

AVULSION FRACTURE OF TIBIAL TUBERSITY & ITS SURGICAL MANAGEMENT IN A LABRADOR DOG

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An 8 months old Labrador male dog was presented for lameness due to falling on to ground while jumping from a height a week back. On physical examination of patient, one depression at proximal dorsal aspect of stifle joint area was observed with loosening of extensor muscle at the site. On radiographic examination, avulsion fracture was diagnosed that was treated by stainless steel suture wiring, with application of modified Thomas splint.. After 10 days of surgery the sutures were removed and the limb was re-bandaged. The dog regained normal walking after removal of Thomas splint after 60 days of application and 10 days of physiotherapy.

Keywords: Dog, Fracture, Lameness, Stifle, Tibial tubersity.

Among fractures of different bones of skeletal system, long bones are more frequently involved in canines. This may occur as a result of trauma, road/automobile accident or due to fall or jump from a height. The incidences of fracture are highest in dogs of less than one year of age (Aithal *et al.*, 1999). The male dogs do suffer more frequently than females (Rao *et al.*, 1999; Simon *et al.*, 2011; Rhangani, 2014). Among different long bones, the occurrence of fracture was seen more in femur (34.69%) followed by tibia and fibula (33.62%), radius-ulna (17.88%) and humerus (13.79%) (Aithal *et al.*, 1999; Mosneang and Igna, 2012). This paper communicates the successful management of one case of avulsion fracture of tibial tubersity by stainless steel wiring, followed by external fixation with modified Thomas splint in a Labrador dog.

Materials and Methods

An 8 month old male Labrador retriever dog weighing 12 kg body weight was presented with complaint of lameness, non-weight bearing, slight swelling at the stifle joint area of left hind limb. The affected leg was just touching the ground without supporting weight. From history it was revealed that, the animal had fallen on the ground while jumping 7/8 days back and was treated with NSAID and antibiotics without any relief apart from a decrease in swelling at the site. On palpation of the site, one

depression at dorso-medial aspect of fetlock joint area was noticed at the site (Fig.1). On radiography, it was confirmed as a case of avulsion fracture of tubersity of tibia from tibial crest. With the consent of the owner it was decided to go for combination of both internal and external immobilization. Under routine preparation the animal was anaesthetized by injectable anesthesia using Atropine sulphate @ 0.04 mg/kg b wt, xylazine Hcl @ 1mg/kg b wt and ketamine Hcl @ 7mg/kg b wt with fluid therapy. A 3 cm long curvilinear incision was made at the dorsal aspect of stifle joint area extending from femoral condyles to condyles of tibia over tubersity of tibia to the base of proximal extremity. A hole was drilled in tibial tubersity and tibia drilled horizontally by 1mm drill bit. The area below the tubersity at fractured site was curetted in order to remove any other tissues at the site. A 30 cm long 24G stainless steel wire suture was taken and pierced through the tubersity and then one end was pierced through the hole made horizontally on tibia (Fig.2). The leg was kept extended and the fractured fragment was pressed over the fractured site with digital pressure by the assisting surgeon, the wire suture was tightened, knot placed and curved inwardly to prevent injury to neighboring tissues (Fig.3). Then the joint was covered by the subcutaneous muscles and sutured using vicryl suture no 2. Skin incision was closed in routine fashion. The suture site was painted with povidone iodine and then

chloramphenicol capsule powder was applied and the site was applied bandage using kulpa soft sterile bandage keeping the joint in extended position. Then the leg was immobilized by using modified Thomas splint using G.I. wire, leucoplast and gauge bandage. The owner was advised to prevent the bandage from soiling and mutilation to

keep the animal with restricted movement with post operative administration of antibiotics, analgesic, oral calcium preparation and daily glucosamine chondroitin (100/800 mg PO sid). On 30th day of Thomas splint application the bandage was changed keeping the operated leg in original position.



Fig. 1. Stifle joint showing depression



Fig. 2. Insertion of SS wire



Fig. 3. Placement of mattress suture to Tibial tubersity with Tibia



Fig. 4. Radiograph showing Placement of mattress suture and tibial tubersity in original position

Results and Discussion

On 60th day the Thomas splint was removed and gentle hot fomentation was applied to the operated site. The animal was able to put the leg on ground bearing weight, but movement was restricted. It was advised

to go for massaging with gentle hot fomentation and passive movement of the joints. After 14 days of practice, the animal was able to attain normal function of leg with weight bearing and movement but with grade 1(out of 4) lameness. Avulsion fractures

occur when the insertion point of a tendon or ligament is fractured and distracted from the rest of the bone. Tension is the predominant force when avulsions fractures occur at a point when group of muscles originate or insert in the bone. The most effective way to resist tension is through application of a tension band. The purpose of a tension band is to convert distractive tensile forces into compressive forces as also mentioned by Fossum (2013). Since the tubersity was separated, owing to its small structure and for proper immobilization both internal and external immobilization were applied (Fig.4). The underlying musculature was repaired using vicryl suture preferring over chromic catgut of required size to provide more stability and rigidity of joint area for more days. In the present case, for reduction and stability both internal and external

immobilizations were preferred over single one owing to proximity.

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