Comminuted articular fractures of distal femur in dog and cat: a case series.

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Introduction

Femoral fractures constitute approximately 20% to 25% of all fractures encountered in the dog and cat, and represent 45% of all long-bone fractures (3). Highly comminuted articular fractures of the distal femur represente a subset of complex fractures with guarded functional prognosis due to articular cartilage lesions. Compare to distal femoral fractures, articular fractures of the distal femur are less common and involve an intercondylar and supracondylar surfaces with a variable number of fracture lines.

Principles for articular fracture osteosynthesis dictate anatomic reduction to minimize articular incongruity, and rigid internal fixation to promote primary bone union, minimizing callus formation and facilitating early return to function (1). Where articular fractures are not deemed to anatomically reconstructable,salvage procedures such as joint prosthesis and joint arthodesis are indicated. However, surgical complications may ocur and the limb unction in stifle arthrodesis is considered good in only 50% of the cases (2). Hereby, we present a case series of comminuted fractures of distal femur in dogs and cats that were observed in two veterinary hospitals between 2016 and 2018

Case selection

Medical records of dogs and cats with highly comminuted articular fractures of distal fémur were identified (Fig. A e B). Case inclusion required complete clinical case details, preoperative radiographs, immediate postoperative and subsequent followup radiographs, and further clinical assessment or owner telephone interview

Surgical technique

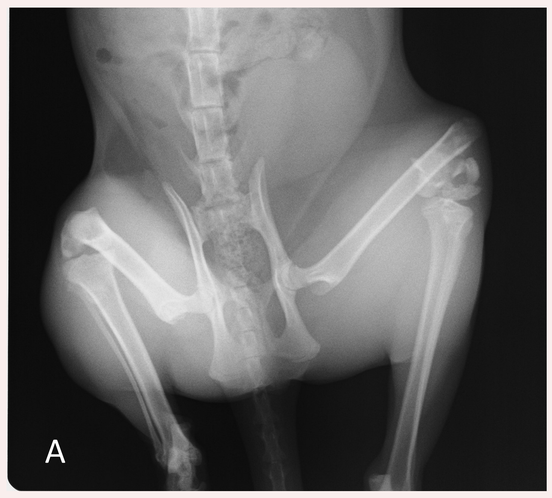
After induction of anestesia and asseptic preparation of the surgical field, a craniolateral approach was made to the stifle (Fig. E) and distal fémur and the fractures lines and cartilage lesions were identified *in situ.* As first procedure, the intercondylar fractures were temporarly reduced with k wires and further stabilization as achieved with intercondylar lag screws and K wires. The supracondylar fractures were stabilized with rush pins associated or not to crossed kirchner wires.

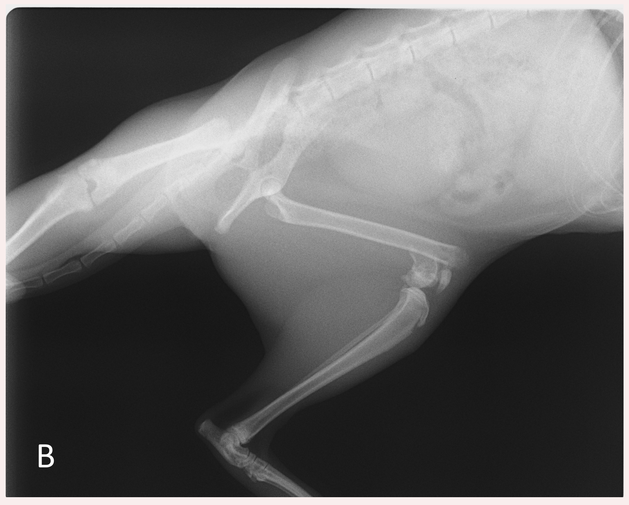
Perioperative care

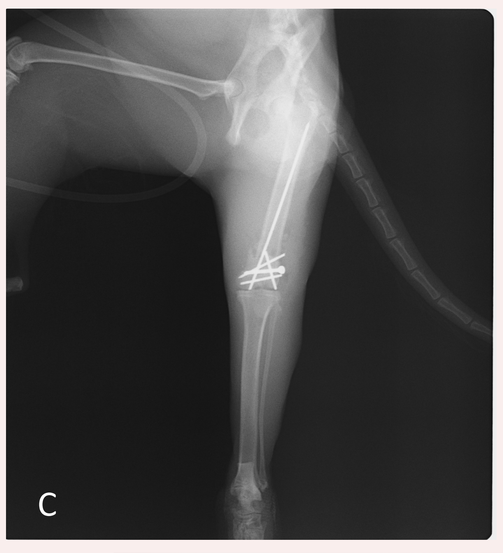
A padded bandage or splint was applied before surgery and maintained postoperatively for a 48 hours. Perioperative and postoperative antimicrobial and analgesic protocols varied but all cats and dogs received perioperative and postoperative (5 – 10 days) antibiotics. Perioperatively, a combination of opiate and non-steroidal anti-inflammatory (NSAID) medication was administered with NSAID continued orally postoperatively for a minimum of 2 weeks. Activity was restricted in cage rest and short-lead walks and as an adjunct therapy it was prescribed neutraceuticals containing glucosamine hydrochloride and chondroitin sulfate *ad eternum.*

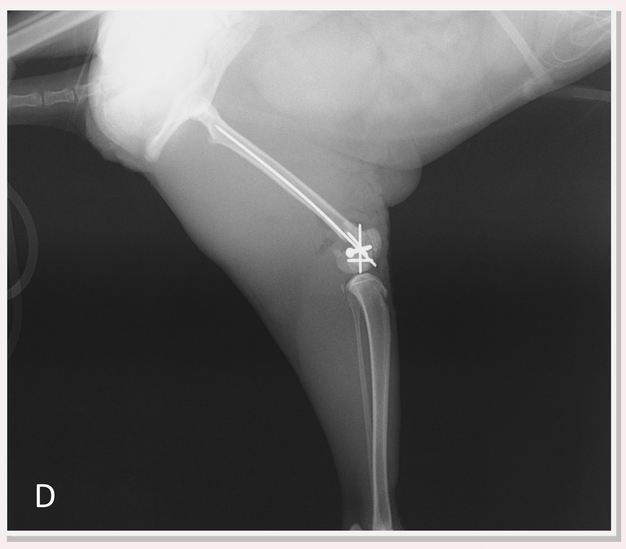
Follow-up

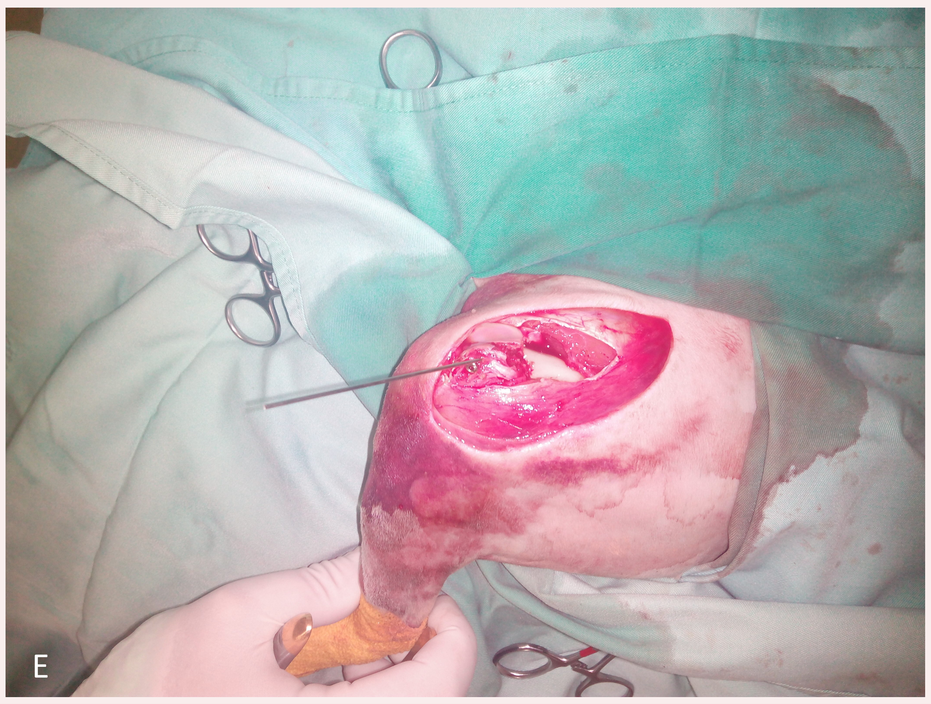
Clinical and radiographic examination (Fig. C e D) occurred at 4-6, weeks, 8 weeks and 12 weeks postoperative and later follow-up was obtained by re-examination or owner interview via telephone. On follow-up radiographs, fracture healing was defined as bridging bone seen on both lateral and craniocaudal radiographic projections. In each clinical examination, surgical complications were noted and using a 5-point numeric rating scale (1–5, sound to nonweight bearing), dogs and cats were classified hafor functional outcome. Animals had a full functional outcome, if graded 1 or 2 (because of mechanical alteration in gait) and were without pain or the need for further medication. Dogs and cats had acceptable function if graded 3 (without the need for further medication). Dogs and cats had unacceptable function if graded 4 or 5 (discomfort necessitating long-term medication).











Case details.

Case number	species	Weight (Kg)	Age (years)	Breed	Cause of fracture	Trauma to surgery (days)	Classification of fracture (AO vet scoring system)
1	Cat	2,7	1 1/2	Domestic short hair	Fall in height	5	33_C2
2	Cat	4,2	2	Persian	Fall in height	2	33_C2
2	Dog	4	1	Cross-breed condrodystrophic	Fall in height	5	33_C1

Results

Case number	Surgical complications	osteosynthesis methods - intercondylar	osteosynthesis methods - supracondylar	Fracture healing (weeks)	Follow –up (months)	Functional outcome
1	-	Lag screw + antirotational K wire	Rush pins + crossed Kirchner wires	8	24	3
2	Rush pin distal migration	Lag screw + antirotational K wire	Rush pins + crossed kwires	12	24	5
3	-	Crossed K wires	Lag screw + crossed k wires	12	4	3

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