Contributors: Erin K. Morris, DVM, Diplomate ACVP. Case Contributor for International Veterinary Pathology Coalition; WRAIR-NMRC. Forest-Glen Annex, MD; Virginia Pierce, VMD, Maryland Department of Agriculture.

Clinical History: Presented for necropsy is a 2-year-old, black and white crossbred heifer (no ear tags), weighing 875 pounds, in good nutritional and postmortem conditions that was found dead. There was no change in diet or environment. The heifer was fed pasture and hay only.

Gross and Microscopic Images:

Figure 1. Lung with distinct line of demarcation between hyperinflated (top) and consolidated (bottom) tissue.
Figure 2. Lung (close-up) with fibrinous pleuritis, interlobular edema, and hemorrhage.

Figures 3 and 4. Lung (cross section) with consolidation of the parenchyma (Figure 3) and “golf ball” sized abscesses underlying areas of fibrinous pleuritis (Figure 4).
Necropsy Findings: The eyes are sunken (dehydration). There is no external evidence of trauma. There is abundant subcutaneous and visceral fat. The liver, kidneys, and spleen are grossly normal. The uterus is not gravid, although there is a focal circumferential reddening of the mucosa of the right uterine horn (4 cm wide band) and in the lumen within that band there is a small (5 mm diameter) blood clot; the remainder of the uterine horns, uterine body and the ovaries are grossly normal. The urinary bladder is empty. The rumen, reticulum, and omasum contain dry fibrous plant material with no grain, no foreign bodies, and no evidence of poisonous plants. The abomasal mucosa is red and edematous; the abomasum contains brown fluid, black stones and partially digested hay. The small intestines, cecum, colon, and mesenteric lymph nodes are grossly normal. The cranioventral regions of both lungs are very firm and dark red mottled with yellow; the visceral pleural surfaces of the affected lung regions are elevated, with a ground glass appearance and fibrinous adhesions to the parietal pleural surfaces. There is a sharp line of demarcation between the consolidated cranioventral lung and the dorsocaudal hyperinflated, pink (normal) lung fields. Sections from the cranioventral lungs sink in formalin. The heart and great vessels are grossly normal. The tongue, teeth, caudal oral cavity, skull and brain are grossly normal. In five scattered foci around the thoracic inlet and the cranial area of the left shoulder, there is severe red-tinged subcutaneous and intramuscular edema, and scattered foci with acute intramuscular hemorrhage and edema. Axial and appendicular muscles in other parts of the body are grossly normal.
**Figure 6.** A terminal bronchiole contains fibrinonecrotic exudate. An adjacent blood vessel has a thrombus. Surrounding alveolar lumens contain viable and degenerate neutrophils, pulmonary macrophages, fibrin and edema. 400X, H&E.

**Follow-up questions:** Morphologic diagnosis; Condition; Possible cause(s).

The material has been reviewed by the Walter Reed Army Institute of Research. There is no objection to its presentation and/or publication. The opinions or assertions contained herein are the private views of the author, and are not to be construed as official, or as reflecting true views of the Department of the Army or the Department of Defense.

*The Diagnostic Exercises are an initiative of the **Latin Comparative Pathology Group (LCPG)**, the Latin American subdivision of The Davis-Thompson Foundation. These exercises are contributed by members and non-members from any country of residence. Consider submitting an exercise! A final document containing this material with answers and a brief discussion will be posted on the CL Davis website ([http://www.cldavis.org/diagnostic_exercises.html](http://www.cldavis.org/diagnostic_exercises.html)).

**Associate Editor for this Diagnostic Exercise:** Ingeborg Langohr  
**Editor-in-chief:** Vinicius Carreira