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Medico-physiotherapeutic management of bovine paraplegia: A review of five cases

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Abstract
Bovine paraplegia was observed in five cases, which included 03 cows with post- parturient affection (20-45 days), 1 old age cow and a buffalo heifer with severe femoral myositic affection. All animals were presented in lateral recumbency with inability to bear weight on their hind limbs. The hoist sling support provided to all animals and lifted for 30 minutes on first time followed by 30 minutes rest in sitting posture, gradually increased in lifting time by 20 minutes/day. Physiotherapy TENS, PEMF and hydrotherapy was applied twice a day in all animals along with Inj. Dicrysticin 2.5 g i/m, Inj. Meloxicam 0.5 mg/kg i/m, Inj. Tonophosphan 10 ml i/m, and inj. Neurobion forte 5 ml i/m injections. All animals started mild to moderate weight bearing on their limbs from 2nd to 4th day of treatment, while complete weight bearing was started from 5th to 7th day of treatment, but required hoist sling support to stand up. Hoist sling support was removed from 8th to 10th day and manual tail support was required in one case. The complete recovery was reported within 14-16 days in all animals.

Keywords: Physiotherapy, paraplegia, hoist sling

Introduction
Correa *et al.* (1993) [1] reported post-parturient bovine paraplegia also known as "downer cow syndrome" or "milk fever," and condition was primarily affected dairy cows shortly after calving, which is characterized by weakness or paralysis of the hind limbs due to low blood calcium levels (hypocalcaemia).
Post-parturient paraplegia was commonly observed in dairy cattle's of in India and indigenous rural methods *viz*., two bullock cart, soft badding and ropes used to provide lifting of laterally recumbent animal for treatment of paraplegia (Birade *et al.* 2012) [2].
Cows were clearly indicated of milk fever, several of these cows exhibited hypocalcaemia on the first day of sickness but not on following days (Gram, 1950) [4].
The physiotherapy treatment in hind quarter weakness showed comprehensive recovery in 3 canines after 5-7 days. Physiotherapy also provides meritorious treatment options for symptomatic pain relief in patients, resulting in improved quality of life (Ratnu and Parikh, 2022) [5].

Case History and Clinical Observation
Bovine paraplegia was observed in five cases, which included 03 cows with post- parturient affection (20-45 days), 1 old age cow and a buffalo heifer with severe femoral myositic affection. All animals were presented in lateral recumbency with inability to bear weight on their hind limbs.
Post-parturient affected cows were belongs to 3rd -5th lactation age; where one cow had slipped on hard floor with frog sitting posture, where as rest two cows were unable to get up without any history of falling down or traumatic injury, but clinical symptoms indicated stage 2 milk fever with retention of foetal membrane based on her history as a high milk producer and her nutritional deficiencies. One old age cow had 9th lactation age along with very weak and debilitated body condition with traumatic injury induced femoral myositic changes, while similar femoral myositic affection was recorded in the buffalo heifer with sever inflamed

affected limb. All affected animals were recumbent at the time of their first treatment. All animals were anorexic since 4-8 days. Clinical evaluation revealed a low state of overall health. The body temperature was below normal, and there was no detectable pulse in 3 cows, whereas old age cow and buffalo heifer had normal body temperature.

Treatment

Fig 1: Hoist Sling Support

Fig 2: PEMF Physiotherapy

Hoist sling support (Fig.1) was mandatory for all recumbent animals; where at initial level all affected animals were hoisted for only 20-30 minutes followed by 2 hours rest in sitting position. Gradually standing time increased by 30 minutes/ day followed by 2 hours rest and as progressively affected animals started bearing weight on affected limb animals was allowed to stand within hoist sling for 4-5 hours at a stretch followed by 4-5 hours rest in sitting position after 5-6th day of treatment.

Therapeutic management was done by intravenous infusion of 1000 ml of 5% Dextrose. 450 ml of 25% calcium borogluconate was administered slowly intravenously in all animals except buffalo heifer. Inj. Phosphorus preparation (tonophosh) @ 10 ml IM, Inj. Antihistaminic (CPM) @5ml were injected IM., Inj. Dicrysticin-S IM., Inj. Atrizone-S @ 10ml IM. & inj. Neurobion forte 5ml IM., Diclofenac diethylamine ointment was applied on inflamed femoral myositic cases for at least thrice a day.

Physiotherapy was given for 8 to 10 days by pulse electromagnetic field (PEMF) for 60 minutes twice a day (Fig. 2), followed by transcutaneous electro nerve stimulation (TENS) for 15 minutes on both hind limbs twice a day (Fig.3), whereas therapeutic ultrasound along with diclofenac diethylamine ointment for 60 minutes was applied twice a day in femoral myositic cases.

Fig 3: TENS Physiotherapy

Several methods are used to prevent milk fever, including feeding calcium-deficient diets in the late dry period, feeding calcium-rich rations 3–4 days prior to delivery, supplementing with vitamin D, reducing the dietary difference, and giving magnesium supplements in the final stages of pregnancy.

Results

All animals started mild to moderate weight bearing on their limbs from 2nd to 4th day of treatment, while complete weight bearing was started from 5th to 7th day of treatment, but required hoist sling support to stand up.

Hoist sling support was removed from 8th to 10th day and manual tail support was required in one case. The complete recovery was reported within 14-16 days in all animals.

Conclusion

Hoist sling is the life line for recumbent large animals as it helped to circulate more blood flow to the distal limbs and prevents non-use muscle atrophy and bad shores.

Physiotherapy is the complimentary and used in conjunction with conventional veterinary treatment, as it increased the rate of recovery.

Physiotherapy plays a significant role for the restoration, maintenance and promotion of not only optimal physical function, but also optimal wellness, fitness and quality of life.

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