XI Congresso Nazionale AIPVet 2014 - Pisa, 16-18 Giugno 2014

PATHOLOGICAL AND IMMUNOHISTOCHEMICAL EVALUATIONS OF EQUINE INFECTIOUS ANEMIA INFECTION IN MULES

Cocumelli Cristiano, Eleni Claudia, Scicluna Maria Teresa, Nardini Roberto, Amoruso Cristina, Autorino Gian Luca

Istituto Zooprofilattico Sperimentale delle Regioni Lazio e Toscana, Roma

Aim of the study

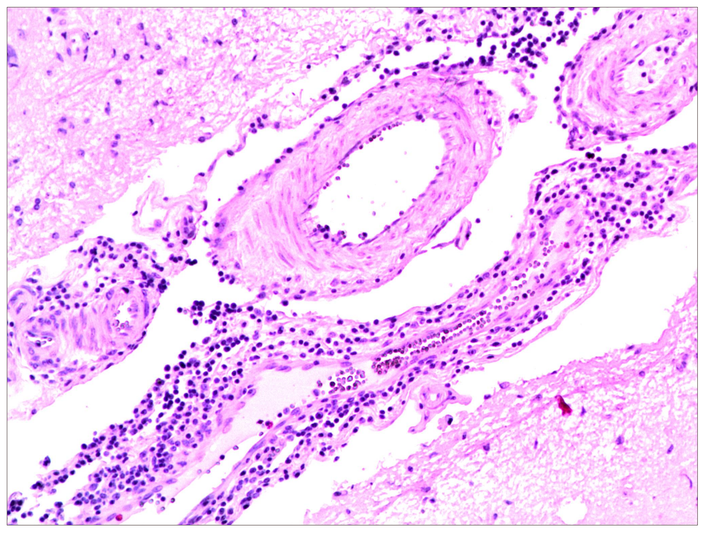
Following the implementation of a National surveillance program for equine infectious anaemia (EIA), a high seroprevalence was detected among italian mules population. EIA infection in mules has been studied limitedly. To increase the knowledge about the pathogenesis of EIA virus (EIAV) in mules and to better understand their role in the epidemiology of the infection, a study was conducted.

Material and methods

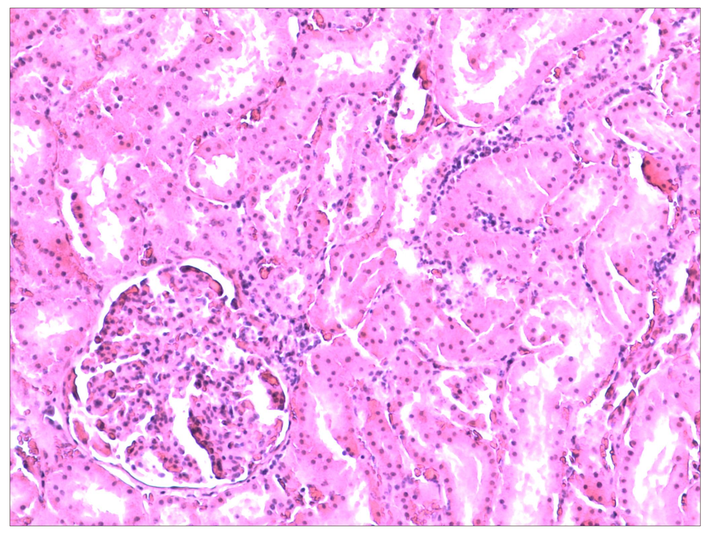
Naturally EIA-infected mules were immunesuppressed. At the end of the observation period, the mules were euthanized, and their organs were examined for gross and microscopic lesions. Furthermore, immunohistochemistry (IHC) was conducted to investigate the distribution of the virus.

Results

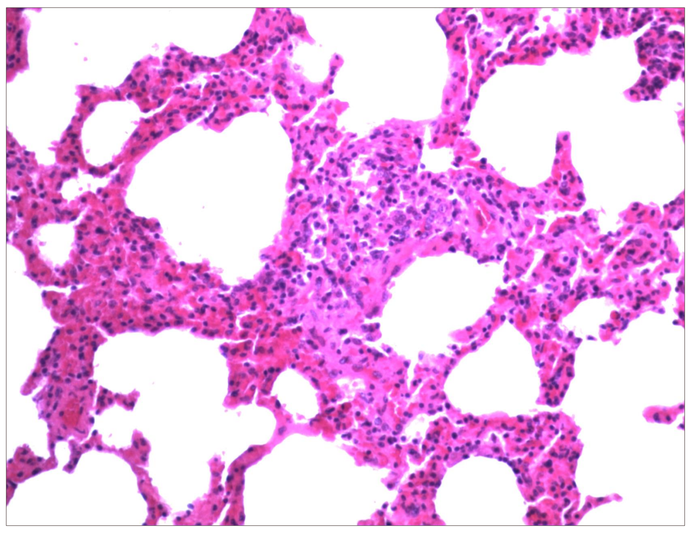
At necropsy, no relevant gross lesions were observed. Microscopic examination of the different animals revealed mild multifocal haemorrhages in several tissues, moderate to severe hemosiderosis in spleen and lymphnodes and mild to moderate lymphoid infiltrates, mainly in kidney, and lesser in liver and in the adrenal glands. Membranous glomerulonephritis was detectable in about 40% of the kidney. In the lungs, a mild interstitial pneumonia characterized by slight hypercellularity and thickening of the alveolar septa was evident. Interestingly, mild lymphocytic miocarditis with fibres degeneration, together with a multifocal, mild to moderate, lymphocytic meningoencephalitis, with perivascular cuffings thicker in the brain stem, were observed.



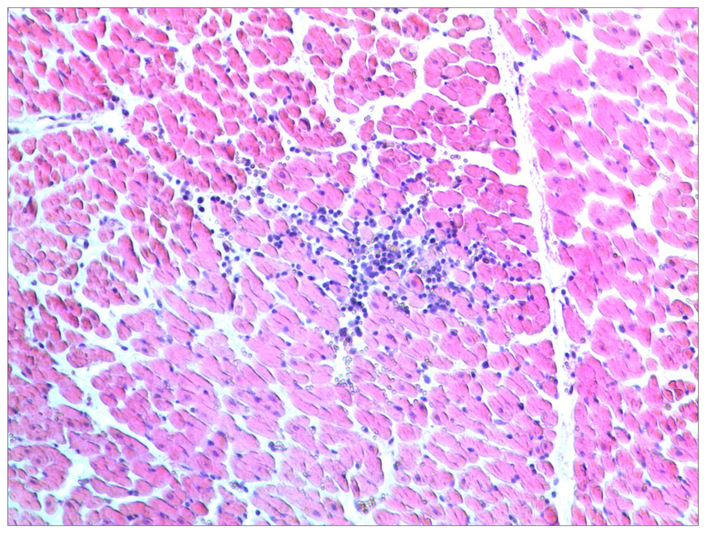
Brain. Moderate, diffuse lymphocytic and plasmacytic meningitis. EE, 10x.



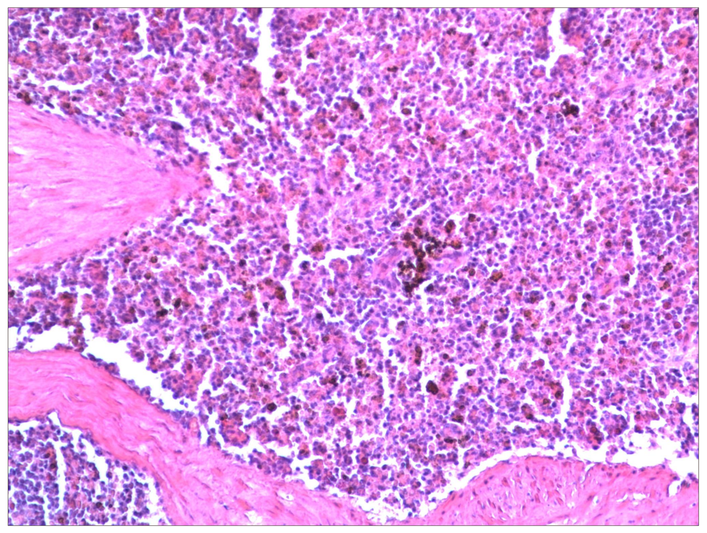
Kidney. Mild, multifocal lymphocytic and plasmacytic interstitial nephritis and mild, diffuse, membranoproliferative glomerulonephritis. EE, 10x.



Lung. Mild, diffuse, lymphocytic interstitial pneumonia. EE, 10x.

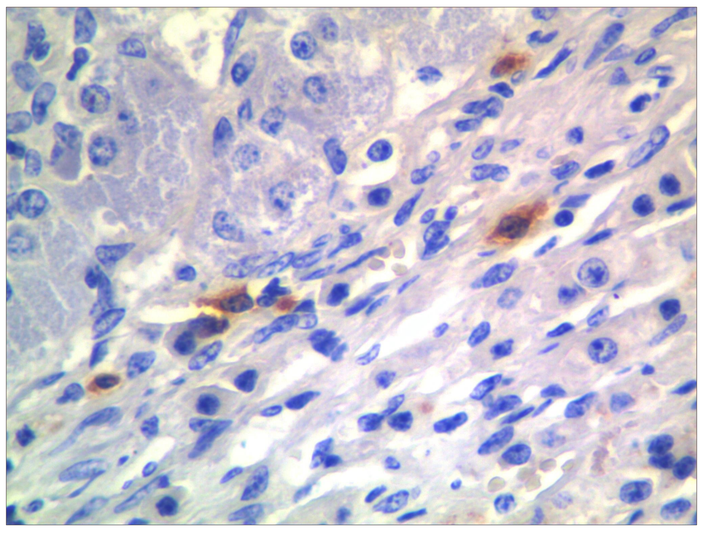


Hearth. Mild, multifocal, lymphocytic myocarditis. EE, 10x.

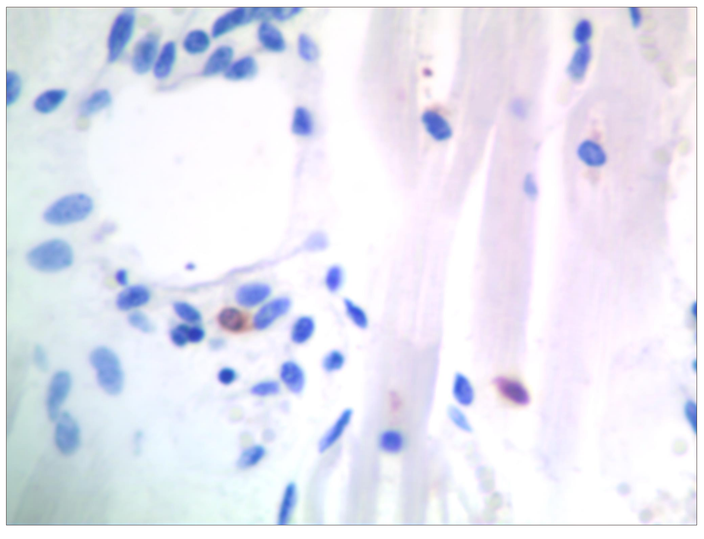


Spleen. Moderate to severe, diffuse, hemosiderosis. EE, 10x.

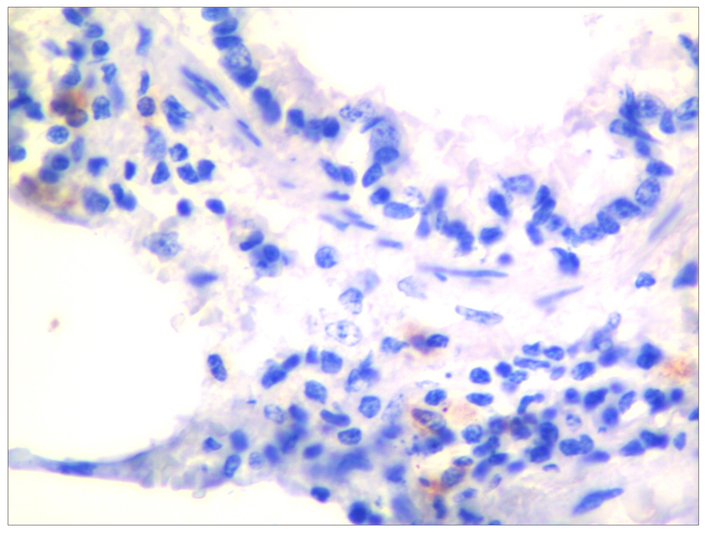
IHC, performed with a monoclonal antibody anti-p26 protein, detected EIAV infected cells in different tissues, both in sites as well as in the absence of lesions; this is particularly true in the adrenal glands, were a high number of positive reacting macrophages were detected in the medulla, and in the heart, with a lower positivity in the interstitial space. In contrast to what described in horses, the amount of positive cells in spleen seem to be lower. A positive signal was revealed mainly in the periportal areas of the liver, the alveolar septa of lungs and interstitium of the kidney cortex, and generally limited to cells morphologically resembling macrophages.



Adrenal gland. Anti-p26 MAb, 40x. Hematoxylin counterstain



Hearth. Anti-p26 MAb, 40x. Hematoxylin counterstain



Lung. Anti-p26 MAb, 40x. Hematoxylin counterstain

Conclusions

Microscopic lesions and EIAV localization in mules, highly resembles the infection described in horses. However, differently from what is reported for certain strains of EIAV in horses, no virus was detected in the endothelia. The present description is a preliminary contribution for the study of pathological alterations and EIAV localization in non-horse species.

Bibliography

T. C. McGuire et al. Immunofluorescent localization of equine infectious anemia virus in tissue. Am J Pathol. Feb 1971; 62(2): 283–294. Spyrou V et al. Equine infectious anemia in mules: virus isolation and pathogenicity studies. Vet Microbiol. 2003 Aug 29;95(1-2):49-59. J. Lindsay Oaks et al. Equine Infectious Anemia Virus Is Found in Tissue Macrophages during Subclinical Infection. J Virol. Sep 1998; 72(9): 7263–7269.