Fractures of the femoral head and neck

U. Matis, Prof. Dr. med. vet., Dr. med. vet. habil, Dipl. ECVS, S. Strodl, Dr. med. vet.
Clinic of Small Animal Surgery and Reproduction
Centre for Veterinary Clinical Science, Ludwig-Maximilians-University of Munich, Germany

INTRODUCTION
Fractures of the proximal femur constitute approximately 13% of canine and 16% of feline femoral fractures. In contrast to dogs, in which physeal separation of the femoral head is more commonly seen, cats incur mostly femoral neck fractures, which are usually extracapsular. The joint capsule is important not only for the stability of the hip joint but also for the blood supply to the femoral head. In intracapsular fractures, the epiphyseal vessels of the joint capsule are torn or compromised by haemarthrosis. Thus, extracapsular fractures have a better prognosis than intracapsular fractures, in which flattening and/or late segmental collapse of the femoral head can occur because of an impaired blood supply. The risk of compromised blood supply to the femoral head is particularly high in the first five months of life when the physeal plate does not allow anastomoses between the epiphyseal and metaphyseal blood vessels.

OBJECTIVE
To evaluate short- and long-term results of internal fixation in cats and dogs with proximal femoral fractures and to compare the outcome in cats with those of conservative treatment and femoral head and neck excision.

STUDY DESIGN
Retrospective study.

MATERIALS AND METHODS
The clinical and radiographic findings of 199 osteosyntheses in 100 cats and 99 dogs with proximal femoral fractures re-evaluated an average of 6 months (75 cats and 66 dogs; short-term evaluation) or 7 years (25 cats and 33 dogs; long-term evaluation) post-treatment were investigated. The data were analysed for a possible relationship between the outcome and the course of the fracture line, fracture displacement and the time between occurrence of the fracture and treatment. As well, the results of internal fixation were compared in cats with those of conservative treatment and excision arthroplasty. For osteosynthesis, a cranio-lateral approach was usually carried out with the joint capsule incision parallel to the long axis of the femoral neck. Two wires, which were placed parallel and crossed the fracture line as far apart as possible from one another, were used for the repair.

RESULTS
In both short- and long-term re-evaluations, 63% of osteosyntheses were not associated with lameness or arthrosis. In 17% of the short-term and 16% of the long-term evaluations, arthrotic changes were seen on radiographs but there was no functional impairment of the limbs. In 17% of the short-term and 24% of the long-term re-evaluations, there was coxarthrosis with intermittent lameness. In all cases, consolidation of the fracture had occurred, whereas in 20 cats with conservatively treated proximal femoral fractures, the rate of non-union was 80%. Of 15 cats that underwent excision arthroplasty, evaluation at an average of 4 years post-operatively revealed limb shortening in 13, muscle atrophy in 7, limited range of motion in 11 and pain during passive movement of the hip in 4 cases. Five of the cats that underwent femoral head and neck excision had a temporary lameness, which was noted by the owners as well. As expected, of the fractures repaired surgically, extracapsular fractures had a better outcome than intracapsular fractures. The time between occurrence of the fracture and treatment had a lesser effect on long-term outcome than the extent of fragment displacement.

CONCLUSION
Fracture healing does not take place in a high percentage of femoral head and neck fractures that are managed conservatively or not treated, even though some of our patients, especially cats, have the innate ability to protect an injured limb. Osteosynthesis should be the treatment of choice rather than excision arthroplasty, although the latter is straightforward and therefore frequently selected. In the majority of cases, reconstruction of the joint results in a more rapid and long-lasting return to function.
REFERENCES