

Bicavitary Effusion in a Horse

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SPECIMEN: Direct smear of thoracic fluid

SIGNALMENT: 9-year-old Missouri Fox Trotter mare

HISTORY:

A 9-year-old Missouri Fox Trotter mare presented to the primary veterinarian for evaluation of respiratory disease and lethargy. Approximately one week prior to presentation, the mare began flaring her nostrils and developed increased abdominal effort while breathing. Physical exam at this time was unremarkable, however, a rebreathing exam revealed increased bronchovesicular sounds and the mare was placed on oral trimethoprim sulpha (10,000mg twice daily). Reportedly, a CBC and biochemistry performed by the primary veterinarian was unremarkable besides a mild eosinophilia (referring veterinary records not available). The mare worsened over the next few days, developing a mild respiratory stertor, and was then referred to the University of Minnesota Equine Center for further investigation.

CLINICAL FINDINGS:

On physical exam, the mare was quiet, alert, and responsive. Temperature was within normal limits, however the horse was mildly tachycardic (56 beats per minute), and moderately tachypneic (32 breaths per minute). Mucous membranes appeared injected and a prolonged capillary refill time (3 seconds) was noted. Diminished bronchovesicular sounds were present on thoracic auscultation and rebreathing exam. The horse also had ventral edema extending from the pectoral muscles to udder and marked muscle wasting of the pectoral and topline muscles. A CBC revealed a mild eosinophilia: $0.47 \times 10^3/\text{microL}$ (RI: $0 - 0.3 \times 10^3/\text{microL}$) and a mild hypokalemia: 3.4 mmol/L (RI: 3.6-5.1 mmol/L) and minimally increased bicarbonate: 31.6 mmol/L (RI: 25-31 mmol/L) were noted on serum biochemistry profile. On thoracic radiographs, the horse had pleural effusion, an alveolar pattern in the ventral lung fields, and a moderate unstructured interstitial pattern in the remainder of the lung fields. Endoscopy of the respiratory tract was unremarkable, although a mild eosinophilic inflammation was found on bronchoalveolar lavage. Thoracic ultrasound showed moderate amounts of pleural fluid in the ventral lung field and thickening of the pleural surface. Abdominal ultrasound

identified small amounts of increased peritoneal fluid. Six liters of fluid were removed from the right side of the thorax, and one liter was removed from the left side of the thorax via thoracocentesis. Samples of the thoracic fluid and abdominal fluid were submitted for analysis and appeared similar cytologically.

CYTOLOGIC FINDINGS:

Cytology – Specimen Description

Color: Yellow

Turbidity: Slightly Turbid

Viscosity: Low

Cytology – Numeric Results

Volume: 4.0 ml

Nucleated Cells: 5010 cells/ μ L

Total Protein: 5.2 g/dL

CYTOLOGY:

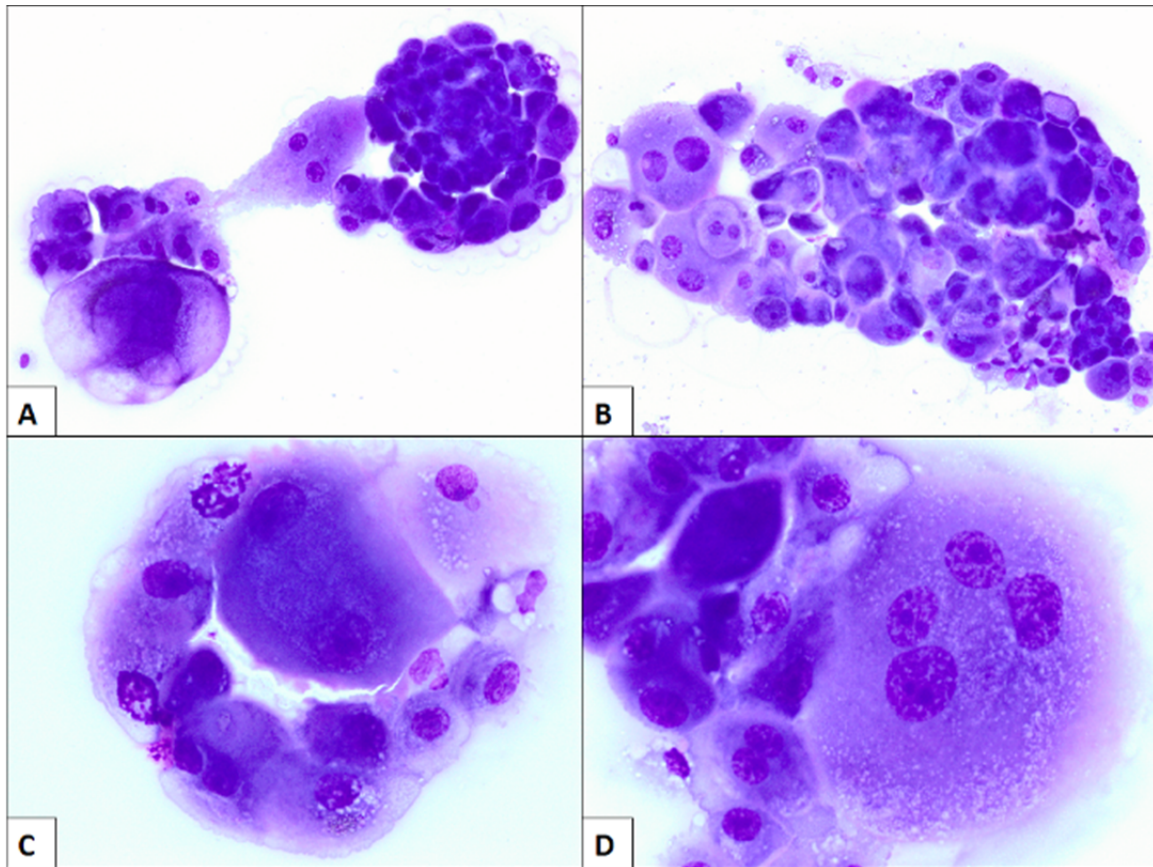


Figure 1. Thoracic fluid from a horse. Wright-Geimsa. (A) and (B) x20 objective. (C) and (D) x50 objective.

QUESTIONS:

1. Provide a cytologic description and potential differentials
2. What additional tests could be performed to further evaluate the diagnosis?