or ASC appear to be reasonable options for neurologic therapeutic applications.

Disclosure: No proprietary interest or relevant financial relationship.

34 PROPHYLACTIC CERCLAGE WIRE FIXATION TO PROTECT AGAINST TORSION INDUCED PERIPROSTHETIC FEMORAL FRACTURES

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Introduction: The published incidence of femoral fracture associated with the BFX cementless hip ranges from 2.9% to 13.5%, with the most common fractures being created iatrogenically intraoperatively. Adjunctive fixation using cerclage wire is typically used for periprosthetic fissure or fracture, but no studies have evaluated the protective effect of these fixation techniques against fractures.

Materials and Methods: 8 pairs of cadaveric femur were planted with BFX size 8 stems and randomly assigned to a control or treatment group. One femur acted as control and the contralateral received a single double loop 1mm cerclage wire proximal to the lesser trochanter. After pre-conditioning each specimen was torqued to failure. The peak torque load at failure was compared between the treated femurs and the control (adjunctive fixation vs. no fixation) using a paired t-test. P <0.05 was considered significant.

Results: The femurs with adjunctive fixation failed at higher loads compared to the femurs without fixation and often in different manners. Significant difference in peak torque at failure between treated femurs and control was found (p<0.05).

Discussion/Conclusion: Based on our results adjunctive fixation with a single double loop cerclage wire placed proximally to the lesser trochanter may decrease the risk of periprosthetic fractures caused by combined torque and compressive forces.

Disclosure: BFX implants were supplied by Biomedtrix.

35 REGENERATIVE MEDICINE THERAPY FOR THE TREATMENT OF SUPRASPINATUS TENDINOPATHY IN DOGS: A RETROSPECTIVE STUDY (B)

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Introduction: Supraspinatus tendinopathy is a common cause of forelimb lameness in dogs. Treatment modalities reported include shock wave and rehabilitation therapy and surgical intervention. However, outcomes are inconsistent. Healing achieved is often by secondary intention or fibrosis. The resulting loss of organized matrix alters biomechanical properties and predisposes tissues to reinjury. Regenerative medicine is an evolving therapeutic approach for treatment of tendinopathies. In veterinary medicine, therapies focus on use of growth factors and adult stem cells, specifically mesenchymal stem cells, derived from bone marrow or adipose tissue and platelet-rich plasma (PRP). These therapies have been used to treat tendon injury in equines and literature reflects encouraging results. Our objective was to report response to combination cultured adipose-derived progenitor cell (ADPC)/PRP therapy in dogs with ST and to describe use of objective gait analysis (Gait-4-Dog) and diagnostic musculoskeletal ultrasound to assess therapeutic response.

Materials and Methods: Medical records of 57 dogs diagnosed with unilateral ST treated with ADPC/PRP were reviewed. We compared pre- and 90-day post-treatment results of gait analysis in 25 cases and tendon size and architecture in 55 cases.

Results: We found 88% of dogs were sound on gait analysis; 12% improved. Improved fiber pattern and reduced tendon size was recorded in all cases with 82% attaining the size of the unaffected contralateral tendon.

Discussion/Conclusion: Our findings show Gait-4-Dog provides accurate assessment of limb load and diagnostic musculoskeletal ultrasound provides a non-invasive, real-time method to measure changes in tendon size and architecture. Our findings suggest combination ADPC/PRP should be considered for dogs with ST.

Disclosure: No proprietary interest or relevant financial relationship.

36 RELATIONSHIP OF PENNHIP DISTRACTION INDEX TO CLINICAL SIGNS OF CANINE HIP DYSPLASIA

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Introduction: The relationship of radiographic signs of canine hip dysplasia (CHD) to clinical signs (CS) of the disease has been poorly studied. Our purpose was to correlate the distraction index (DI) to radiographic osteoarthritis (OA) and clinical signs of CHD.

Materials and Methods: The design was a cross-sectional retrospective study. The PennHIP database was queried for dogs entered since 2005 yielding a sample of 45,740 dogs (265 breeds). Factors included in the statistical model were hip laxity as measured by the PennHIP DI, age, weight, presence of OA and the degree of CS, categorized as positive CS, no CS or CS not evaluated.

Results: Presence of radiographic OA correlated positively with the magnitude of DI. Age, DI and CS were significant risk factors for OA but weight did not correlate with OA or CS. The odds for concurrent OA increased 2.2 times if CS were observed. The probability of showing CS with a DI of <0.3 ranged from 0–2.8% regardless of being positive or negative for hip OA.

Discussion/Conclusion: Results from a large sampling of dogs, consisting of multiple breeds, found both DI and OA to correlate with CS. This is the first study to relate DI to CS. Dogs with tight hips are not only at an extremely low risk of developing OA, they are also at a very low risk of having CS associated with CHD.

Disclosure: No proprietary interest or relevant financial relationship.

37 ROLE OF THERAPY WITH GROWTH FACTORS IN THE MANAGEMENT OF PAIN PERCEPTION NEGATIVE DOGS DUE TO THORACOLUMBAR DISK EXTRUSIONS

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Introduction: The purpose of this prospective pilot study was to examine the hypothesis that dogs with an acute onset of paraplegia and absent pain perception treated with either subdural platelet rich plasma injections or the intravenous application of erythropoietin at the time of decompressive surgery will have a higher likelihood of a functional recovery than dogs treated with surgery alone.

Materials and Methods: Inclusion criteria included chondrodystrophic dogs presenting with acute thoracolumbar disk extrusion, paraplegia, and absent pain perception. All dogs underwent decompression within 24 hours after admission and were randomly assigned to: 1) saline subdural, 2) autologous platelet rich plasma subdural and 3) erythropoietin (EPO) IV. Initial and follow-up examinations were performed at the time of admission, 1,3,7,14,42 and 84 days post-surgery, with a focus on ambulation and fecal/urinary continence. Statistical analysis was performed with SPSS for windows 20 software. The level of significance was defined as p< 0.1.

Results: The median age of the 32 dogs enrolled was 5 years. Dachshunds were the most common breed. One dog developed myelomalacia 4 days post-surgery and was euthanized. Three month post-surgery 24/31 (78%) dogs regained ambulatory function whereas 7/31 (22%) did not. There was no overall difference between groups, although dogs treated with EPO had a trend towards an improved overall outcome with a reduction in incontinence (Chi Square, p=0.081).

Discussion/Conclusion: Despite the good outcome in all the groups, the application of erythropoietin might be beneficial. Future studies should be directed towards the application of EPO in a larger group of dogs.
Disclosure: No proprietary interest or relevant financial relationship.

38 SUPRASPINATUS TENDINOPATHY IN 203 DOGS: A RETROSPECTIVE STUDY

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Introduction: Supraspinatus tendinopathy (ST) is a common condition identified in dogs with forelimb lameness. However, diagnosis and treatment remain challenging. Our objective was to report global clinical findings for dogs with ST including signalment, history, prior treatments, physical examination, objective gait analysis (Gait-4-Dog), imaging (radiographs, MRI and diagnostic musculoskeletal ultrasound), arthroscopy and concurrent shoulder and elbow pathologies. Quantitative ultrasound (QUS) methods are commonly used in human and equine medicine to evaluate tendon architecture for diagnosis and response to treatment of tendon conditions. As diagnostic musculoskeletal ultrasound is increasingly used in small animal medicine an objective methodology is needed. Our objective was to develop QUS methodology for shoulder pathology in the dog.
Materials and Methods: We reviewed medical records of 203 dogs diagnosed with ST (2006–2012) and aggregated findings.
Results: We found 50.2% of dogs failed to respond to NSAIDs and 40% failed to respond to rehabilitation therapy. The most common findings on shoulder arthroscopy were subscapularis pathology (92.6%) and supraspinatus bulge (91.9%). Elbow pathology was recorded in 64.7% of dogs. Common ultrasound findings included increased tendon size (50.6%), irregular fiber pattern (52.5%), and non-homogeneous echogenicity (82.9%).
Discussion/Conclusion: Our findings suggest concurrent shoulder and/or elbow pathology is not uncommon in dogs with ST. Further, response to rehabilitation therapy is inconsistent. Based on our findings, we developed the Ultrasound Shoulder Pathology Rating Scale (USPRS) Canine. This scale provides QUS methodology for shoulder pathology as well as a foundation for QUS methodology for other musculoskeletal tissues in the dog.
Disclosure: No proprietary interest or relevant financial relationship.

39 SURFACE ELECTROMYOGRAPHY OF THE GASTROCNEMIUS, VASTUS LATERALIS AND BICEPS FEMORIS MUSCLES AT TROT IN NORMAL DOGS

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Introduction: Surface electromyography (sEMG) of the vastus lateralis (VL) muscle has been described in normal dogs and the biceps femoris (BF) and gluteus medius (GM) muscles in normal dogs and dogs with hip osteoarthritis. The purpose of this study was to describe the sEMG activity pattern of the gastrocnemius muscle (GN) simultaneously with VL and BF muscles in normal dogs at a trot.
Materials and Methods: Six client-owned normal dogs were selected for the study. sEMG electrodes were strategically placed on the GN, VL and BF muscles. EMG data was telemetrically transmitted to a receiver and computer while simultaneously collecting ground reaction force measurements during trotting.
Results: GN sEMG activity had a two-phase peak maximum and a two-phase sEMG minimum during one gait cycle. VL sEMG activity had a two-phase peak maximum and a two phase EMG minimum during one gait cycle. BF had only one sEMG maximum during one gait cycle.
Discussion/Conclusion: The sEMG activity observed in this study for the VL and BL is similar to previous reports in dogs. This is the first report of GN sEMG activity during gait. The addition of GN sEMG data may enhance bio-

mechanical modeling of the canine stifle, provide diagnostic features for, and/or aid in the current and future therapeutic development of stifle joint-related diseases.
Disclosure: No proprietary interest or relevant financial relationship.

40 SURGICAL NAVIGATION IMPROVES TIBIAL COMPONENT ALIGNMENT IN CANINE TOTAL KNEE REPLACEMENT

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Introduction: Long-term outcomes of total joint replacement depend on accurate implant alignment. In humans, errors in positioning of the tibial and/or femoral components are associated with an increased risk of poor outcomes, including implant failure. The goal of the current study was to determine whether computer-assisted surgical navigation improves the accuracy of tibial component alignment in canine total knee replacement (TKR).
Materials and Methods: 17 sets of TKR radiographs were reviewed to determine the incidence and magnitude of tibial component malalignment. A cadaveric study was then performed on 12 stifle joints to compare tibial component alignment in the frontal and sagittal planes following (1) standard (surgeon-guided) placement and (2) computer-assisted (navigation-guided) placement. Results were compared against the current gold standard recommendations of a neutral (0° varus-valgus) cut in the frontal plane and 6° of caudal slope in the sagittal plane.
Results: Errors of >3° in frontal and sagittal plane alignment were seen in 12% and 24% of radiographs respectively. In cadavers, frontal plane alignment was significantly better in navigated stifles (mean 0.41°, range –0.71° to –0.81°) than in non-navigated stifles (mean 1.24°, range –2.35° to +1.93°) (p<0.05). Sagittal plane alignment was also better in the navigated group (mean 6.46°, range 5.13° to 7.59° vs. 7.08°, range 2.23° to 10.81°) (P<0.05).
Discussion/Conclusion: Surgical navigation significantly improves accuracy and decreases variability in tibial component alignment. Clinical trials are now needed to determine whether these improvements in surgical accuracy lead to better clinical outcomes in terms of joint function and implant longevity.
Disclosure: No proprietary interest.

41 THE EFFECT OF CEFPODOXIME AND CEFOVECIN ON TIBIAL PLATEAU LEVELING OSTEOTOMY INFECTION RATES: A PROSPECTIVE RANDOMIZED CLINICAL TRIAL

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Introduction: Recent studies have shown a decrease in surgical site infection (SSI) if post-operative antimicrobials are administered. The objective of this study was to compare the incidence of SSI following TPLO with two different antimicrobial protocols. We hypothesized that patients treated with cefovecin would have a lower incidence of SSI than patients treated with cefpodoxime due to better compliancy of dosage.
Materials and Methods: Dogs presenting to a single referral hospital for cranial cruciate ligament rupture to be treated with routine TPLO were eligible to be enrolled in the study. Enrolled dogs were randomly assigned to two treatment groups. The cefpodoxime group was administered cefpodoxime at 5 mg/kg PO for seven days beginning the first day post-operative. The cefovecin group received a single SQ injection of cefovecin at 8 mg/kg the first day post-operative. Dogs were monitored for the following 42 days for signs of SSI.
Results: 139 dogs in the cefovecin group and 137 dogs in the cefpodoxime group were enrolled. Eight dogs (5.76%) in the cefovecin group were diagnosed with SSI and 17 dogs (12.41%) in the cefpodoxime group were diagnosed with SSI. There was no statistically significant difference in infection rates between groups (P = 0.0544). Bacterial isolates were similar for both groups with methicillin-resistant staphylococcus species being most common.