Clinical Case Study on Congenital Kyphosis with Vertebral Arthrogryposis in Calf

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ABSTRACT
The present paper reports a typical case of congenital kyphosis and Arthrogryposis in 2 months old Calf unable to walk and was not able to bear weight on hind limbs without support. On radiographic examination space between vertebrae was reduced and ventral aspects of vertebrae were found to be fused.

Key words: Congenital, Arthrogryposis, Kyphosis, Calf and Surgery.

INTRODUCTION
Arthrogryposis is a common permanent joint contracture deformities present at birth1,2 reported Arthrogryposis for first time in 1950. Clinical condition of arthrogryposis has been reported in sheep, cattle, horses and goats1,3,4. The earlier finding have attributed arthrogryposis to either genetic or infective causes (Bunyaviridae). In cattle the incidence of Arthrogryposis is reported to be 37.2% in Lupine endemic areas of United States5. Commonly Arthrogryposis is associated with muscular atrophy which is supposed to be of nuerogenic origin6. Muscular atrophy in arthrogryposis has been attributed to no or decreased movement by the fetus due to a reduced innervations of muscles during pregnancy3,4. The present paper presents a typical case of posterior vertebral arthrogryposis with kyphosis in calf.

History and clinical observations
Three (3) months old crossbred male calf was presented to the teaching Veterinary Clinical Service Complex (TVCSC), Faculty of Veterinary Science and Animal Husbandry, (F.V.Sc and A.H), Alesteng. The calf was presented with history of weakness in hindquarters and was not able to stand without assistance since birth of calf three months ago. Calf was not able to bear weight properly on hindlegs and was not able to walk due to recumbent conditions the decubital sores were present on lateral aspect of the hindlimbs, forelimbs and facial region.

Clinical examination revealed excessive angulations of hock joint with convexity directed posteriorly. Both the hindlimbs were having normal angulations of joints upto hock joint from which it was upright. Except these skeletal abnormalities animal was normal in all vital parameters (body temperature, respiration rate, pulse and heart rate). Calf was suckling, urinating, and defecating and taking fodder normally, there was no history of anorexia. Animal was having dorsal curvature of spine in lumbar region (kyphosis). Hind lumbar region was having muscle atrophy and sensations were absent in hind limbs and tail.

On radiographical examination space between lumber vertebrae was found to be decreased and excessive dorsal curvature of lumber vertebrae was present (kyphosis) with associated abnormalities of the sacrum. Last lumbar vertebrae were found to be fused on ventral side. Coccygeal vertebrae of tail were found to arise from last lumber vertebra.

DISCUSSION
Arthrogryposis involve extreme form of contraction of tendons which results in deformity of joints which are extremely flexed or extended. Earlier studies have reported this clinical condition in wide spectrum of species horse, cattle, swine and caprine has attributed this clinical condition to genetic components because of indiscriminate inbreeding has proposed that chromosomal aberrations result in vertebral agenesis and Arthrogryposis. In addition to genetic determinants some plants contain teratogenic compounds if ingested by the pregnant cow can results in Arthrogryposis that have dose dependent effect on fetus.

The present calf was of normal body weight without any other associated congenital defects. The present finding is contrarily to earlier findings which have reported other associated defects with Arthrogryposis. The calf in present was found to have reduced sensation in hind portion of body which can be attributed to reduction in number of motor neurons. Reduction in motor neurons results in reduced locomotor capacity and fibrosis of the joints, predisposing joints to fixation i.e. arthrogryposis. No sensation was present in hind limbs which could be probably due to the malformation/incomplete genesis of spinal cord.

The prognosis of survival of calves affected with arthrogryposis is poor. The condition of arthrogryposis worsens with growth due to secondary effects caused by increased stress of weight gain.
CONCLUSION
The condition of arthrogryposis is a congenital condition caused by wide spectrum of etiological agents which includes teratogenic compounds, genetic determinants and infective cause. Various research findings have been attributed inbreeding as major cause for arthrogryposis. The disease has a poor prognosis so the etiological agents of disease should be identified and ameliorated.

REFERENCES