Clinical Evaluation of the CRIF 4.5/5.5 system in cattle

Summary / Zusammenfassung
Double plating with dynamic compression plates (DCP) is the gold standard for long-bone fracture repair in large animals. However, DCP’s are implants created for use in human surgery. The Clamp-Rod Internal Fixator 4.5/5.5 (CRIF 4.5/5.5) however, is a newly developed internal fixation system especially designed for veterinary use. In vitro studies with the CRIF 4.5/5.5 already exist, but an in vivo evaluation is still missing. This study will complete the evaluation of the CRIF 4.5/5.5 by comparing the results achieved with this device with those of the DCP in clinical cases of long-bone fractures in cattle.

From 1999 to 2004, 55 cattle with long-bone fractures have been repaired by internal fixation in the Clinic for Cattle, Sheep and Goats of the Department for Farm Animals and in the Clinic for Ruminants at the Vetsuisse Faculties of the Universities of Zurich and Berne. The fractures of 30 cattle were fixed with the DCP system and 25 patients with the CRIF 4.5/5.5 system.

Short-term evaluation will base on radiographs taken in two perpendicular plains preoperatively, intraoperatively after internal fixation and postoperatively (two weeks, two and six months, respectively). Long-term evaluation will be performed by clinical and radiographic examination of all cases in the winter 2004/2005.

The clinical evaluation is mainly based on clinical results (wound healing, lameness evaluation, cosmetic appearance, complications) and the assessment of the bone healing on radiographs. Radiographic evaluation focuses on fracture healing, callus formation and the reaction of the bone to the implants.

This study will present the quality of fracture repair and the costs of the CRIF 4.5/5.5 system compared to DCP plating. It shall complement the in vitro test studies to make a final judgement of the CRIF 4.5/5.5 system in large cattle.

Publications / Publikationen
Mechanical comparison of three different clamp and two different rod types of a new veterinary internal fixation system, 4.5/5.5 mm - VetFix.
Comparison of double dynamic compression plating versus two configurations of an internal veterinary fixation device: Results of in vitro mechanical testing using a bone substitute.
Steiner, A., U. Iselin, J. A. Auer, Ch.J. Lischer (1993):
Shaft fractures of the metacarpus and metatarsus in cattle.
V.C.O.T. 6, 138-145.

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