

Mystery Case: Thoracic effusion in a horse

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Specimen: Thoracic effusion

Signalment: 14-year-old grey Shagya Arabian horse

History: The horse was presented for signs of colic. Multiple cutaneous nodules were noted on the neck, trunk, and prepuce.

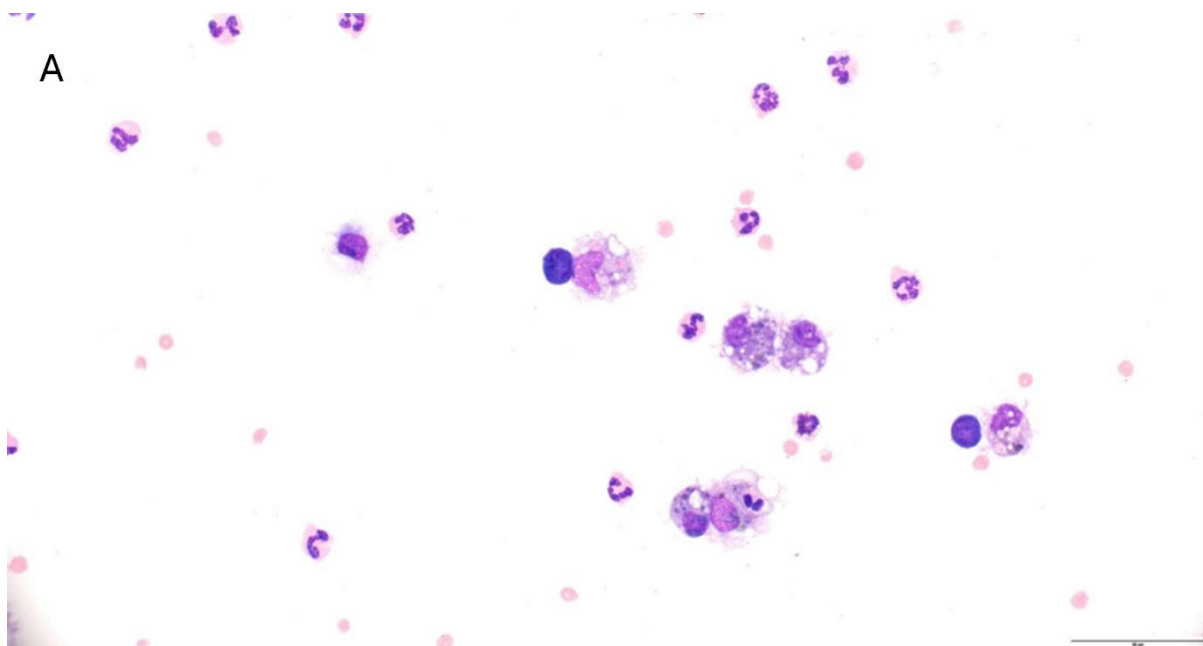
Clinical findings: Hematology, performed using the Sysmex-XN1000V analyzer with a manual differential count, revealed moderate anemia and mild leukocytosis, accompanied by markedly increased serum amyloid A and fibrinogen concentrations. A mild hyperbilirubinemia was also present. (Table 1)

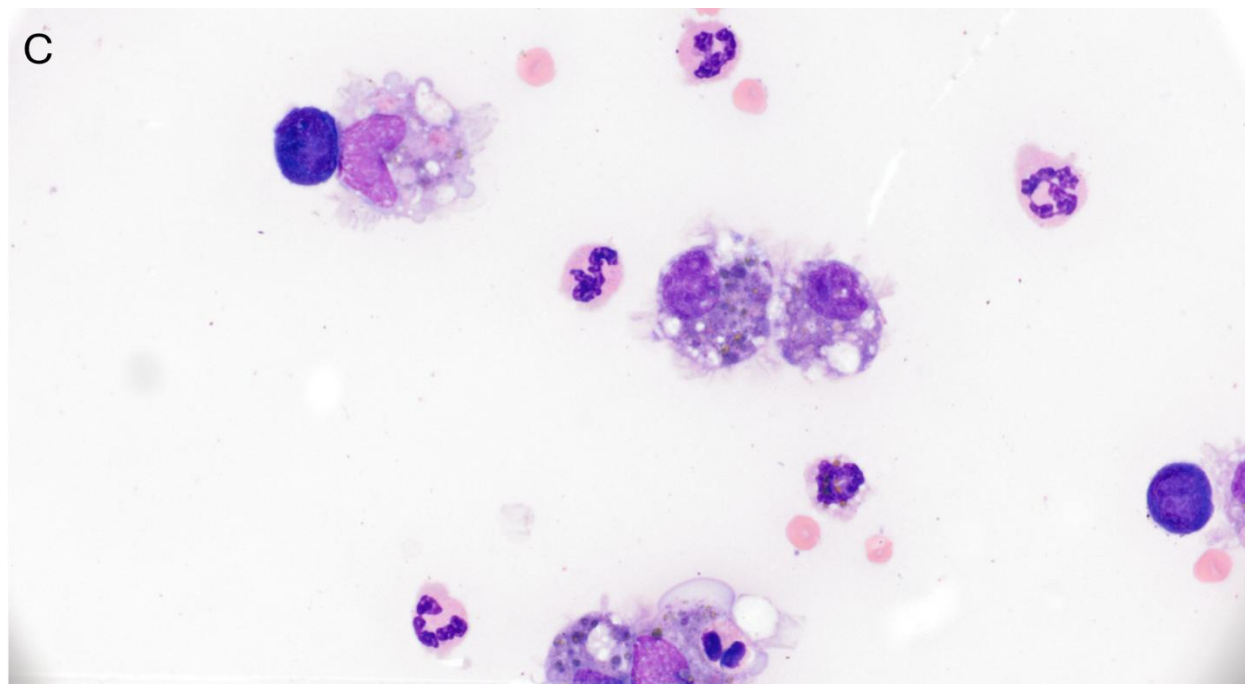
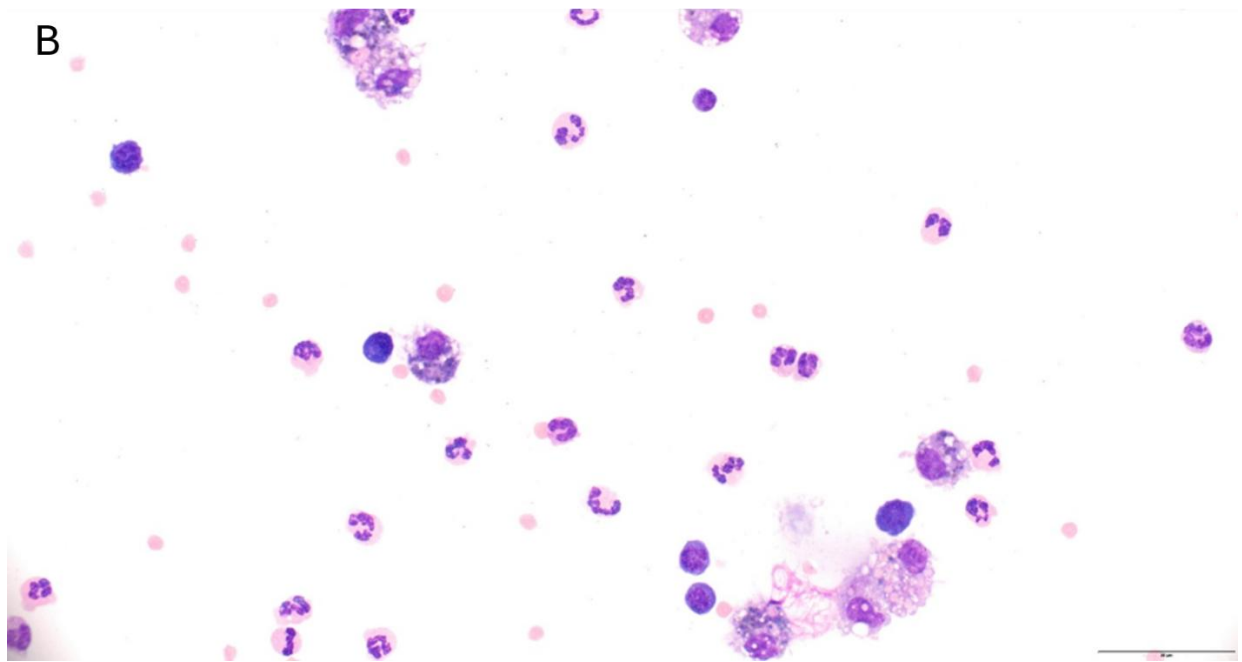
Parameter	Result	Reference interval
Hematology		
Hematocrit	25 %	30 – 42 %
Hemoglobin	9.3 g/dL	10.8 – 14.9 g/dL
Erythrocytes	$5.59 \times 10^6/\mu\text{L}$	$6.2 - 9.0 \times 10^6/\mu\text{L}$
Thrombocytes	$193 \times 10^3/\mu\text{L}$	$87 - 168 \times 10^3/\mu\text{L}$
Leukocytes	$11 \times 10^3/\mu\text{L}$	$4.7 - 8.2 \times 10^3/\mu\text{L}$
Band neutrophils	$0.55 \times 10^3/\mu\text{L}$	$0.00 - 0.08 \times 10^3/\mu\text{L}$
Neutrophils	$8.66 \times 10^3/\mu\text{L}$	$3.02 - 5.78 \times 10^3/\mu\text{L}$
Eosinophils	$0.00 \times 10^3/\mu\text{L}$	$0.00 - 0.22 \times 10^3/\mu\text{L}$
Basophils	$0.11 \times 10^3/\mu\text{L}$	$0.00 - 0.07 \times 10^3/\mu\text{L}$
Monocytes	$0.27 \times 10^3/\mu\text{L}$	$0.00 - 0.18 \times 10^3/\mu\text{L}$
Lymphocytes	$1.37 \times 10^3/\mu\text{L}$	$1.02 - 3.47 \times 10^3/\mu\text{L}$

Parameter	Result	Reference interval
Chemistry		
Total Bilirubin	54.2 umol/L	17.4 – 35.2 umol/L
Acute Phase Proteins		
Serum amyloid A	2'726 mg/L	0.5–1.2 mg/L
Fibrinogen	7.1 g/L	1.25–2.85 g/L

Table 1. Relevant hematologic, biochemical, and acute-phase protein parameters in the affected horse.

A large colon impaction was diagnosed and successfully treated. Thoracic ultrasonography demonstrated bilateral pleural effusion, pulmonary consolidation, and a suspected pericardial mass. Radiographs revealed a cranioventral alveolar pattern and/or pleural effusion, as well as a soft tissue mass caudodorsal to the guttural pouch. Endoscopic examination identified dorsal displacement of the soft palate and multifocal lesions within both guttural pouches, most prominent in the left medial compartment. Tracheobronchial secretions were collected for cytological evaluation and revealed a moderate increase in mucus production and moderate neutrophilic inflammation. Thoracocentesis was performed for cytological analysis of the pleural effusion. A total of 2 mL of turbid, orange pleural fluid was collected. Cytological examination revealed a total nucleated cell count of 29'800 cells/ μ L using the Sysmex XN-1000V, and a protein concentration of 40 g/L measured by refractometry. Manual differential cell count showed a predominance of neutrophils (77%), with macrophages accounting for 13% and lymphocytes for 10%.





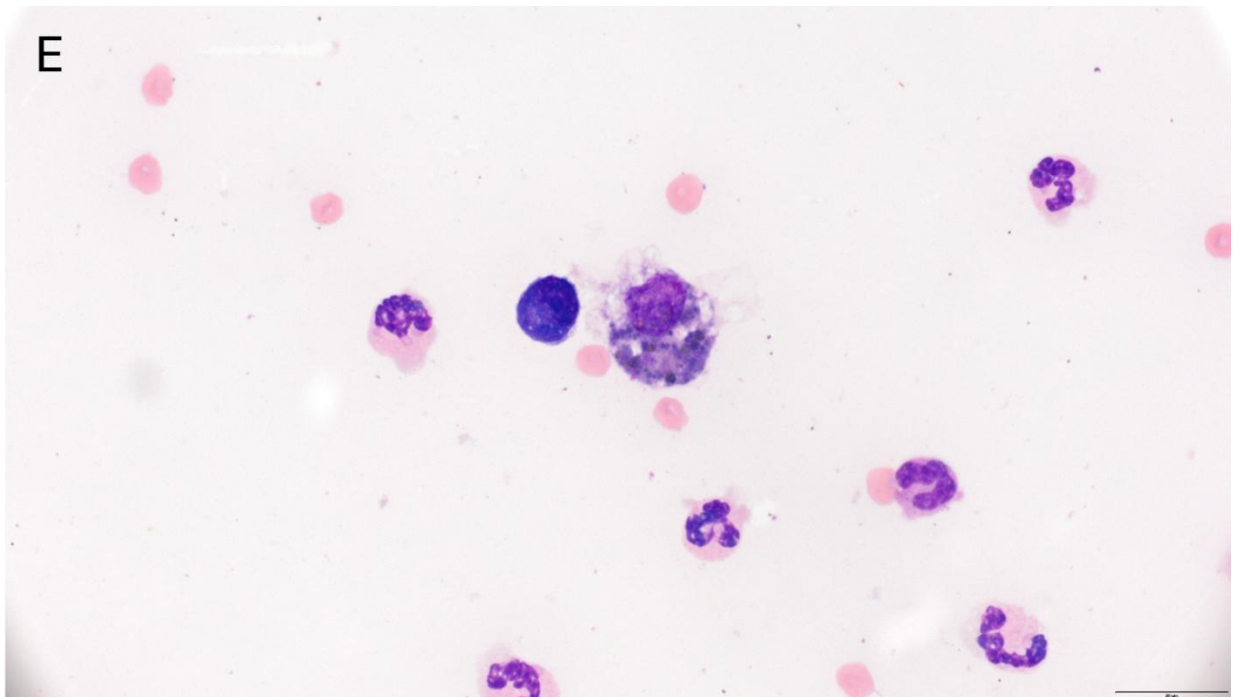
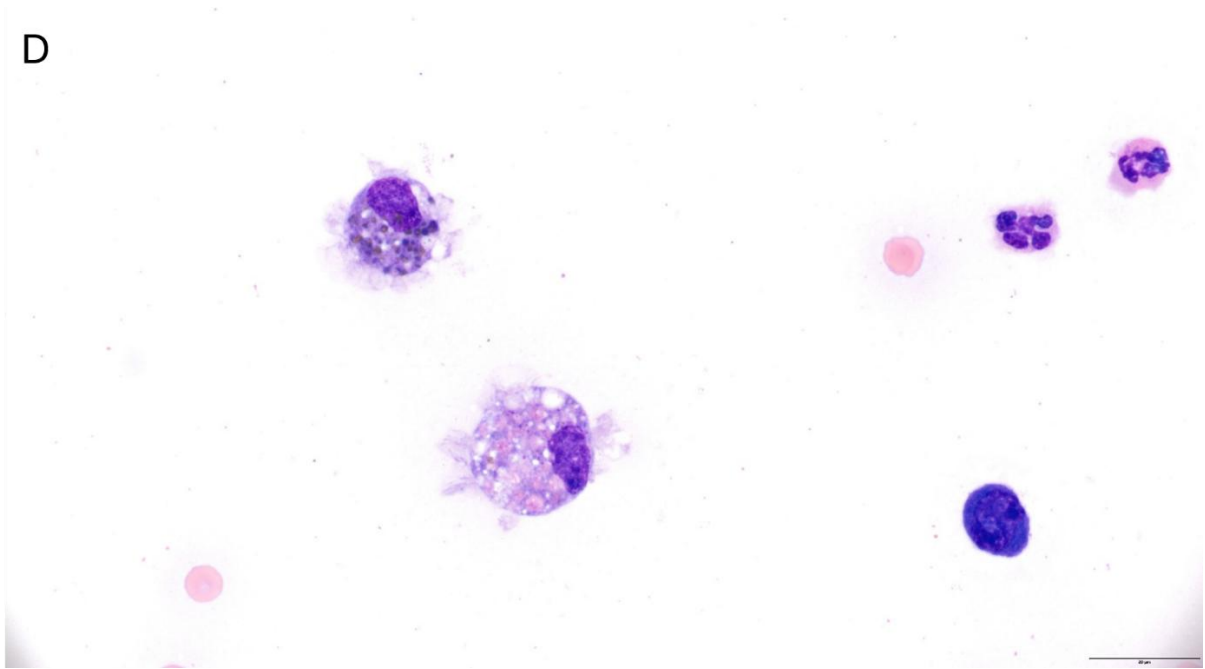


Figure 1. A-B (50x) and C-E (100x). May-Grünwald Giemsa stained direct smear of the thoracic effusion.

Questions:

- 1. What is the cytological description of the thoracic effusion, and what is your interpretation?**
- 2. What are your main differential diagnoses for the black-greenish pigment seen in the macrophages of the thoracic effusion? What kind of further diagnostic tests would you consider performing?**
- 3. What additional clinical findings and sampling sites should be investigated to clarify the diagnosis?**