Malignant Catarrhal Fever in a Calf in Espírito Santo State, Brazil: Report of the First Case

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Abstract

A case of malignant catarrhal fever (MCF) is described in a 9-month-old, male, mixed breed calf from Espírito Santo State, southeastern Brazil. MCF had not yet been described in this region. The clinical course was 5 days and clinical signs included proprioceptive deficits, depression, dyspnea, coughing, nasal discharge, and erosive-ulcerative lesions in the oral cavity. Necropsy findings included erosive-ulcerative lesions in the alimentary tract and bronchopneumonia. Histopathological exam revealed widespread lymphoplasmacytic vasculitis associated with fibrinoid necrosis of vessel walls, mainly in the vessels of carotid rete mirabile. The diagnosis of MCF was made based on clinical, necropsy and histological findings.

Key Words: Diseases of cattle, viral diseases, malignant catarrhal fever, pathology.
Necropsy was performed in the Departamento de Anatomia Patológica from the Centro Universitário Vila Velha (UVV) in May, 2008. Grossly there were numerous erosions and ulcers covered by fibrin throughout the oral and abomasal mucosae. Generalized lymphadenomegaly and leptomeningeal hyperemia were also observed. Lungs were dark red and heavy and did not collapse after opening of the thoracic cavity. A mucopurulent content was observed oozing out from the pulmonary cut surface. Several tissues were immersed in 10% formalin, routinely processed to histology, and stained with hematoxylin and eosin. Histological examination revealed widespread lymphoplasmacytic arteritis mostly in the vessel walls from intestinal submucosa, kidney, liver, lungs, and brain. Small arteries from carotid rete mirabile also showed lymphoplasmacytic arteritis predominantly in the adventitia and in a lesser degree in the tunica media. Fibrinoid necrosis of the tunica media was also observed in these blood vessels (Fig.1). Marked inflammatory infiltrate was seen surrounding and within the lumen of numerous bronchi, bronchioli, and in the alveolar walls (bronchointerstitial pneumonia). The lining epithelium from the digestive and respiratory tract and from the renal tubules showed multifocal areas of necrosis associated with lymphoplasmacytic arteritis.

The transmission of MCF occurs by the contact with sheep during the parturition period (14, 16). The calf herein described was kept in close contact with sheep and presented with clinical signs after had been held in an agricultural fair. It is possible that potential stressing conditions during the exposition could have played a role in the reactivation of a previous latent virus (3). The diagnosis of MCF was made based on clinical signs, gross findings, and histopathology. The vascular changes observed in this case are important in the diagnosis of MCF as the disseminated vasculitis has been for long time described as characteristic for MCF (7, 8). Moreover, histopathology is considered a definitive diagnostic tool by some authors (2, 12, 15).

Rabies, meningoencephalitis by bovine herpesvirus, MCF, and Aujeszky’s are the five neurological viral diseases that have been reported in Brazilian cattle (1). It is important to make a clear distinction among these diseases due to the importance of the Brazilian bovine spongiform encephalopathy surveillance system. The examination of the carotid rete mirabile, pituitary gland, and Gasserian ganglia is recommended in all cases of neurological disease in cattle. This procedure might be important in the differentiation between MCF and other diseases of central nervous system in cattle (5).

The clinical differential diagnosis of MCF should also include bovine viral diarrhea/mucosal disease, foot and mouth disease, blue tongue, rinderpest, and vesicular stomatitis. It is possible to rule out some of these infections by epidemiological features as MCF causes high mortality and low morbidity. Additionally, cattle affected by MCF will develop lymphoplasmacytic vasculitis with fibrinoid necrosis in the vessels of the carotid rete mirabile (2). The present report is important under the scope of the epidemiological aspects of MCF in Brazil, since no cases of this disease have been documented in Espírito Santo.

References

4. COULTER LJ., WRIGHT H., REID HW. Molecular genomic characterization of the viruses of...


17. TORRES S. Óca, mal do chifre ou coryza gangrenosa dos bovinos. Boletim da sociedade brasileira de medicina veterinária, 1924, 1, 144-59.