Isolated traumatic radial head dislocation in a feline

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OBJECTIVES

To describe a novel method for surgical stabilisation of the radial head dislocation while maintaining the gliding, rotational movement between the radius and ulna essential to normal locomotion in the cat. Aim to describe methods for overcoming the difficulties of rehabilitation in cats.

METHODS

A craniolateral approach was made to the radial head at a traumatic puncture wound. A small bone fragment could be seen in this region in the radiographs. Monofilament

nylon suture was used as a synthetic annular ligament tunnelled beneath the cranial musculature over the cranial aspect of the proximal radius and passed caudally through a bone tunnel drilled in the ulna. The suture was secured with a knot laterally between the muscle bellies. No support dressings were applied and the cat was confined to room rest for 3 weeks.

RESULTS

The cat walked on a stiff antebrachium, absent rotation in the swing phase by 10 days post surgery. After 3 weeks, she progressed to walking around the whole house and allowed on and off furniture. 5 weeks post surgery 3/10 lameness but good range of movement at the walk gait. From 6 weeks free exercise, encouraged to play with toys and start complex paw movements Sound 9 weeks post surgery (see videos).

STATEMENT (CONCLUSIONS)

Annular ligament disruption is rare in cats. The range of supination and pronation in the cat is much larger than the canine and attention to preserving this function is essential for a good functional outcome.

A biomechanical study comparing the use of the LokRod™ plate to plate and screw fixation for ex vivo stabilisation of femoral and tibial fractures in cats

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OBJECTIVES

To compare the biomechanical performances of the LokRod™ Plate and a Standard Locking Plate when applied to ex vivo osteotomised gap model feline tibiae and femora.

METHODS

15 feline tibiae and 15 feline femora were tested separately and randomly assigned a LokRod™ Plate or

Standard Locking Plate, creating 4 groups. Tibiae were plated with 14 hole 101mm Standard Locking Plates, femora with 13 hole 94mm Standard Locking Plates. Both bone types were plated with 90mm LokRod™ Plates. Plates were applied using 4x 2.4mm locking screws. 1cm mid-diaphyseal osteotomies were performed after implant placement. Constructs underwent 3 series of 6000 loading cycles, then a further 45000 cycles, at 60% of mean bodyweight. Stiffness was measured at the start and end of each cycles series. Axial displacement was measured throughout. Constructs were loaded to failure at 5mm/min with failure modality digitally recorded. Ultimate load and displacement were also recorded.

RESULTS

No constructs failed pre failure testing. Femoral constructs displayed no significant differences. Tibial LokRod™ Plate constructs showed significantly lower stiffnesses after 12000 cycles ($p = 0.04$) and 18000 cycles ($p = 0.018$). Tibial LokRod™ Plate constructs yielded higher loads before failure (678.66 ± 83.58 N) ($p = 0.000$). The main construct failure modality was implant bending.

STATEMENT (CONCLUSIONS)

By yielding reduced stiffness during cyclical loading and increased load before failure, the LokRod™ Plate may result in more reliable plate and screw fixation for feline patients, particularly where post-operative exercise restriction is more difficult. Clinical study validation is required.