



## SURGICAL MANAGEMENT OF TIBIAL FRACTURE IN A RABBIT

<sup>a</sup>Sandeep Saharan, <sup>b</sup>Deepak Kumar Tiwari, <sup>b\*</sup>Ribu Varghese Mathew<sup>a</sup>Department of Veterinary Clinical Complex, College of Veterinary Sciences<sup>b</sup>Department of Veterinary Surgery and Radiology, College of Veterinary Sciences  
Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar 125 001<sup>\*</sup>Corresponding author email: rmathew125@gmail.com**ABSTRACT**

A cross breed rabbit aged six months was presented with the complaint of fractured limb after an accidental trauma. Clinical and radiographic examination revealed complete oblique fracture of the right tibia at its proximal one-third aspect. Fracture reduction and stabilisation by stainless steel intramedullary pinning was undertaken. Animal recovered uneventfully and started to bear weight on affected limb after a month.

**KEY WORDS:** Rabbit, intramedullary pinning, tibia, fracture.

**INTRODUCTION**

Fracture is defined as the break in the continuity of bone. Rabbit bones are delicate in comparison with the long bones of other domestic companion animals (Barron *et al.*, 2010). Rabbit skeleton is light and comprises 7-8% of body weight. Spine and limbs are thus prone to fractures in rabbits as compared to other animals (Tiwari *et al.*, 2012). Low bone density and large muscle mass predisposes rabbits to fractures (Reuter *et al.*, 2002). Fractures of the long bones especially tibia, femur, radius and ulna are common in rabbits (Harkness and Wagner, 1998). Rabbits have powerful muscular hind limbs and 70% of the body weight is carried by this part of the body. Therefore long bone fractures are relatively common presentation regarding pet rabbits especially within the hind limbs (Barron *et al.*, 2010). Fracture of tibia is more common in rabbits often caused by improper handling or caging when a limb becomes trapped in improperly sized wire mesh (Richardson, 2000). The present article reports a case of successful surgical management of tibial fracture in a cross bred rabbit through intramedullary pinning.

**Case History and Observations**

A six month old male rabbit was presented to Veterinary Clinical Complex with the complaint of fractured limb after an accidental trauma (Fig.1). Clinical examination revealed compound fracture of the right tibia with the fractured distal segment projecting out of the skin. Further the pet was subjected to radiographic examination that revealed a complete oblique fracture at the proximal one-

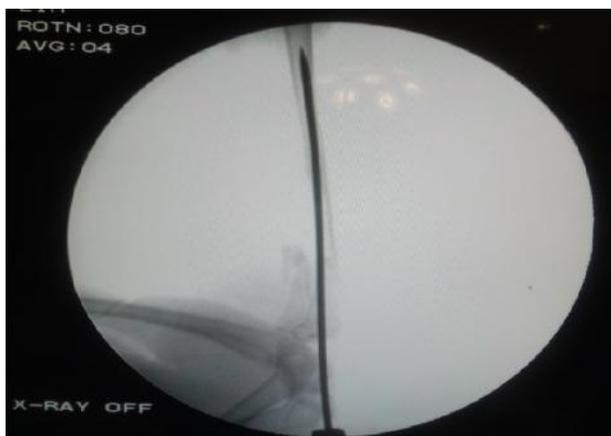
third of the right tibia. Physiological parameters were within the normal clinical range and it was decided to perform surgical reduction and stabilisation of the fractured tibia by stainless steel intramedullary pinning.

**Surgical Treatment**

The hair around the surgical site was clipped, the open wound was debrided and the animal was prepared for aseptic surgery as per standard protocol. The animal was anaesthetized with a combination of Inj. Xylazine hydrochloride @ 8mg/kg body weight and Inj. Ketamine @20mg/kg body weight intramuscular. Retrograde intramedullary pinning of the fractured tibia was performed through the open wound. After fracture reduction and stabilisation, the position of the pin in the medullary cavity was confirmed using c-arm image intensifier (Fig. 2). Further muscles, subcutaneous tissues and skin were closed as per standard surgical procedure. Postoperatively antibiotics and analgesics were administered parenterally for five days. Daily wound dressing using povidone iodine and application of fly repellent spray was recommended to the owner. Owner was also advised to restrict the movement of the animal as much as possible and to provide good padded soft bedding. The skin sutures were removed 10<sup>th</sup> day postoperative and regular fracture healing was assessed through a series of radiographic examination. The animal recovered uneventfully and started to use the affected limb for weight bearing after a month.



**FIGURE 1.** Six month old rabbit with fractured right tibia



**FIGURE 2.** After stainless steel intramedullary pinning

## DISCUSSION

Bones of domestic rabbits are extremely brittle and are therefore more difficult to surgically repair them when compared to those of other animal species of similar weight and size. Many of the surgical implants made for use in veterinary are too heavy or large for rabbits. Even when standard implants are applied correctly, the brittle bones of domestic rabbit may fail (Barron *et al.*, 2010). Intramedullary fixation is optimal for use in rabbits as the implant will help bear the weight of the body although healing time may be delayed (Reusche, 2008) [6]. In the present case also intramedullary pinning was done. Further intramedullary pinning is superior over the use of dynamic compression plates or external fixation in light of the low density and small diameter of the cortices of the long bone as well as nature of this species (Rickards *et al.*, 1972). Diligent postoperative care is essential to compliment fracture repair particularly in rabbits. Rabbits are easily stressed and tend to thump their hind limb. Limiting environmental stress helps minimize thumping behaviour that can break down repair. Here the owner was advised to keep the rabbit in a cage to minimize movement and to keep the pet in a calm and quite environment to prevent undue stress. Immobilisation technique for fore limb of rabbits has been reported but the confirmation of the rear limbs and their excessive muscle mass complicates this task in these animals (Reuter *et al.*, 2002). Conservative treatment methods like external coaptation, splints, casting and cage rest are well tolerated by rabbits for distal limb fractures (Wood, 1978).

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