner). To proceed with it a pneumoperitoneum was created at 11-12 mmHg on each dog. Exact data of abdominal-thoracic perimeter; height and volume of the cavities and of their internal organs were obtained. The data in DICOM format was processed by AMIRA® to generate 3D models and a design to create the simulator.

Subjective validity: 30 veterinarians (expert group, n=7; basic group, n=23) practiced exercises of abdominal laparoscopy. These tasks were qualified by surveys of 7 questions with 1-5 Likert scales. In addition, the simulator was rated globally in a 1-10 scale.

Results
SIMULVET®, a multifunctional simulator for practicing laparoscopy, thoracoscopy, flexible endoscopy, NOTES and single port surgery, was created.
More than 60 % of the veterinarians expressed not to have previous experience with simulation.
SIMULVET® impressions for the 7 questions in both groups were positive or very positive. There weren’t significant differences between the different groups’ opinions. Global average qualification of the SIMULVET® was 8,7±1,1 points on a 10 point scale.

Conclusions
Images from DICOM obtained by TC and processed by specific software were useful to develop a high-realistic MIS simulator for veterinary SIMULVET®. The subjective validation was acceptable. Further studies are needed on training programs (3), training and simulation methods for veterinary laparoscopy (4).

DIAGNOSTIC APPLICATION OF SERUM ADENOSINE DEAMINASE LEVEL IN CANINE INFECTIOUS DISEASE

Adenosine deaminase is a cytoplasmic enzyme, which is essential for the proliferation and differentiation of lymphocytes. Increased ADA is derived mainly from increased immune cells numbers, whereas inhibition or genetic deficiency of ADA resulted in immunodeficiency.

In this study, three canine chronic infectious diseases (visceral leishmaniosis, ehrlichiosis and brucellosis) were selected for evaluation of serum ADA alteration in comparison with clinically healthy dogs.

Different diagnostic methods were used for detection ehrlichiosis, brucellosis and leishmaniosis among 378 serum sample that obtained from sick owned dogs. On the other hand, 50 healthy dogs which, referred for health checks up and vaccination and their hematological and biochemical evaluation were in normal limit were randomly selected as control group. Total ADA level, were measured by a commercial kit via autoanalyzer in all selected samples.

Total ADA level were measured as 7.5±0.8 IU/l, 5.7±0.48 IU/l, 5.2±0.63 IU/l and 2.26±0.25 IU/l in visceral leishmaniosis, ehrlichiosis, brucellosis and healthy dogs respectively. There was no significant difference in ADA level between diseased groups but ADA level in leishmaniosis, ehrlichiosis and brucellosis groups showed a significant increase in compare with healthy animals.

Based to the results of the present study, total serum ADA level may be used as an important biomarker for the diagnosis of canine chronic infection disease and can be added to the other routine biochemical tests that are used in the veterinary clinical pathology.

References:
MR IMAGES FOR CHARACTERIZING CANINE PRIMARY BRAIN TUMORS: A COMPARISON WITH HISTOPATHOLOGY

The MR images and histopathological slides of twenty primary brain tumors (ten meningiomas and ten gliomas) were compared, using defined MR characteristics and the WHO classification. To find a relationship between histological features and MR images the histological slides were compared one-on-one with the MR images for twelve of the tumors.

The aim of this study was to improve the value of MRI for the characterization of primary brain tumors in dogs, using the pathologic findings as feedback. This was done by comparing histopathologic findings and MR images.

This study concluded that neither for meningiomas, nor for gliomas, a distinction between different histological subtypes can be made based on the MR characteristics. Comparing the MR characteristics of meningiomas and gliomas, it can be concluded that it is hard to distinguish them based on these MR characteristics, because both types of tumors show a variety of MR characteristics. For a definite diagnosis, other methods, such as tissue biopsies, are needed.

The clinical case of Mickey, an eight years old male West Highland White Terrier, is an example of a patient with an intracranial mass. Mickey suffered from epileptic seizures and his MR images showed an intracranial mass. He is one of the twenty patients used in this study. The intracranial mass was an anaplastic meningioma according to the histological classification. After a successful surgery Mickey clinically improved. However, the MR images revealed a possible remission of the tumor 20 month post-surgery. Up until today, Mickey is closely monitored.
DOXY THOUGHT SHE COULD FLY

Doxy, a 7 year old female neutered domestic shorthair was referred to the orthopaedic department of the MCD after a fall from considerable height. She was presented in lateral recumbency, unable to stand and walk and she reacted painful to palpation of the pelvic region. Based on the physical exam and radiographs of the pelvis, a fracture of the ilial body was diagnosed.

Lateral plate fixation is the most frequently used surgical technique to stabilise feline ilial fractures, however it is associated with high percentages of implant failure. In our study we investigated whether the application of a second lateral plate dorsally or ventrally of the first lateral plate creates a more rigid construction, leading to a lower percentage of implant failure. Retrospective research of surgical records and radiographs of 80 cats treated at the orthopaedic department of the MCD (35 cats with a single lateral plate, 48 with double lateral plates) showed that implant failure occurred significantly less in cats treated with double lateral plates. These results indicate that with little extra costs and surgery time, the complication rates of lateral plate fixation of feline ilial fractures can be lowered.

Doxy's ilial fracture was surgically stabilised using two laterally applied bone plates. She recovered without complications of the fixation. She thought she could fly but now knows she really can't.
SYSTEMATIC REVIEW OF THE ANTIPLATELET EFFECTS OF ACETYLSALICYLIC ACID AND CLOPIDOGREL IN CATS WITH HYPERTROPHIC CARDIOMYOPATHY

Cats with underlying heart disease have a significant increased risk of developing an arterial thromboembolism (ATE). Especially cats with hypertrophic cardiomyopathy (HCM) are at risk to develop an ATE. Acetylsalicylic acid (aspirin®) therapy has been advised as thromboprophylaxis for many years. More recently however, the prophylactic use of clopidogrel has gained more scientific interest.

The aim of this literature study was to evaluate the epidemiology of ATE and the in vitro and in vivo effects of thromboprophylactic therapy with acetylsalicylic acid and clopidogrel in feline HCM patients.

The true incidence of ATE in cats with HCM is unknown. Over the past decades, acetylsalicylic acid has been given as a prophylactic therapy in high (up to 25 mg/kg/q72h) and low dosages (as low as 5 mg/kg/q72h). Studies showed recurrence rates between 25 and 75% and no significant difference in recurrence rate between low and high dose aspirin therapy. In high dosages (≥25mg/kg/q72h), aspirin can give toxic side effects in cats and therefore high dose aspirin therapy is no longer advised. Platelet aggregation studies, reveal that a dose of at least 25 mg/kg is needed to inhibit in vitro arachidonic acid dependent and collagen induced platelet aggregation. ADP and thrombin induced platelet aggregation were not inhibited in this high dose. The recurrence rate in cats treated with clopidogrel is still unknown. Recently, a small platelet aggregation study showed good in vitro antiplatelet effects of clopidogrel in healthy cats. In a dose of 18,75 mg/kg/day clopidogrel showed significant reduction of platelet aggregation in response to ADP and collagen.

The results of this literature study support the conclusion that prophylactic low dose acetylsalicylic acid therapy (5 mg/kg/q72h) will not prevent intra-cardiac thrombus formation or ATE in feline HCM patients. Clopidogrel® seems a promising prophylactic antiplatelet drug, but further research is warranted.
URETERAL OBSTRUCTION IN A CAT: DIAGNOSIS AND TREATMENT

A 14 year old female neutered cat, with problems of pollakiuria, stranguria, haematuria, urinary incontinence, and pain on the left abdominal wall since 1.5 year was presented at our clinic. In the past, both struvite and calciumoxalate crystals were found during urinary examination. During clinical examination at our clinic, abdominal palpation was painful, the right kidney was very good palpable and the bladder was not palpable.

Ultrasound of the abdomen showed a small left kidney with multiple mineralisations, and some ditches were seen on the cortex. In the left ureter echogenic material was seen with some mineralisations. The right kidney was 4,8 cm in diameter and showed no mineralisations. To determine the functionality of the kidney, a renogram was made. The left kidney excreted 11% of the urinary volume compared to 89% in the right kidney. These numbers show a hardly functional left kidney. Blood work was done to determine kidney values, which were within the reference ranges, so the right kidney functioned well enough to compensate.

Following the diagnostic work, a ureteronefrectomy was performed, followed by a cystotomy to remove any concrements out of the bladder. The cat was sent home the day after, with oxybutinin and meloxicam as treatment. Pathology showed no underlying cause for the urolithiasis.

Urolithiasis is a common problem in first line practice. Unfortunately, not all veterinarians are familiar with the treatment options for this problem, in particular not with ureteral stone problems. A simple stream diagram demonstrates that even first line practitioners can do more with these patients.