

Surgical Management of Knuckling in a Calf

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Abstract

One month old calf was presented with congenital flexor tendon deformities (knuckling). The calf was operated and recovered uneventfully after forty five days.

Keywords: Calf; congenital; knuckling; surgery

Introduction

Congenital abnormality is defined as defective structure and function, which are present at birth (Badaway, 2011). Congenital malformations can result from defective genetics or environmental factors or combination of both (Shukla *et al.*, 2007) and are mainly by virtue of autosomal recessively inherited genes (Bryan *et al.*, 1993). Congenital contracted tendon occurs due to shortening of flexor tendons results in knuckling frequently involve fetlock joint but rarely carpal joint also (Singh *et al.*, 2020; Rashmi *et al.*, 2018). The aetiological origin of contracted flexor tendons include inherited factors, *in utero* nutrition, malposition and overcrowding caused by size of foetus relative to dam (Anderson *et al.*, 2008; Ferguson 1997). The degree of knuckling varies from slight knuckling of knee joint to complete flexion of pastern and fetlock joint. Singh *et al.* (2020) have reported are more involvement of hind limb and may be associated with cleft palate and arthrogryposis. Treatment of flexural deformity should be initiated immediately after recognition of problem because as calf get older contracted tissues become less responsive for treatment. Animal with mild knuckled fetlock joint stands and able to walk on its toe, while in advanced cases either animal falls or stumbles when it is made to walk. In severe cases dorsal aspect of pastern or fetlock rest on the ground which leads to excoriation skin. Mild cases generally do not require any treatment and gets self corrected when the calf exercises, frequent manual extension of joints to stretch ligaments, tendons and muscles aids in treatment. Daily improvement is seen and

condition gets resolved within few weeks. Temporary splints can be applied. Low toxic dose of oxytetracycline (20 mg/kg IV) daily for three consecutive days also have additional beneficial effect in managing moderate fetlock knuckling (Fazili *et al.*, 2014). Surgically, partial or complete tenotomy of superficial digital flexor and deep digital flexor tendon is undertaken depending on severity of knuckling. Stabilization of limb using PVC splint and soft bandage from elbow to hoof is recommended.



Fig. 1: Stretched tendon (Knuckling)



Fig. 2: Incise tendon in 'Z' shape

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History

One month old Gir cow calf was suffering from congenital flexor tendon deformities.

Knuckling management



Fig. 3: Suturing of tendon



Fig. 4: POP after tenotomy



Fig. 5: Side view of limb after recovery



Fig. 6: Back view after recovery

Treatment

Operation was performed under local anesthesia with Injection two percent Lignocaine and incision was made on medial side. Firstly the tendon capsule was incised and then superficial and deep digital flexor tendon was incised to increase its size by making 'Z' shape incision and then both end of tendon were sutured with non-absorbable suture material Polypropylene 2-0, tendon capsule was sutured with Vicryl 2-0 then Skin was sutured with simple interrupted suture with Silk material. Then Bandaging was applied and splint made of PVC pipe was applied all over the fore limb. Animal fully recovered after 45 days.

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