Surgical Management of Congenital Bilateral Flexural Deformity of the Metacarpophalangeal Joints in calf: A Case Report

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Abstract
A calf with congenital bilateral flexural deformity of the metacarpo-phalangeal joints was presented and subsequently diagnosed as contraction of superficial digital flexor tendons. It was treated with tenotomy of superficial digital flexor tendons.

Key Words: Flexural, deformity, metacarpophalangeal joint, calf, tenotomy

Congenital contracted flexor tendon, observed most frequently as flexion of the metacarpophalangeal or metatarsophalangeal joint within 1 or 2 weeks of birth, is a common defect in numerous breeds of cattle (Leipold et al., 1993 and Simon et al., 2010). However, it may also be acquired involving the deep and/or the superficial digital flexor tendons (Stashak, 2002). Aetiological origins of congenital contracted flexor tendon include inherited factors, in utero nutrition, malposition, the foetus being too large relative to the dam (Anderson et al., 2008 and Ferguson, 1997). The deformity may be mild, moderate or severe. Severe flexural deformities are also accompanied by arthrogryposis, involvement of multiple limbs and the head and neck and severe carpal deformities.

Case History and Observations
A calf with congenital bilateral flexural deformity of the metacarpo-phalangeal joints was evaluated for the physiological parameters such as respiration rate (RR), heart rate (HR) and rectal temperature (T). The blood samples were assessed for packed cell volume (PCV) and haemoglobin (Hb). For assessment of the angle at the affected fetlock joints, the calf was restrained without any premedication in lateral recumbency. The foot of the limb placed on the upper side was extended slightly and, using a protractor, the angle formed between a central longitudinal arbitrary line on the lateral aspect of the metacarpal bone with that of the central line of the corresponding foot was recorded (Sirin et al., 2014). The calf was then restrained on the contralateral side and the fetlock angle recorded in the same manner.

Treatment and Discussion
After injecting 3ml. of Xylocaine locally in the caudo-lateral aspect of the mid metacarpal region in each limb, the incisions were given at that part of the affected limbs of the calf. The superficial digital flexor tendons are cut and the incised areas were subsequently sutured with Sutupack no. 2 suture material. The sutured areas were dressed with Povidone Iodine. A splint made from an appropriately sized well-padded mature bamboo stick along with plaster of paris were applied at the anterior, medial and lateral sides of the region that starts from the proximal row of carpal bones up to the claw or third phalanx of the affected limbs. A single dose of 3 ml. of Melonex was given I/M as an analgesic and 5 ml. of Oxytetracycline was given I/M as antibiotic. The same dose of the antibiotic was repeated for 3 consecutive days. The owner was advised to assist the calf in standing and suckling and also directed to monitor the proper position of the splint so as to not to wet the POP cast by keeping the calf on dry gunny bag. The splint was removed after 20 days and the calf was encouraged to stand and walk for further evaluation. The calf recovered completely and responded enough to withstand light draught work.

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Malformations of the distal limbs are among the most frequent congenital anomalies found in humans and animals (Fazili and Syed, 2003; Leipold and Dennis, 1987; Talamillo et al., 2005). According to Anderson et al. (loc. cit), treatment of congenital flexural deformities should be initiated soon after recognition of the problem. As the animal gets older the contracted tissues become less responsive. Although visual and manual examination were the only available diagnostic aids for this case, it is clear that they were reliable methods for diagnosis as shown by the cure of the case after surgical interference. Most flexural limb deformities resolve with persistent nonsurgical management (Anderson et al., loc.cit). But surgical interference is routinely used in treatment of acquired contraction of digital flexor tendons after failure of other methods of treatment and when the case is still acute (Stick et al., 1992; Fulton et al., 1994; Hawkins and Ross, 1995; Southwood et al., 1999), but in this case there was no possibility for other methods of treatment due to severity and chronicity of the case and due to failure of manual extension of the affected joint, so the choice of surgical interference was the right decision to treat the case. Non-steroidal anti-inflammatory drugs (NSAIDs) provide analgesia to the calf and are useful for decreasing the pain associated with stretching of the contracted soft tissue caused by weight-bearing, passive stretching exercises, splints or casts (loc.cit). Only a single dose of an NSAID was used to avoid accentuation of the nephrotoxic effects of Oxytetracycline (Fazili et al., 2014).

The mechanism whereby Oxytetracycline exerts its effect is unknown but it is most likely associated with a muscle relaxant effect (Madison et al., 1994).

Summary
Forelimb bilateral knuckling is one of the most prevalent congenital musculoskeletal abnormalities affecting neonatal dairy calves. Most neonatal calves with moderate fetlock knuckling that present early for treatment can be managed satisfactorily with the proper application of the splints. Visual and manual examination methods along with surgical interference are key for the safe recovery of the calves affected by congenital flexural deformity of the metacarpo-phalangeal joints. Use of Oxytetracycline at a low-toxicity dose daily for three consecutive days has a small additional beneficial effect in managing moderate fetlock knuckling.

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References
Hypovolaemic Shock as a Consequence of Spontaneous Termination of Hydrallantois in a Cow and its Management – A Case Report

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Abstract

A crossbred Jersey biparous cow at seventh month of gestation developed hydrallantois and this paper described the successful management of hypovolaemic shock following spontaneous abortion.

Key words: Hydrallantois, Allantocentesis, hypovolaemic shock

Dropsy of allantoic sac is a sporadic condition in bovines. It may occur any time from 5th month pregnancy to full term with high frequency during the last trimester. Termination of the condition by an appropriate means should be the strategy in diagnosed cases. However, hypovolaemic shock poses a threat to the life of the dam due to sudden loss of allantois fluids. This paper describes successful management of hypovolaemic shock encountered in a case of hydrallantois in bovine.

Case History and Observations

A crossbred Jersey biparous cow at seventh month of gestation was brought to the ward at late evening hours in a state of ambulatory with the complaint of progressive abdominal distension over 15 days period, dullness and depression. Clinical inspection and examination revealed emaciation, dehydration, expiratory grunt and less volumes of transparent cervical discharge. Pervaginally cervix was found soft with intact seal and one finger could be passed through. Rectal palpation revealed fluid filled abnormally distended uterus which was moderately tense and occupied most of the abdominal cavity and entered into pelvic cavity. Neither foetal parts nor placentomes were felt. The condition was diagnosed as hydrallantois.

Treatment and Discussion

Initially the animal was stabilized with 2 liters of intravenous hypertonic fluids and administered B-complex, Dexamethasone 30 mg intravenous route and cloprostenol 500 μg intramuscularly to terminate the condition. However 15 hours later as the condition was found further deteriorated allantocentesis was attempted with Foley’s catheter mounted on AI gun through transcervical route to slowly drain out allantois fluids and to reduce the intra-abdominal pressure so

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