Neuroaxonal Dystrophy in Quarter Horses

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1. Introduction
Neuroaxonal dystrophy (NAD) is a degenerative disease of selected neurons and their axonal processes in the nervous system. The condition has been associated with neurologic disease in humans, sheep, cats, dogs, and horses. In horses, a familial tendency has been suggested by pedigree analysis and supported by breeding studies in Morgans and Appaloosa horses. A group of Quarter horses affected with NAD has been identified.

2. Materials and Methods
Three index cases were evaluated at 10, 11, and 24 mo of age for symptoms of neurologic disease. These cases showed symmetric ataxia of all four limbs, with the pelvic limbs more severely affected than the thoracic limbs. A neurologic assessment has been suggested by pedigree analysis and supported by breeding studies in Morgans and Appaloosa horses. A group of Quarter horses affected with NAD has been identified.

3. Results
The diagnosis of NAD was made on histopathologic examination of these three index cases. At post-mortem examination, dystrophic neurons and axonal spheroids were observed bilaterally symmetrically in the lateral (accessory) cuneate, medial cuneate, and gracilis nuclei of the caudal myelencephalon and in Clarke’s nuclei in the spinal cord.

4. Discussion
NAD is a cause of ataxia in Quarter horses presenting with mild to severe ataxia.