

Diagnostic Exercise

From The Davis-Thompson Foundation*

Case #: 119 Month: April Year: 2019

Answer Sheet

Title: Equine multinodular pulmonary fibrosis

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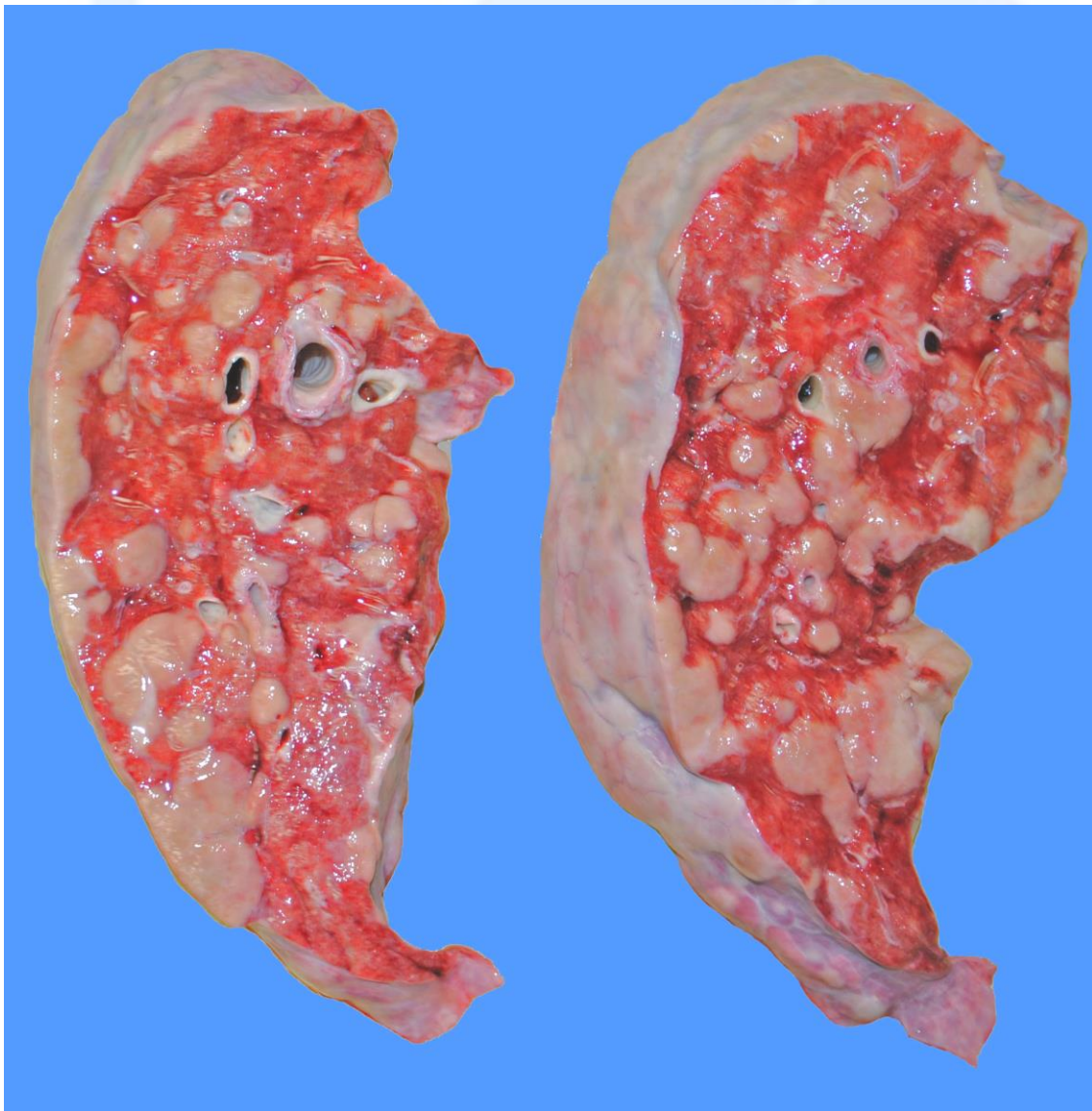


Figure 1 - Right lung lobe, cut surface.

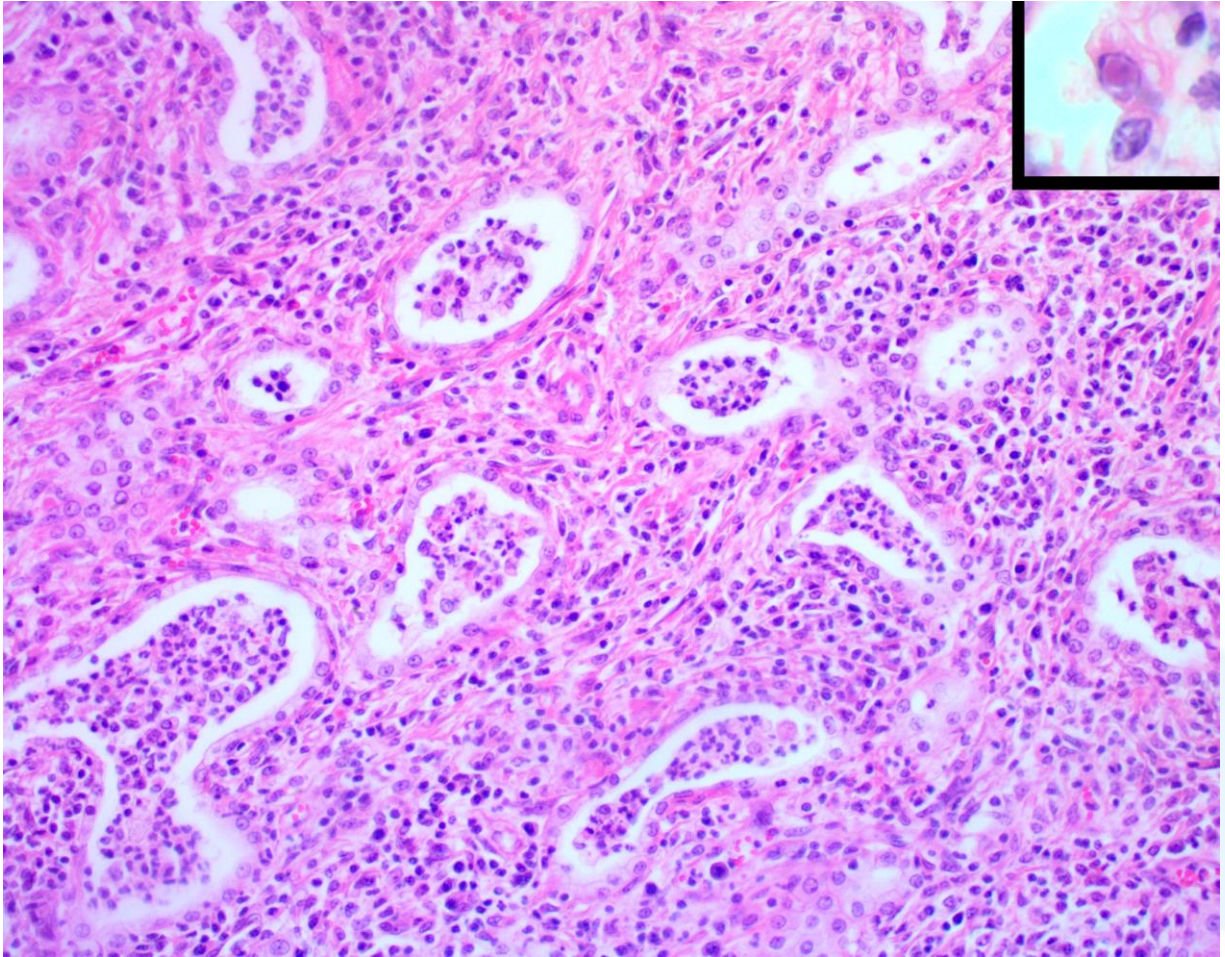


Figure 2 - Lung, 20X. Inset 60X. Hematoxylin and eosin.

Morphologic diagnosis: severe chronic multifocal nodular and fibrosing interstitial pneumonia

Name the disease: equine multinodular pulmonary fibrosis

Etiology: *Equid gammaherpesvirus 5*

Typical gross findings:

- Discrete, multifocal to coalescing, tan-white, variously firm nodules that range from <1 cm up to 10 cm in diameter are located in both lung lobes.
- Nodules are separated by unaffected, normal pulmonary parenchyma.
- Bronchial lymph nodes are frequently enlarged.

Typical microscopic findings:

- Well-demarcated nodules are surrounded by normal parenchyma. The interstitium within nodules is expanded by large amounts of fibrous connective tissue that is infiltrated with minimal to low numbers of lymphocytes, plasma cells, neutrophils, and macrophages.
- Alveolar spaces are typically retained and contain low to moderate numbers of neutrophils and macrophages and small amounts of cell debris. Macrophages occasionally contain large acidophilic, intranuclear, viral inclusion bodies. Alveolar septa are lined by hypertrophied and hyperplastic type 2 pneumocytes.
- Bronchial lymph nodes exhibit lymphoid hyperplasia with increased numbers of macrophages and multinucleated giant cells in the sinuses.

Discussion: Equine multinodular pulmonary fibrosis is a relatively recently described entity of middle age to older horses. This progressively fibrotic and inflammatory disease can develop in horses of either sex and any breed. Clinical signs typically consist of increased respiratory effort, tachypnea, lethargy, fever, weight loss, and anorexia. The pathogenesis is not known, but *Equid gammaherpesvirus 5* (formerly *Equine herpesvirus 5*) is frequently associated with the disease and identified within the lesions.

References:

Williams KJ, R Maes, F Del Piero, A Lim, A Wise, DC Bolin, J Caswell, C Jackson, NE Robinson, F Derksen, MA Scott, BD Uhal, X Li, SA Youssef, and SR Bolin. Equine multinodular pulmonary fibrosis: A newly recognized herpesvirus-associated fibrotic lung disease. *Vet Pathol* 2007. 44:849-862.

Wong DM, RL Belgrave, KJ Williams, F Del Piero, CJ Alcott, SR Bolin, CM Marr, R Nolen-Walston, RK Myers, and PA Wilkins. Multinodular pulmonary fibrosis in five horses. *J Am Vet Med Assoc* 2008. 232:898-905.

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