Comminuted tibial fracture treatment with type II frame external fixators with Maynard clamps and Schanz pins

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Abstract

The management of comminuted tibial fractures is a challenging problem in small animal orthopedics. External skeletal fixators with Maynard clamps and Schanz pins are commonly used for the osteosynthesis of such fractures. The aim of this study was to perform a clinical assessment of Schanz pins with type II frame external fixators in the treatment of comminuted tibial fractures, and the possibility of pin changing when osteolysis and pins loosening appear using Maynard clamps. Schanz pins and external fixators were applied in five dogs. The healing of the treated tibia bones was noted in all cases. Radiological signs of osteolysis, pin loosening and pin tract discharge were observed in two dogs. The results obtained indicate that Schanz pins with type II frame external fixators are reliable and easily manageable. It was also ascertained that Maynard clamps are especially useful for quick pin changing.

Key words: Schanz pin, Maynard clamp, external skeletal fixator, tibia, fracture, dog

Introduction

Tibial fractures account for around 15% of long bone fractures in dogs (Phillips, 1979). They occur mainly as a result of road accidents, falls from height and bite wounds. The anatomical structure of the tibia permits various fixation methods. In stabilization procedures lasting more than 6 weeks, osteolysis is noted at the point of bone-pin contact, leading to the loosening of fixation pins (Palmer and Aron 1990, Harari 1992). Positive and negative profile tip-threaded pins were introduced to support pin anchoring in the bone and to prolong the stabilization process (Ramotowski and Granowski 1991, Beck and Pead 2003).

The aim of this study was to perform a clinical assessment of Schanz pins with type II frame external fixators and Maynard clamps in the treatment of comminuted tibial fractures. This paper describes the pin fixing technique and reports on the observations made during the process of fracture treatment.

Materials and Methods

Schanz pins and external fixators were applied in five dogs. The operated dogs were aged from 13 months to 6 years, with body weight of 16 to 38 kg. In four cases, tibial fractures resulted from road accidents, and in one case the fracture was caused by...