AN ACCOUNT OF ATRAUMATIC BILATERAL SLIPPED CAPITAL FEMORAL EPIPHYSIS IN TWO DOGS

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Background: Separation of the capital femoral epiphysis is a well-documented injury, which normally occurs as a result of a Salter-Harris type 1 fracture following severe trauma. Spontaneous, atraumatic slipping of the capital femoral epiphysis resulting in either incomplete, or complete separation from the underlying metaphysis represents a distinct clinical syndrome with a poorly understood aetiology. This condition is extensively documented in humans as well as pigs and cats. More recently, and much less frequently, the condition has also been observed in dogs.

Objectives: To evaluate 2 separate cases of putative atraumatic separation of the capital femoral epiphysis in dogs with observations on outcome and available treatment options.

Methods: Both cases presented to our hospital in 2014. Cases were evaluated in light of available clinical history, radiographic features and histopathological diagnosis.

Results: Both cases initially presented with hind limb lameness that was gradual and insidious in onset. In one dog, a series of four follow-up radiographic studies were obtained over a period of 8.5 months. These showed progressive radiographic deterioration of both femoral heads and necks. This was in line with worsening clinical lameness, which ultimately lead to staged femoral head and neck ostectomies and allowed for histopathological diagnosis. Serial radiographs were not available for the second dog, which was inevitably lost to follow-up.

Conclusion: Atraumatic slipped capital femoral epiphysis represents a poorly understood condition that may be under reported in dogs. A potentially gradual and insidious onset as well as progression of clinical signs may obscure or delay a rapid diagnosis, which may ultimately limit surgical management options.

ASSESSMENT OF RISK FACTORS FOR TIBIAL TUBEROSITY AVULSION FOLLOWING TPLO SURGERY

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Objective: To estimate the proportion of tibial tuberosity (TT) fractures within a cohort of dogs treated with 3.5 Synthes locking TPLO plates and describe features associated with TT fractures.

Study Design: Retrospective case series.


Methods: Radiographs for each dog were analysed preoperatively, immediately postoperative and ≥6 weeks postoperative (Agfa IMPAX digital viewing software). Measurements recorded from preoperative radiographs were absolute craniocaudal tibial width, TT to mechanical axis width, Z angle and tibial plateau angle (TPA). Immediate post-operative radiographs were measured for perpendicular TT width, osteotomy axis, TPA, temporary anti-rotational K wire location and diameter and rotation distance from the TT (safe point). Follow-up radiographs were assessed for osteotomy healing and the presence of complications.

Results: Mean postoperative relative perpendicular TT width was 27% (range 17-38%). TT avulsion occurred in 2 dogs (1.6%, 95% confidence interval 0.2-6.5%), each at the site of the temporary K wire. Six dogs had their proximal tibial segment rotated beyond the safe point with TT avulsion in one of these cases.

Conclusion: In this cohort, the estimated frequency of TT fractures was less than 6.5%. No obvious contributing factor was noted although location of the temporary K wire may be associated with TT avulsion.

CHANGE IN PATELLAR TENDON ANGLE AND TIBIAL PLATEAU ANGLE DURING THE HEALING PHASE FOLLOWING TRIPLE TIBIAL OSTEOTOMY IN CANINES

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Objective: To investigate magnitude of and factors related to change in patellar tendon angle (PTA) and tibial plateau angle (TPA) immediately post operatively and 6 weeks post operatively following triple tibial osteotomy (TTO) performed for cranial cruciate ligament insufficiency in dogs.

Study Design: Retrospective study.

Study Population: Thirteen canine stifles following a TTO procedure of varying breed, age and gender performed at a single veterinary hospital between the years of 2014-2016.

Methods: Lateral radiographs of canine stifles which had the TTO procedure performed were analysed. The immediate post-operative and follow-up radiographs were reviewed for PTA and TPA.
Patient records were also reviewed for time to recheck, type of implant used, age, breed, sex and peri- and postoperative radiographic complications.

**Results:** Mean time to recheck evaluation was 61 days, with a range of 36-91 (Outlier 180 days) and median 45 days. The mean difference between immediate postoperative check and recheck TPA and PTA was +2.92 (Range -2° to 10° with mean TPA immediate post operative = 9.69° and 6 week post operative 12.61°) and +1.77  (Range -2° to 8° with mean TPA immediate post operative = 93.61° and 6 week post operative 95.38°) (2 decimal places) respectively. Recheck TPA and PTA were significantly greater than the immediate postoperative TPA and PTA (TPA P=0.0029 and PTA P=0.0371 using a Wilcoxon matched-pairs signed-ranks test).

**Conclusions:** TPA and PTA increases in most dogs during the healing phase following TTO.

**EVALUATION OF STUDENT CONFIDENCE AND OUTCOMES ACROSS PROGRESSIVE SURGICAL TRAINING**

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**Objective:** 1. To evaluate student confidence and anxiety levels over three semesters of progressive surgical training at Murdoch University, and to assess whether confidence improves going into the next semester of the course. 2. To obtain qualitative feedback from students regarding impact evaluation.

**Study Design:** Prospective longitudinal study based on questionnaires and exam results.

**Study Population:** Students in the third and fourth years of their Bachelor of Veterinary Science at Murdoch University.

**Methods:** All students enrolled in the course were asked to complete a questionnaire at four time points throughout three semesters of surgical training. Questionnaires contained a validated state- and trait-anxiety scale and performance anxiety questionnaire, as well as open-ended questions relating to students’ learning experience. Frequency of responses were summarized and graphed for visual assessment.

**Results:** Level of confidence performing surgical procedures (dog and cat castration and ovariohysterectomy) improved and levels of anxiety decreased based on visual assessment over the study period. Evaluation of long answer questions showed that overall students particularly valued gaining surgical experience on live animals (both recovery and non-recovery).

**Conclusion:** The surgical training course at Murdoch University effectively prepares students to progressively perform more complex surgical skills with confidence, in particular ovariohysterectomy
and castration of dogs and cats, which are generally considered “day one” surgical skills required of a newly graduated veterinarian. The students valued many aspects of the course, in particular the opportunity to practice surgery on live animals.

**CLINICAL FEATURES OF CANINE TOTAL HIP REPLACEMENTS THAT DEVELOPED POST OPERATIVE COMPLICATIONS**

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**Background**: Total hip replacement (THR) is the only surgical intervention that can restore normal to near normal hip function and is considered the treatment of choice for hip osteoarthritis. Other medical and surgical alternatives have reported sub-optimal results.

**Objective**: To identify clinical features of dogs that develop complications following THR; including infection and/or implant removal. This study also aims to identify specific client and patient factors that increase risk of complications.

**Study Design**: Retrospective study.

**Animals**: Dogs (n=50) that had a THR at Veterinary Specialist Services (VSS).

**Methods**: Records of patients that underwent a THR at VSS between August 2004 and March 2016 were assessed. Signalment, owner compliance, prior medical history, post-operative outcome and complications were recorded.

**Results**: Of the 50 patients who had a THR, 7 of these had THR in both hind limbs. Out of the 57 THR procedures 8 required revision surgery. Four patients developed infections; 2 of these had revision surgery. Three explantation surgeries were recorded; 2 had prior revision surgeries. Golden Retrievers (n=9), German Shepherd Dogs (n=8), and Labradors (n=6) were over represented compared to other breeds. Complication associated factors appeared to include; poor owner compliance, prior history of pruritic skin, poor conformation prior to surgical intervention and signalment.

**Conclusions**: Total hip replacement is considered the most effective treatment for canine hip osteoarthritis but for the minority of patients who suffer complications the implications are serious and may result in surgical revision and/or implant removal.

**MEDIAL CRURAL FASCIOTOMY FOR TREATMENT OF FIBROTIC MYOPATHY IN A GERMAN SHEPHERD DOG**

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**Objective**: To report medial crural fasciotomy as a potential treatment option for canine fibrotic myopathy.
**Study Design:** Case report.

**Animal:** A 5-year-old, male neutered, German Shepherd dog.

**Methods:** An active 2-year-old dog initially presented for bilateral hindlimb dysmetria. Palpably thickened fibrous bands along the thigh musculature, restricted stifle range of motion and marked internal rotation of the hindlimbs with a jerky short stride during locomotion were noted on physical examination. Presumptive diagnosis of semitendinosus fibrotic myopathy was made and conservative management of non-steroidal anti-inflammatory medication and physiotherapy was recommended. The patient re-presented 3 years later for chronic left hindlimb lameness with ongoing bilateral dysmetria. Physical examination and radiographs confirmed left cranial cruciate ligament disease. Modified tibial plateau levelling osteotomy (TPLO) and medial crural fasciotomy were performed on the left hindlimb, where the latter involved an incisional release of the crural fascial insertion on the cranial margin and shaft of the tibia.

**Results:** Excellent mobility of the left hindlimb was noted 2 weeks post-operatively. Rechecks at 6, 12 and 15 months post-operatively revealed mild restriction on left stifle extension but otherwise a markedly increased range of motion, absence of internal rotation of the left crus and resolution of the jerky gait was evident compared to the right hindlimb.

**Conclusions:** Effects of surgical intervention may not be as short-lived as previously described for fibrotic myopathies. Modified extensive medial crural fasciotomy may be considered as a potential surgical option for semintendinosus or gracilis muscle contractures.

**MODIFIED RIB PIVOT LATERAL THORACOTOMY: A CASE SERIES**

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**Objective:** To describe a modified rib pivot thoracotomy and its clinical application in client-owned dogs and cats

**Study design:** Case series.

**Study population:** 19 Dogs and 1 Cat requiring a thoracotomy.

**Methods:** A lateral thoracic incision over the required thoracic segment was made. The latissimus dorsi muscle was reflected dorsally. The predetermined rib was identified and the periosteum overlying the rib was elevated circumferentially, avoiding the intercostal neurovascular structures. Holes were preplaced above and below the proposed osteotomy site. The rib was osteotomized and pivoted cranially. The pleura was incised and the required intra-thoracic procedure was then performed. The thoracic cavity was closed by pre-placement of a suture through the preplaced holes within the
osteotomized rib. The pleura and intercostal musculature was closed avoiding the intercostal neurovascular structures. The rib was re-apposed and the lateral approach was closed. The cases included were reviewed for the rib pivoted as per the procedure required, and post-operative complications.

**Results:** Seven Staffordshire bull terriers, two Poodles, two German shepherds, a Basset hound, Rhodesian ridgeback, Golden retriever, Australian shepherd, Vizsla, Bull mastiff, Schnauzer, Jack Russel and a cat were included. A modified rib pivot thoracotomy was performed for caudal lung lobectomy (n=8), oesophagectomy (7), subtotal pericardectomy (4) and patent ductus arteriosus ligation (1). Follow-up ranged from 2 to 40 weeks postoperatively. A seroma in one dog was the sole complication reported.

**Conclusion:** A modified rib pivot thoracotomy should be considered as an alternative lateral thoracic approach with good exposure, minimal complications and low morbidity.

**POPULATION CHARACTERISTICS OF QUEENS UNDERGOING EMERGENCY CAESAREAN**

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**Study design:** A retrospective case series of 43 caesarean sections performed at a Specialist and Emergency Hospital in Brisbane.

**Methods:** Medical records were reviewed and information regarding reproductive history, signalment, gestation, concurrent health issues, clinical features, ultra-sonographic findings and treatments in queens undergoing caesarean. The number of kittens was reviewed and foetal deaths or abnormalities were recorded. An aetiological diagnosis was sought for each case based on reported findings.

**Results:** Median age was 1.79 years with doliocephalic and mesocephalic breeds being over represented. Transabdominal ultrasound was used in 81.4% of cases (16.3% did not specify its use). The most common induction agent was alfaxalone. The Utrecht suture pattern was used in 29 cases. Anaesthetic and post-operative complications were uncommon. The mean litter size was 4, with a mortality rate of 18.4%. The aetiology of dystocia was considered to be maternal in 18.6% of cases, foetal in 37.2% of cases and not determined in 44.2% of cases. Foetal abnormalities were detected in 18.6% of cases and uterine abnormalities in 9.3% of cases. The most common intraoperative treatments were amoxicillin clavulonic acid and oxytocin.

**Clinical relevance:** These results suggest doliocephalic and mesocephalic breeds are more likely to require caesarean section than brachycephalic breeds. Foetal abnormalities are a more common cause
of dystocia than uterine abnormalities. Alfaxalone confers minimal anaesthetic risk when used for induction. The Utrecht suture pattern is suitable for closure of the hysterectomy.

REVISITING MORTALITY ASSOCIATED WITH SURGICAL CORRECTION OF GASTRIC DILATION AND VOLVULUS IN DOGS: A RETROSPECTIVE ANALYSIS OF 124 CASES

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Objective: To establish updated data on rates and causes of perioperative mortality in dogs treated surgically for gastric dilation and volvulus (GDV).

Study Design: Retrospective case analysis.

Study Population: 124 cases of GDV in 123 dogs.

Methods: Data was collected and compiled from case histories in a referral practice in North Brisbane over a 15 year period between March 2001 and March 2016. All cases within this period in which surgery was performed to treat GDV were analysed.

Results: A total of 124 cases of GDV were taken to surgery within this period. From these cases, 3 mortalities were observed prior to discharge from hospital (2.42%). Reasons for death include sepsis due to mesenteric torsion of small intestine after surgery, gastric necrosis following surgery, and severe gastric necrosis discovered during surgery. 32 dogs required a splenectomy, from which there was 1 death (3.13%), while 2 deaths occurred in the 86 that did not require splenectomy (2.33%). Similarly, 18 cases required a partial gastrectomy, in which 1 death occurred (5.56%), while 2 deaths occurred in the 100 cases that did not require a gastrectomy (2.00%). Surgical reports could not be obtained for 6 cases, and it is not known whether a splenectomy or gastrectomy was performed, however all 6 of these dogs survived to discharge.

Conclusions: Results show that the mortality rates associated with surgical correction of GDV seen over the duration of this study were considerably lower than suggested in current literature.

CLINICAL OUTCOMES OF THE OSSABILITY TTA WEDGE SYSTEM: MAY 2016

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Objective: To report outcomes and complications of the OssAbility Tibial Tuberosity Advancement (TTA) Wedge System in dogs with cranial cruciate ligament (CCL) disease.

Study Design: Prospective longitudinal multicentre clinical study.
Methods: A modified TTA procedure with an incomplete osteotomy was performed using a 3D printed titanium scaffold implant (without graft or substitute) and novel surgical instrument that allowed precise intraoperative positioning of the osteotomy. Veterinarians attended a workshop and submitted reports using a standardised questionnaire. Veterinarians assessed lameness using a 0 (not lame) to 4 (non-weight bearing) scale. Owners assessed outcomes using the Liverpool Osteoarthritis in Dogs (LOAD) questionnaire. Follow-up time points were perioperative (<1 week), short-term (6 weeks) and mid-term (4-16 months). Reports were collected from January 2015 to May 2016.

Results: Reports were submitted for 185 dogs of various breeds (mean age 5.7 years; weight 33.5 kg). 87% of submissions reported no complications. There were no postoperative meniscal tears. Complications were reported in 7% (6% minor, 1% major) of cases perioperatively (n=127), 17% (10% minor, 7% major) at short-term (n=91) and 18% (7% minor, 11% major) at mid-term follow-up (n=43). Veterinarian assessment of lameness improved from 2.9 preoperatively (n=147) to 0.9 at short-term (n=73) and 0.7 at mid-term follow-up (n=42). LOAD scores improved from 20.7 preoperatively (n=42) to 9.6 at short-term (n=14) and 9.5 at mid-term follow-up (n=11).

Conclusion: The OssAbility TTA Wedge System is an effective treatment for canine cranial cruciate ligament disease and has a low complication rate.

TOTAL EAR CANAL ABLATION AND LATERAL BULLA OSTEOTOMY (TECALBO) IN TWO KOALAS WITH OTITIS MEDIA REFRACTORY TO MEDICAL MANAGEMENT

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Background: Otitis externa/media is not widely documented in the koala and there is little information in the literature regarding its incidence, aetiology and treatment. In the koala, acute bacterial otitis externa is most commonly caused by Pseudomonas aeruginosa, however other isolates include E.coli, Proteus spp., P.fluorescens and yeasts. It has been reported that some otitis in koalas develop secondary to pinnae wounds and are often seen in fighting males. Medical management is the preferred treatment option, however in refractory cases surgery may be indicated. This case study is the first report of Total Ear Canal Ablation and Lateral Bulla Osteotomy (TECALBO) in the koala.

Aims: Introduce TECALBO as a treatment option for koalas with chronic otitis refractory to medical management.

Methods: Use of radiographs, Magnetic Resonance Imaging (MRI) and culture and sensitivity to investigate and confirm chronic otitis externa/media in 2 koalas’ refractory to medical management. Complete surgical report of TECALBO performed with post-operative complication, risks and outcomes.
Results: Both surgeries were performed with minimal complications. Bulla osteotomy and lavage resulted in a large yield of purulent material in both cases. Three weeks post operatively koala 1 displayed clinical signs suggestive of mild facial nerve paralysis (dribbling food from the right side of his mouth and a slight dropping of the right ear). He otherwise made a full recovery and was released. Koala 2 developed seizures several weeks post operation, believed to be accredited to progression of infection intra-cranially.

Conclusions: TECALBO is a viable treatment option indicated in koalas with refractory otitis media.