Peripheral lymphadenomegaly in a Jack Russell Terrier

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Specimen
Peripheral lymph node aspirates (cytology smears, RPMI 1640-preserved specimens), lung aspirates, EDTA whole blood.

Signalment
Dog, Jack Russell Terrier, 13 years old, male neutered.

History
Referred for investigation of generalized lymphadenomegaly that was noticed two weeks prior to admission.

Clinical findings
The dog was bright, alert, and responsive but exhibited generalized severe lymphadenomegaly and hepatosplenomegaly. A complete blood count (ADVIA® 2120 Hematology System, Siemens Healthineers, Malvern, PA, USA) revealed moderate thrombocytopenia which was confirmed with a blood smear examination where no platelet clumps were seen (Table 1). Serum biochemistry was unremarkable. A serological point-of-care ELISA test (SNAP Leish 4Dx test, IDEXX Laboratories Inc., Westbrook, ME, USA) for *Leishmania infantum*, *Ehrlichia* spp. and *Anaplasma* spp. antibodies and *Dirofilaria immitis* antigen was negative.

Fine-needle aspirates were obtained from the submandibular, prescapular, axillary, and popliteal lymph nodes and submitted for cytological evaluation (Figures 1-6).

Extensive soft tissue diffuse opacities were identified in the left lung on plain radiographs. Ultrasound-guided aspiration of the pulmonary lesions was performed and submitted for cytological evaluation (Figures 7-10). Abdominal ultrasonography indicated severe enlargement of hepatic lymph nodes. Moderate mesenteric lymphadenopathy, and mild gastric and internal iliac lymphadenomegaly was also noted. The spleen exhibited moderate splenomegaly with diffuse hypoechogenicity.

The thoracic CT scan revealed severe enlargement of the sternal, tracheobronchial, and mediastinal lymph nodes. Consolidation was noted in the caudal part of the left cranial

lung lobe, with alveolar-pattern infiltrates and extensive areas of complete loss of aeration (Figure 11).

Questions

1. What is your cytologic description of the lymph node and pulmonary aspirates?
2. What are the main differential diagnoses based upon cytologic examination?
3. Which are the next steps in the diagnostic investigation?

Table 1. Complete Blood Count (ADVIA® 2120 Hematology System, Siemens Healthineers, Malvern, PA, USA)

Parameter	*Value*	*Reference Interval*
Red blood cells (x10^9/µL)	**5.41**	**5.50-8.50**
Hemoglobin (g/dL)	14.2	12.0-18.0
Hematocrit (%)	42.2	37.1-55.0
Mean corpuscular volume (fL)	**78.1**	**60.6-77.0**
Mean Corpuscular Hemoglobin Concentration (g/dL)	33.6	31.0-36.2
Red Cell Distribution Width (%)	13.7	11.9-14.5
Reticulocytes (x10^3/µL)	99.1	10.0-110.0
White Blood Cells (x10^3/µL)	11.6	6.0-17.0
Neutrophils (x10^3/µL)	7.1	3.9-8.0
Lymphocytes (x10^3/µL)	3.5	1.3-4.1
Monocytes (x10^3/µL)	0.6	0.2-1.1
Eosinophils (x10^3/µL)	0.29	0.00-0.60
Basophils (x10^3/µL)	0.03	0.00-0.10
Large Unstained Cells (x10^3/µL)	0.06	0.00-0.30
Platelets (x10^3/µL)	**117**	**200-500**
Mean Platelet Volume (fL)	**11.6**	**5.4-9.2**

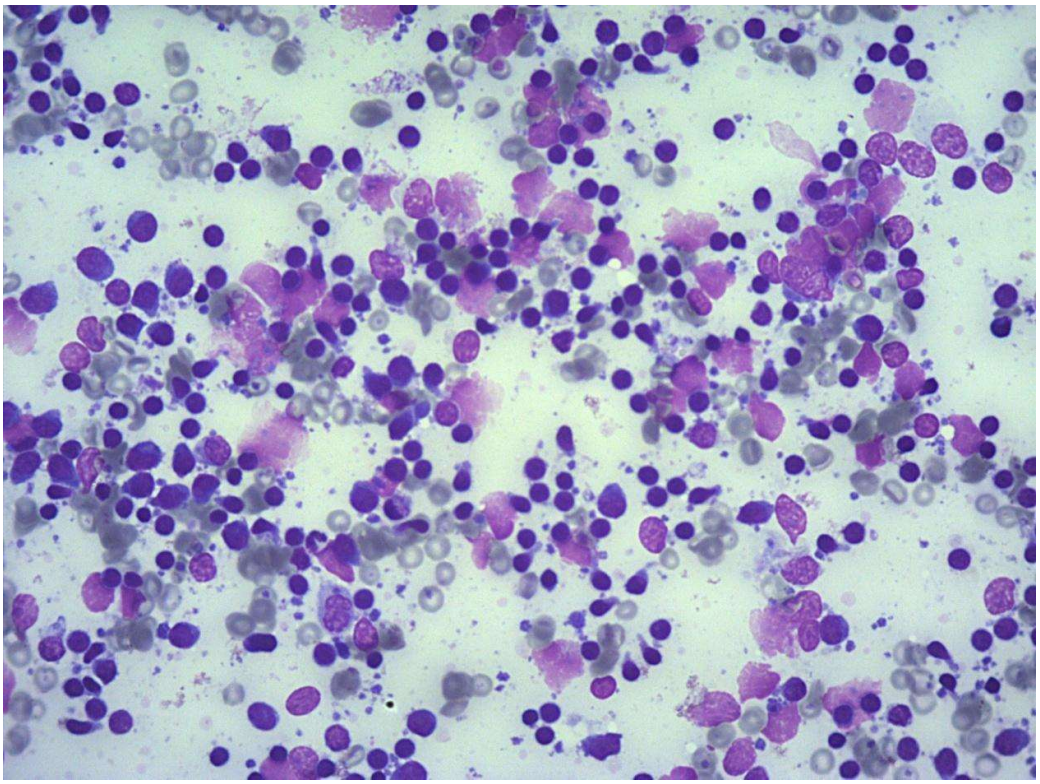

Figure 1. Fine needle aspirate of the right submandibular lymph node (x400, Giemsa)

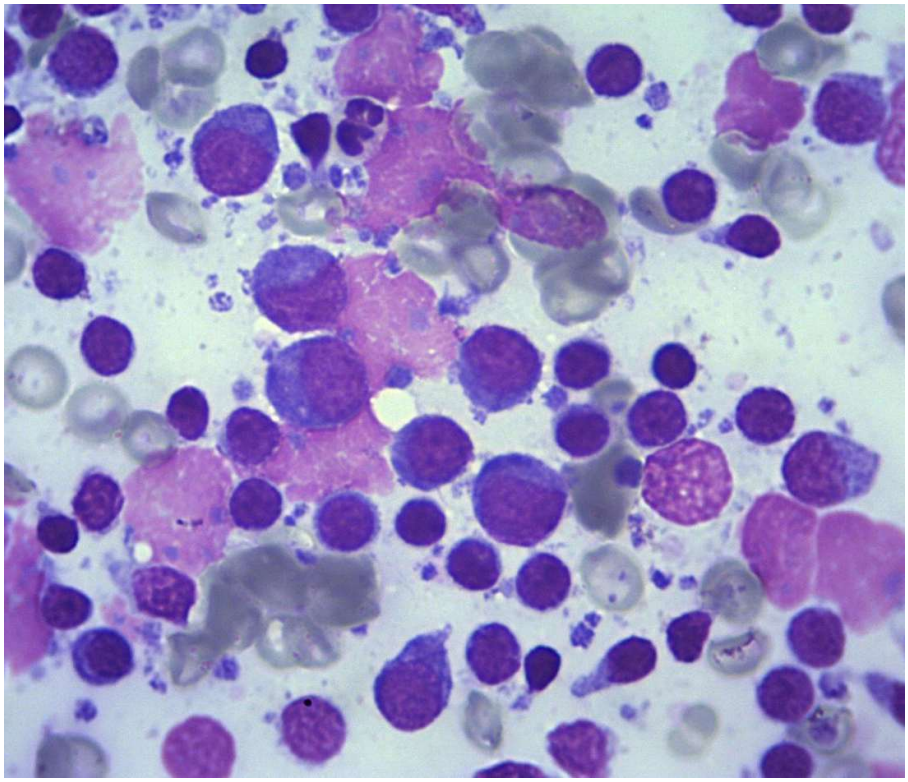

Figure 2. Fine needle aspirate of the right submandibular lymph node (x1000, Giemsa)

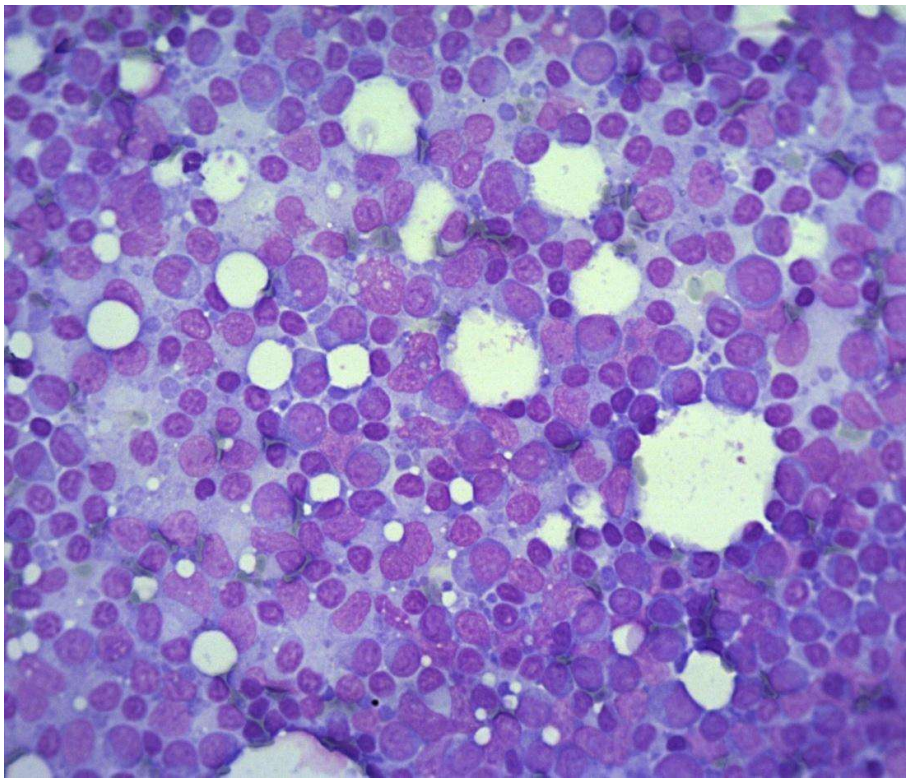

Figure 3. Fine needle aspirate of the left popliteal lymph node (x400, Giemsa)

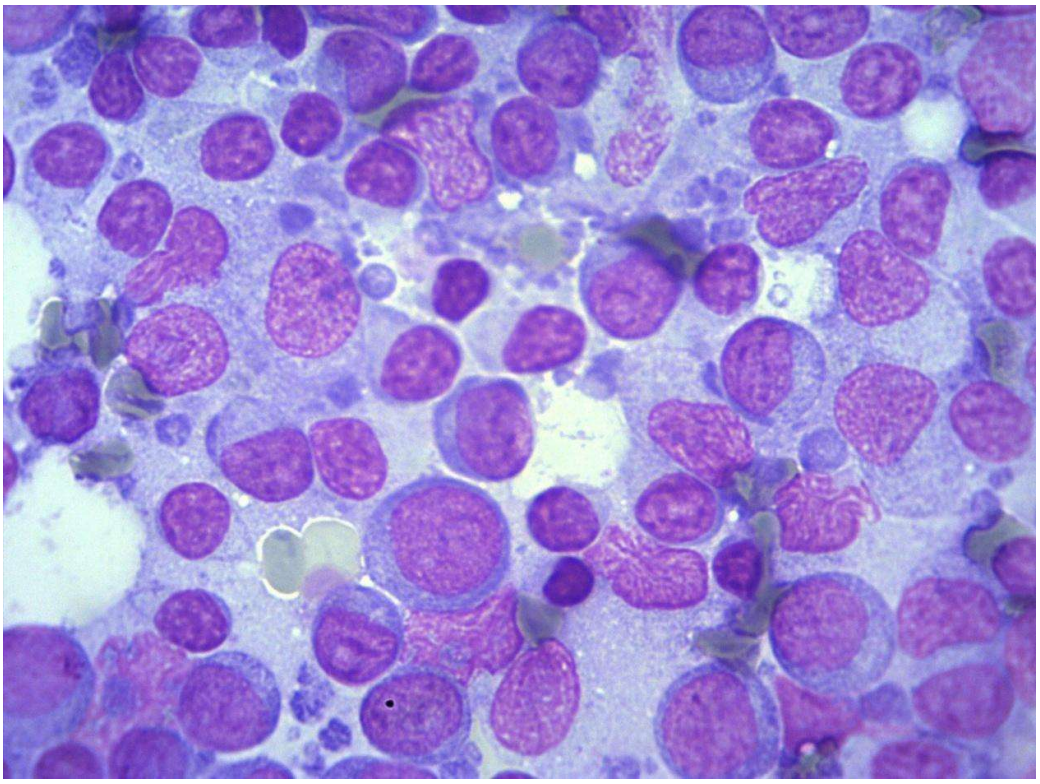

Figure 4. Fine needle aspirate of the left popliteal lymph node (x1000, Giemsa)

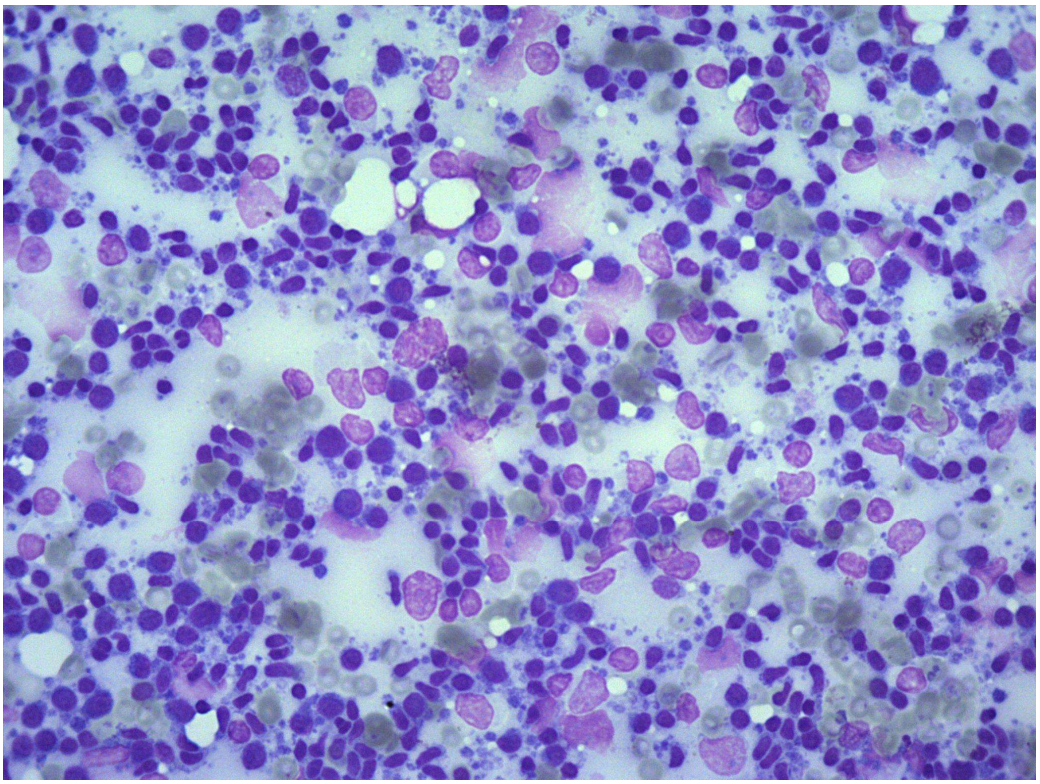

Figure 5. Fine needle aspirate of the right popliteal lymph node (x400, Giemsa)

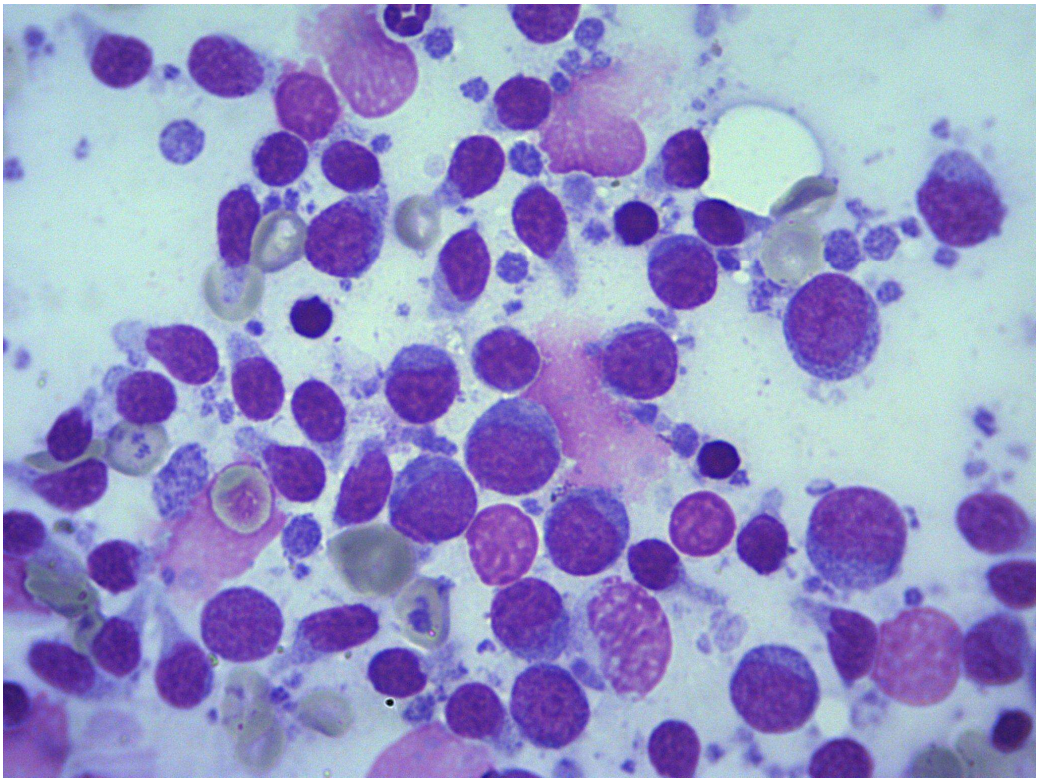

Figure 6. Fine needle aspirate of the right popliteal lymph node (x1000, Giemsa)

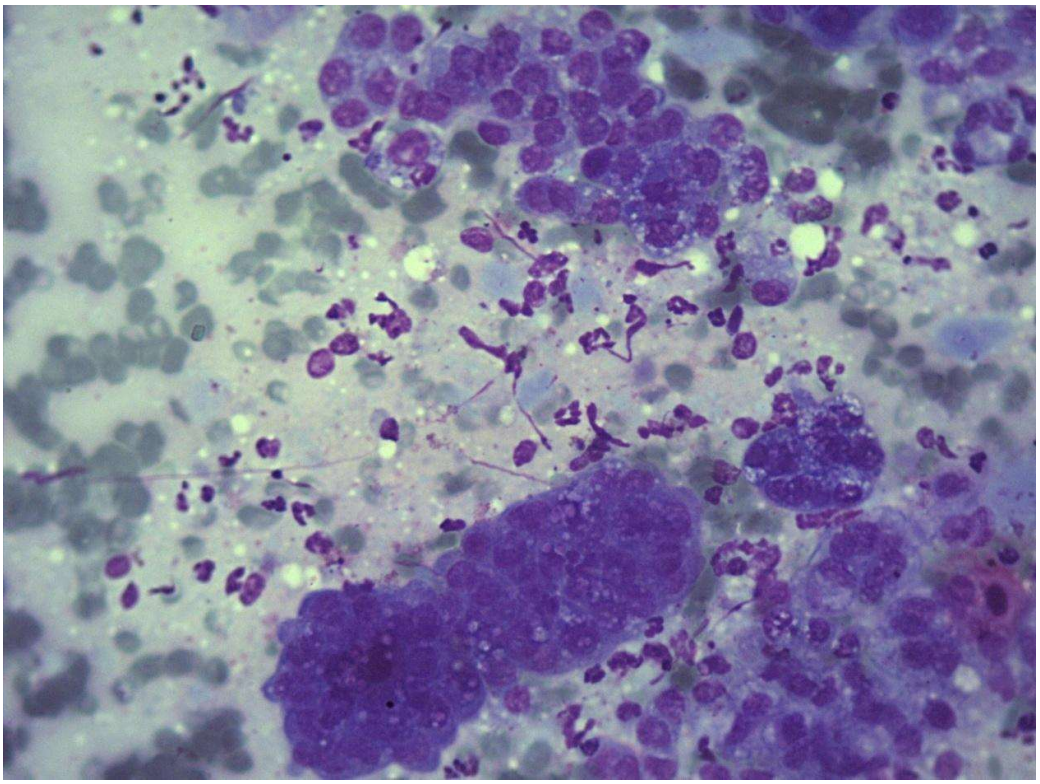

Figure 7. Fine needle aspirate of the pulmonary lesions (x400, Giemsa)

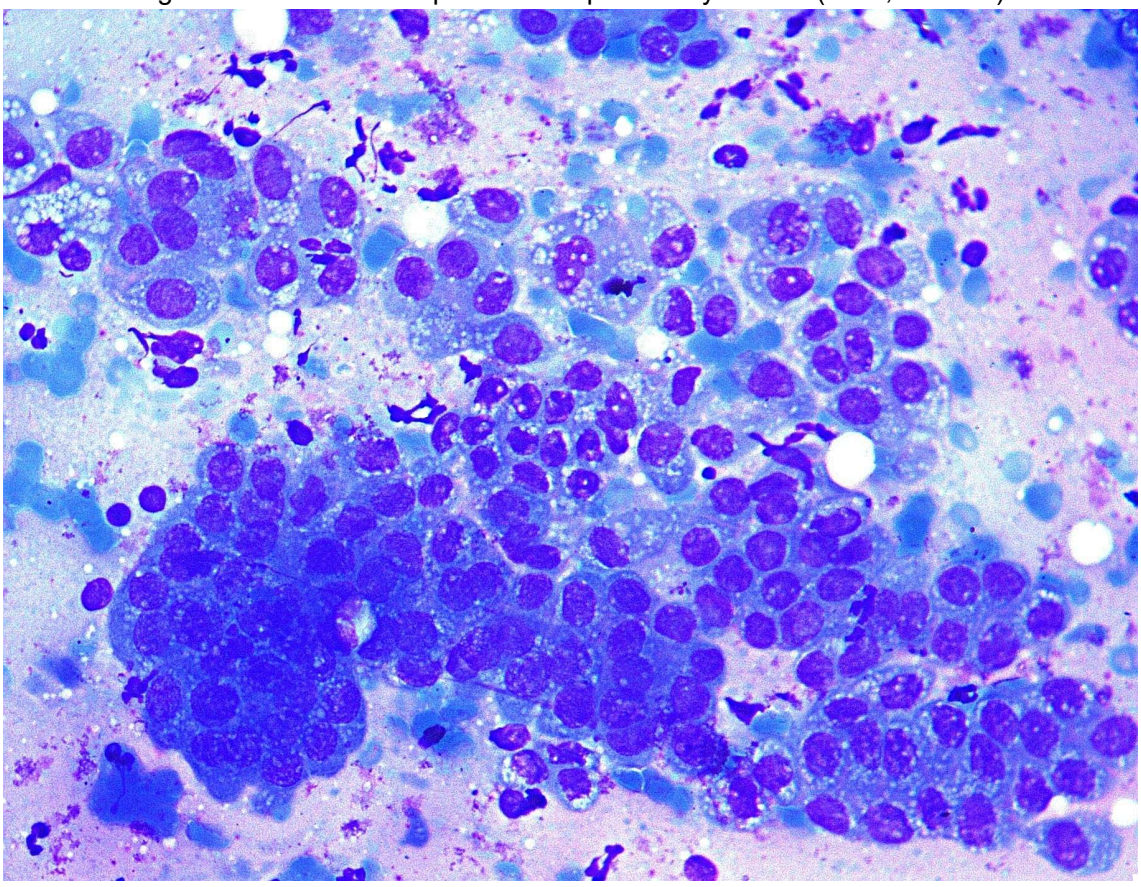

Figure 8. Fine needle aspirate of the pulmonary lesions (x400, Giemsa)

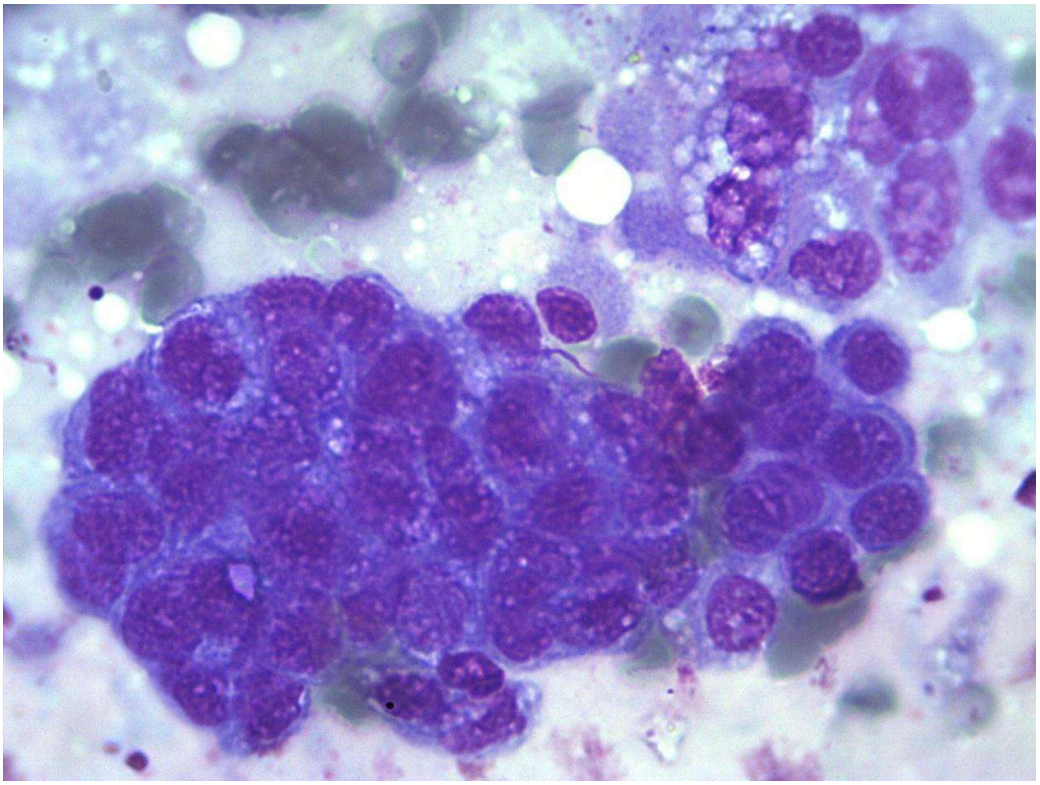

Figure 9. Fine needle aspirate of the pulmonary lesions (x1000, Giemsa)

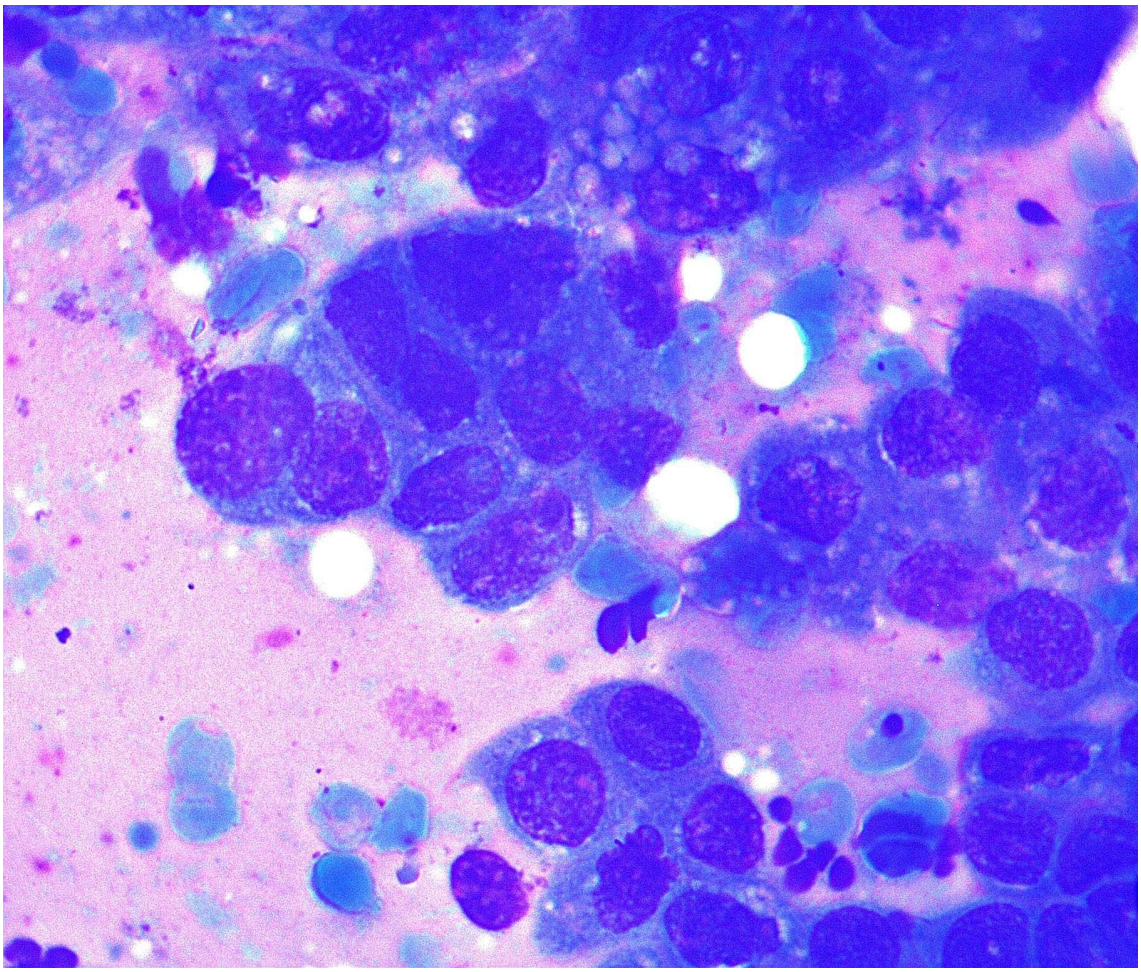

Figure 10. Fine needle aspirate of the pulmonary lesions (x1000, Giemsa)

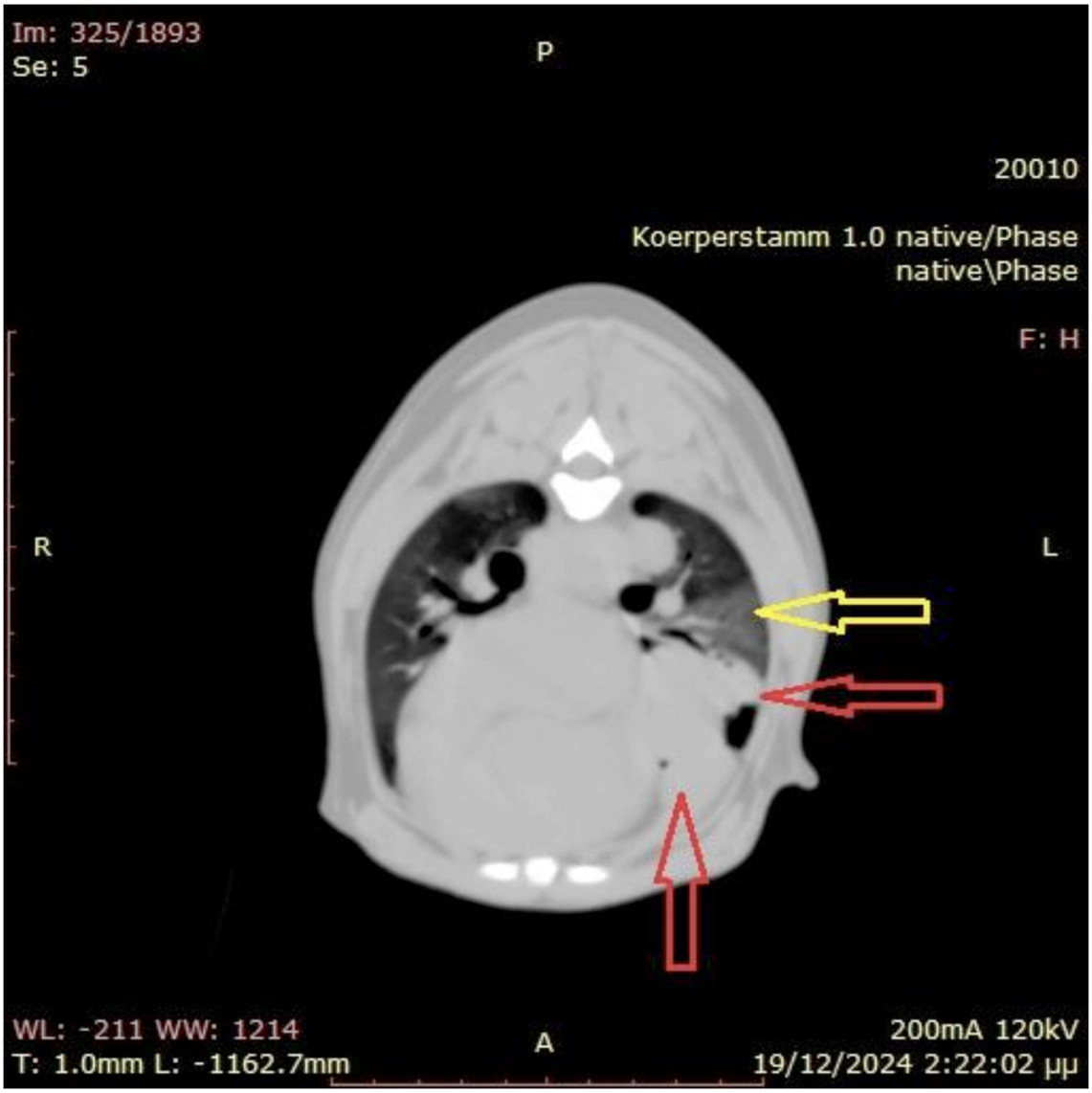

Figure 11. Consolidation of the caudal part of the left cranial lung lobe, with alveolar-pattern infiltrates and extensive areas of complete loss of aeration (red arrows). Associated ground-glass opacities are also noted (yellow arrow).