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Polioencephalomalacia

In Iowa Cattle

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POLIOENCEPHALOMALACIA is an acute or subacute disease of cattle and sheep characterized by bilateral blindness without visible eye lesions and by other symptoms of a central nervous system disorder. This disease has been called "forage poisoning" in Colorado and "blind staggers" in Wyoming. Since the symptoms and neuropathology of polioencephalomalacia were described by Jensen et al.,¹ it has been recognized in various sections of the country. In addition to Colorado and Wyoming, this condition has been recognized in California, Kansas, Nebraska, New York, and parts of Canada. It is con-

University. This paper relates the symptoms and lesions associated with one of these cases.

On September 24, 1960, an 18 month old Angus heifer was brought to the clinic after the owner had observed her wandering aimlessly in the pasture away from the other cattle. He described her attitude as "numb and listless." The duration of the abnormal behavior could not be determined since daily observations of the cattle had not been made. The temperature, pulse and respiration were normal, but no rumen movements were detected. On further observation it was noted that the heifer was blind in both eyes, but an ophthalmoscopic examination failed to disclose any gross lesions. The pupil reflexes were sluggish.

This clinical sign of amaurosis suggested the possibilities of acetonemia, lead poisoning, and polioencephalomalacia. Acetonemia was eliminated by laboratory findings. While the possibility of lead poisoning could not be excluded, the owner did not think the cattle had access to compounds containing lead. The fine muscular tremors about the nostrils, ears and other parts of the body, the excessive salivation and chewing movements typical of lead poisoning were not observed. A tentative diagnosis of polioencephalomalacia was made.

Treatment at this time was the administration of a saline laxative to hasten the removal of toxic material from the digestive tract. Intravenous injection of dextrose was given as a supportive measure.



Fig. 1. View of bovine in opisthotonic seizure.

sidered one of the more important nervous disorders of cattle in many of these areas. While the incidence of polioencephalomalacia is probably very low in Iowa, two cases have been confirmed at Iowa State

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Cerebrospinal fluid studies revealed an increased leukocyte count of 150 per cubic millimeter, an increase in protein and a pressure reading of 275 millimeters of water. Little differential diagnostic significance was attached to these findings since similar changes may occur in various central nervous system disturbances.

Depression became more pronounced each day, and by the fourth day following admission to the clinic, the animal had to be assisted to its feet. Opisthotonus was noted and the heifer tended to push against objects. Weakness in the right foreleg was evident. The patient became progressively weaker and an alternation between tonic and clonic spasms of various groups of muscles was observed. The animal was destroyed on the eighth day *in extremis*.

On necropsy, no significant lesions were observed in tissues other than the brain. Areas of yellowish discoloration associated with softening were observed. Microscopic lesions of the visual cortex (Figure 2) were very pronounced.



Fig. 2. Cerebral cortex. A. Fairly normal cerebral cortex. B. Initial lysis and removal of necrotic tissue to form small cavity in cerebral cortex.

Both the symptoms and the lesions of this case were typical of subacute polioencephalomalacia as described by Jensen et al. The course of the subacute form is stated to be several days. Partial to complete recovery has been noted in approximately 50% of the cases of this type.

In acute polioencephalomalacia the affected animals are usually found prostrate and comatose. Early stages of the acute form are rarely seen, and these animals showed severe muscular tremors, twitching of the ears, eyelids, and facial muscles, and occasionally convulsions. Jensen et al. emphasized that bilateral impairment of vision was a constant feature of this disease, but no pathological changes of the eye were discernible.

The etiological agent of this disease is unknown, but it is thought to be caused by an intoxication. Transmission studies have been negative, and the disease has not been reproduced by the experimental feeding of material suspected of causing polioencephalomalacia.

No specific treatment has been recommended other than purgation and supportive measures. In affected herds a change of feed or pasture has been recommended to prevent additional cases from developing.

References

1. Jensen, R., Griner, L. A., and Adams, O. R.: Polioencephalomalacia of Cattle and Sheep. *J.A.V.M.A.*, 129 (1956): 311-321.

Birds today rank second to dogs and cats as the most popular pets. Parakeets, canaries, parrots, love birds, and mynah birds are the most popular.

Swine survivors of transmissible gastroenteritis may shed the virus in the feces for at least eight weeks following infection, and the virus may remain viable up to ten days outside the animal body at room temperature.