

Treatment of Compound fracture of tibia in dog using Circular external skeletal fixator (CEF)

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Introduction

Fracture of Radius- ulna and Tibia- fibula is more common in dogs. Road traffic accidents are the principal cause of compound and complicated fractures of these bones in canines due to less soft tissue coverage around these bones (Phillips, 1979).

The circular external skeletal fixators has created interest in the area of small animal orthopaedics because of some limitations of conventional surgical methods. Internal fixation using implant is not preferred in compound fractures with sepsis. External skeletal fixation is preferred in fresh as well infected compound fractures (Marcellin-Little, 1999). This report describes the treatment of compound fracture of tibia-fibula using ring fixators.

Case History and Observation

A non-descript bitch aged about 6 years weighing 19.7 kg was brought to orthopaedic unit of Madras veterinary College, Chennai with history of road traffic accident. On physical examination the general body condition of the animal was found to be normal. Clinical examination revealed non- weight bearing on the right tibia with fractured bone fragment exposed to outside environment. Radiological examination revealed complete oblique fracture of distal third of right tibia. Accordingly, treatment was planned by using Circular External Skeletal Fixator (CEF).

Treatment: Under necessary pre-operative preparation and dissociative anesthesia, first of all the fractured fragments were reduced to normal alignment by closed reduction method. The ring fixator consisting of two full and one 5/8 aluminium 100mm diameter rings, six k-wires of 1.6mm diameter each and six connecting rods each of 100mm length was assembled to immobilize the fractured fragments as advocated by Ilizarov (1989). The partial ring was placed with its opening on the flexion side of the joint. The six k-wires were introduced as described by Kakkad

(2002). Immediate post operative radiograph was taken to check the normal alignment of the fractured bone fragments. Post- operative treatment followed for 5 days that is injection Cefazolin sodium at the dose rate of 20mg/ kg body weight daily. The k-wires entry and exist points were cleaned with hydrogen peroxide and dressed with povidone iodine. The dog was closely observed up to 60th post-operative days.

Results and Discussion

In present case the animal started bearing weight partially while walking just after one day of surgery but marked limping noticed. This observation is in agreement with the findings of Ferreti (1991). During the third week onwards the dog was able to bear weight on the operated limb with minimal limping and full weight bearing from eight week onwards without any pain. This finding is in agreement with findings of Ferretti (1991) and Marcellin-little (1999). Painful signs on palpation of bone near wire sites was noticed after fourth post-operative week. The pain could be due to loose wires when the wires were tightened there was gradual loss of pain. This result correlates with the findings of Chaudhari et. al. (2000). The subsequent post-operative radiograph revealed that the fractured bone was healed with moderate amount of callus and the apparatus was removed after 60th post operative day and advised to restrict the activity for additional 2 weeks. This is in agreement Ferretti (1991). During post operative period pin tracts discharge noticed from all the pin tracts upto 10 POD, which subsequently subsided. Similar findings were also reported by Marcellin-Little (1999). Joint stiffness, muscle atrophy, venous congestion of the paws, delayed union, mal-union not observed during the treatment period, which are common complications of conventional methods of treatment.

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