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Surgical management of ruptured tendo achillis in a Labrador retriever dog: A case report

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Abstract

A two years old male Labrador retriever dog was presented to college clinic with a history of pet met with automobile accident and non-weight bearing lameness of right hind limb from two days. clinical examination revealed rupture of tendo achillis in the right hind limb. Tendon repair was achieved by bunnell mayer technique, followed by external coaptation by Robert Johns bandage. With good post-operative care, pet recovered uneventfully.

Keywords: Labrador dog, tendo achillis rupture, Bunnell mayer suture, Robert Johns bandage

1. Introduction

The Achilles tendon (*tendo calcaneus communis*) is one of the strongest tendon in the musculoskeletal system of dog. In dogs the *tendo calcaneus communis* originates from different muscle-tendon units that conjoin at the heel: the gastrocnemius tendon, the superficial digital flexor tendon, and the common tendon of the biceps femoris, gracilis and semitendinosus muscles (Spinella *et al.*, 2010) [9]. The etiology of most injuries are related to sharp object trauma, motor vehicle accidents and pet fights or aggressive interaction (Dal-Bó *et al.*, 2016) [3]. Tendon rupture result in pain, dysfunction with a diagnostic plantigrade stance in which tarsal flexion can occur concurrently with stifle extension (Reinke *et al.*, 1993) [7]. Ultrasound has been shown to be an excellent diagnostic method for imaging lesions of the common calcanean tendon and differentiation of total ruptures, partial ruptures, and those comprising muscular tears (Kramer *et al.*, 2001) [5]. The treatment recommended for an acute rupture of the tendo achillis is primary tenorrhaphy. The present case report deals with successful surgical management of ruptured tendo achillis in a Labrador retriever dog.

2. History and Clinical Examination

A two years old male Labrador Retriever dog was presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Bengaluru with a history of pet met with automobile accident and non-weight bearing lameness of right hind limb for two days. Thorough clinical examination, hyperextension of the hock joint with plantigrade stance and swelling at the distal portion of the tendo achillis (Fig. 1). Discontinuity of superficial and deep digital flexors were palpable with visible skin laceration at the caudo-dorsal aspect of the hock. Hence decided for surgical reconstruction of ruptured tendo achillis.

3. Treatment

Dog was prepared for aseptic surgery and premedicated with inj Atropine sulphate @ 0.04 mg/kg B.W. S/C and inj Xylazine @ 1 mg/kg B.W. I/M. After 10 minutes, animal was anesthetized with inj 2.5% Thiopentone sodium @ 12.5 mg/kg B.W, given to effect. Animal placed on lateral recumbency with affected limb facing upwards. Linear incision was made along the line of ruptured tendon and the ruptured superficial and deep digital flexor tendons were exteriorized. Both the tendons were sutured separately by bunnell mayer suture pattern using polypropylene No. 1. Subcutaneous tissue apposed by simple continuous pattern using chromic catgut No. 0 and the skin apposed by horizontal mattress pattern using polyamide No. 1. Surgical wound dressed and Robert johns bandage applied as external coaptation. Post-operatively antibiotic cephalexin 25 mg/kg B.Wt and analgesic meloxicam 0.3 mg/kg B.Wt P.O were administered. Skin sutures were removed on 10th postoperative day. With good post-operative care and management, pet recovered uneventfully after three months. (Fig.2)



Fig 1: Dog with hyper extension of right hock with plantigrade stance.



Fig 2: Dog with digitigrade stance after complete recovery.

4. Discussion

Frame *et al.*, (2019)^[4] reported the use of bidirectional-barbed suture for primary repair of a traumatic common calcaneal tendon rupture by modified Kessler knotless barbed technique. In our study, we anastomosed tendon edges by using polypropylene No. 1 in bunnell mayer pattern. Allawi *et al.*, (2019)^[1] used platelet-rich plasma with or without vein graft that this enhanced tendon healing and improved its mechanical function, which might be attributed to the synergistic effect of platelet-rich plasma with the vein graft where the vein provided the mechanical support, while PRP provided the biological enhancement. Loop-suture tenorrhaphy with application of autogenous leukoreduced platelet rich plasma at the repair site resulted in restoration of functional anatomic measurements, high canine orthopaedic index, and client satisfaction. To protect any repair, external coaptation is advocated, including the use of casts and splinted dressings, calcaneo-tibial screw and transarticular external fixation (Norton *et al.*, 2009)^[6]. In the present case we used Robert Johns bandage as external coaptation. The most commonly reported complications following repair of the common calcaneal tendon in dogs are associated with external coaptation, and gap formation, which will result in reduced long-term strength or ultimately failure of repair and recurrence (Corr *et al.*, 2010)^[2]. No such complications were reported in our study, except reduced functional strength.

5. Conclusion

A successful surgical management of ruptured tendo achillis by bunnell mayer technique using polypropylene has been reported.

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