**SWVS Technician Case Report Challenge Example**

New Revelations in Surgically Correcting Severe Angular Limb Deformity

This report follows the case of a canine requiring corrective surgery for a severe angular limb deformity. This patient has bilateral angular front limb deformity and was referred to a veterinary small animal specialty surgical department. With the help of advanced imaging, 3D bone modeling, and precise surgical intervention we will be able to improve discomfort, mobility, and quality of life.

Name: Ollie, #29554. Signalment: 3-year-old, male neutered, terrier mix, 9.3kg.

Date of Original Presentation: February 28, 2024.

Presenting Complaint: Bilateral front limb angular deformity progressively getting worse and affecting mobility.

Pertinent Patient History/Presenting Complaint:

Ollie presented for further evaluation of his bilateral front limb deformity on February 28, 2024. Ollie was adopted from an animal shelter at 6 weeks of age and based on the owner’s perspective, had no signs of limb deformity for the first 2 years of his life. At the age of 2, the owner started to notice Ollie’s front limbs deviating laterally. The deviation progressively got worse over the following year resulting in difficulty walking.

Physical Examination:

On initial evaluation, both of Ollie’s front limbs were significantly laterally deviated at the carpal joint. Ollie had a 2/5 degree of lameness bilaterally on the front limbs and 1/5 degree on the rear limbs. A full orthopedic and neurologic assessment was performed. The left front limb had severe angular limb deformity causing cranial buckling of the carpal joint with deviation of the paw past 90 degrees laterally. The right front limb also had severe angular limb deformity causing cranial buckling of the carpal joint with deviation of the paw to around 60 degrees. Hind limb palpation was WNL. Neck and back palpation were WNL. Neurologic mentation was WNL. Musculature was symmetrical. On physical examination, temperature was 100.6°F, pulses were 112 beats per minute, respirations were 18 breaths per minute, and mucous membranes were pink and moist with a capillary refill time of 2 seconds. No heart murmurs, no arrhythmias, and Ollie had strong synchronous pulses.

Diagnostics:

Lateral and dorsoplantar radiographic views of the left and right front limbs were performed under moderate sedation using Butorphanol 0.2mg/kg combined with Dexdomitor 0.006mg/kg IV. Both front limbs showed severe lateral deviation of the radius and ulna affecting the carpal joint as well. There were no fractures or lytic lesions. Based on the severity of the deformity and difficulty of surgical approach, a CT scan was performed and submitted to make 3D bone models. Ollie’s CT scan was performed on a separate day under moderate sedation using the above drug dosages. No contrast was used for this scan. The images were submitted to Dr. Owen Fink, a board-certified surgeon with interest in angular limb deformity corrections. Dr. Fink created 3D practice bone models and 3D printed guides specifically for Ollie’s corrective osteotomy.

Tentative Diagnosis: Severe bilateral forelimb angular limb deformity.

Treatment Plan:

 The conclusion after physical examination and imaging was the need for a surgical corrective osteotomy for both front limbs. Clinically, the left front limb was worse, therefore, this was the limb we would operate on first. After practicing with the 3D bone model and guides, Ollie’s surgery was scheduled. Ollie returned to the hospital on May 22, 2024, for his left front limb corrective osteotomy surgery. Preoperative blood work was performed the morning of surgery and demonstrated a mild elevation of his Alkaline Phosphatase, a moderate elevation in his ALT and very mild elevation of his Albumin. Without clinical symptoms of severe liver disease, surgery was performed. A cranial approach to the radius extending to the proximal carpus was performed. The custom saw guide was attached with 0.045" k-wires. The radial osteotomy was performed. An incision was made caudally at the level of the radial osteotomy to allow for a transverse ulnar osteotomy at the same level. The custom saw guide was removed, and the reduction guide was applied. The fracture was cross pinned with 0.035" k-wires, and the reduction guide and 0.045" k-wires were removed. A 6 hole 2.7mm locking bone plate was placed cranially onto the radius, with 3 screws proximal and 3 distal to the fracture. The area was lavage. An extensor tendon was sutured with 2-0 Securocryl in a locking loop and augmented with interrupted sutures. The incision was closed with 3-0 Securocryl in a simple continuous pattern in the subcutis and 3-0 Seucrocryl in an intradermal pattern in the skin. Post operative radiographs showed appropriate implant placement with excellent fracture alignment. A splint was placed.

Nursing Care:

Ollie was placed in a splint for the first two weeks post-surgery to stabilize the osteotomy site while bone healing began and then a soft padded bandage for an additional week. The bandage material was replaced at our hospital weekly by the technical staff. During each bandage change, the incision was evaluated, cleaned and any skin irritation was addressed and cared for. A layer of Mupirocin ointment was placed over the incision prior to a Tefla and then the bandaging material. After the soft padded bandage was removed, the owner was informed how to begin physical therapy to regain joint motility and strengthen the limb.

 Outcome:

 Ollie has been recovering very well and already placing weight on the left front limb. The incision sites healed fully without infection. Ollie will return to our hospital at the 8-week postoperative mark for recheck radiographs. If the bone is healed, Ollie will gradually return to normal activity over the following 2 weeks. Preparation can then begin for surgery on the right front limb. The corrective osteotomy for the right front limb will follow the same planning as the left front limb.