

## 6 Summary

### **The Use of external skeletal fixation in dogs and cats. A retrospective study (1996-1999)**

At the Small Domestic Animals Clinic and Polyclinic of Freie Universität Berlin from 1996 to 1999, a total of 48 dogs and 70 cats received a treatment using an external fixator. Of eight cats, each had the external fixator applied to two sections of their limbs.

The external fixator was attached to the humeri of six animals (dogs n=2, cats n=4). In 3/6 cases, it was possible to fully restore functionality, in 3/6 cases, a restriction of motion was seen in the elbow.

With respect to the treatment of radius and ulna, one case of 10 could not be evaluated (dogs n=9, cats n=1). In 8/9 radial and ulnar fractures, healing was complete and functionality could be restored; in 1/9 cases, there was a small-scale lameness after long-lasting stress.

With respect to the femur, 10 of 12 cases (dogs n=3, cats n=9) were evaluated. Except for one cat with a small-scale lameness, all other patients showed healed fractures associated with complete restoration of functionality.

In tibial fractures, final results were obtained for 35 of a total of 40 patients (dogs n=9, cats n=31). In 5/35 cases, results were only satisfactory. One cat with 2 external fixators showed reduced jumping faculty; in two cats, there was a small-scale lameness after long-lasting stress, and in one cat a fracture non-union functionally irrelevant for the animal. One cat was put to sleep after refracture (1/35). 29/35 tibial fractures healed and had their functionality fully restored.

The treatment of an unstable carpal joint (dog n=1) was unsuccessful.

4 of 43 tarsal joint lesions (dogs n=14, cats n=29) were not evaluated. 11/39 cases demonstrated only satisfactory restoration of functionality, in 5 cases, ankylosis developed with and without osteoarthritic development; in 3 cases a small-scale lameness was seen after long-lasting stress, in one case permanent lameness, and in one cat with two external fixators reduced jumping faculty. In 28/39 cases, it was possible to achieve complete restoration of functionality.

With respect to the knee joints, 6 of 7 lesions (dogs n=5, cats n=2) were evaluated. Except for one case of permanent lameness, complete functionality could be restored.

Two metatarsal fractures in four lesions of the metatarsals/metacarpals (dogs n= 3, cats n=1) healed, however, they required a refixation and an amputation of one phalanx that did not heal. Two lesions remained without evaluation.

The external fixator was applied to the mandibles in 3 cases (dogs n=2, cats n=1). Except for one patient that died prior to the end of the therapy, fracture healing was accompanied by only incomplete restoration of functionality.

Within the outline of the study, the use of an external fixator led to optimal results with complete restoration of functionality in just under 80 % of the evaluated cases of uncomplicated lesions and open and/or comminuted fractures. The percentage of serious complications was small; in parts, it was possible to remain clearly below the periods of rest reported in literature.

The external fixator is an optimal stabilizing technique if placed properly and in compliance with the indication. The apparatus is cost-reducing and hence an alternative to internal fixation even for simple lesions.