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Management of femur fracture in bonnet macaque (*Macaca radiata*): A case report

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Abstract

A male *Macaca radiata* around 6 to 8 month old was rescued and brought to the Wild Animal Rescue and Rehabilitation Center, Katraj Pune. Clinical and radiological examination revealed that oblique displaced fracture of right femur. Treatment was carried out with internal fixation methods of fracture management under Ketamine anesthesia. After 2 months of surgery, the animal showed proper leg movement and walking.

Keywords: *Macaca radiata*, fracture, femur, intramedullary pin

Introduction

Macaca radiata is distributed in both villages and jungles of Maharashtra and the species is highly adaptive. The incidence of long bone fracture in the non-human primates are rare (Bulstrode, 1990) [1]. The selected workers have been reported fracture of long bone like Femoral Fracture in a Rhesus Monkey (Singh *et al.* 2012) [7], humerus fracture in wild langur (*Presbytis entellus*) (Majie *et al.* 2014) [3], Femur fracture in Hanuman Langur (*Semnopithecus entellus*) (Ragunath *et al.* 2008) [6], Radial Fracture in a Capped Langur (*Trachypithecus pileatus durga*) (Debnath *et al.* 2016) [16]. This report present a case of successful surgical management of femur fracture in Bonnet macaque (*Macaca radiata*).

Case Details

A male *Macaca radiata* around 6 to 8 month old was rescued and brought to the Wild Animal Rescue and Rehabilitation Center, Katraj Pune. According to history the primate came under an automobile accident and unable to bare weight by right hind limb. A through clinical examination was carried out. Clinical examination revealed crepitating sound at the right hind limb in femur region. For confirmation of fracture and its type fracture radiological examination was carried out. Radiological examination revealed oblique displaced fracture of right femur (Fig. 1).

For treatment of fracture decision was taken to do surgical intervention by placing intramedullary pins. Surgery was performed under general inhalation anesthesia with ketamine hydrochloride 10 mg/kg body weight. Surgical site was prepared aseptically, lateral oblique incision was given on tancerfacia lata muscle which further dissected bluntly. The fractured fragment was exposed. Pin size was selected according to medullary diameter and depth of insertion. Insertion of intramedullary pin was done by retrograde method i.e first inserted proximally and then distally in fractured bone. The pin was inserted in proximal fragment of bone up to trochanter fossa one half inch then reduction of distal fragment and alignment of both fragments was done. Then pin was inserted in distal fragment till it reaches up to epiphysis. (Fig 2) The fascia was sutured with Vicryl 2-0 in a simple interrupted pattern, and the skin was sutured with nylon suture material in horizontal mattress pattern. Postoperative analgesia was provided with meloxicam @ 1 mg/kg i/m and antibiotic Cefotaxim @ 20 mg/kg bwt for 5 days. For additional support animal was kept in confined cage to prevent movement of affected part and post-operative care. Skin sutures were removed after 2 weeks. Animal was kept in closed confined area to restrict the movement of limb. Through periodical radiological examination healing and callus formation at fractured site was monitored.

After two weeks postoperative fracture bone was stable and animal starts movement of legs. Complete recovery was achieved after 2 months of surgery, the animal showed proper leg movement and walking.



Fig 1: Oblique displaced fracture of right femur



Fig 2: Postoperative xray after intramedullary pin

Discussion

The femur fracture is very rare in bonnet macaque and normally occurs due to traumatic injuries. In the present clinical situation, the fracture was simple without any signs of comminution or sharp ends, soft tissue swelling could have been due to present of haematoma around fracture bone. In the non-human primate for anesthesia generally xylazine and ketamine combination was used (Nolosco *et al.* 2007) [4]. In the present case only ketamine was used for anesthesia due to docile nature of animal which is in general agreement with the report of Raganath *et al.* (2008) [6]. Ranganath *et al.* 1998 [5] reported that plaster of paris bandaging is rarely indicated in management of fractures in wild animals. Hence, in the present case intramedullary pinning was selected for the management of femur fracture.

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