

PLEURAL EFFUSION IN A DOG

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Specimen: Sediment smear of pleural effusion

Signalment: 10-year-old, female spayed, cross-breed dog (medium size)

History and clinical findings: The dog was admitted by the Internal Medicine Service of the Small Animal Teaching Hospital (SATH) of the University of Liverpool for further investigation of tachypnea, dyspnea, and anorexia. Clinical signs appeared 10 days prior to referral when a bilateral pleural effusion was detected on thoracic radiographs by the referring veterinarian and drained. No response to oral furosemide and antibiotics (amoxicillin-clavulanate) was recorded. An automated full blood count performed prior to the referral revealed leukocytosis ($17.76 \times 10^9/L$; Reference Interval (RI) 5.5-16.90) apparently due to neutrophilia ($14.08 \times 10^9/L$; RI 2-12) and monocytosis ($2.30 \times 10^9/L$; RI 0.30-2), and thrombocytosis ($688 \times 10^9/L$; RI 175-500). No blood smear review was performed. The biochemistry profile revealed hypokalemia (3.2 mmol/L; RI 3.5-5.8), hypochloremia (103 mmol/L; RI 109-122), and a proportional increase of urea (12.6 mmol/L; RI 2.5-9.6) and creatinine (169 mmol/L; RI 44-159). On presentation to the SATH, the patient appeared markedly dyspneic and had a restrictive respiratory pattern but was alert and responsive. The body weight was 21.4 Kg with a normal body condition score (BCS 4/9). Mucous membranes were pink, dry and had a prolonged capillary refill time (3 seconds). Thoracic auscultation revealed muffled heart sounds.

Thoracocentesis was performed and 810 mL of sero-hemorrhagic pleural fluid was removed from the right hemithorax and 600 mL from the left side. Total nucleated cell and erythrocyte counts were $2.9 \times 10^9/L$ and $0.09 \times 10^{12}/L$, respectively. Total protein concentration was 25 g/L. Direct and sediment smears prepared from the fluid submitted in EDTA were air-dried and stained with Wright-Giemsa using an automated stainer.

Representative pictures of the stained sediment smear of pleural effusion are shown below (Figure 1a and 1b). Wright–Giemsa stain, 400x original magnification. Picture taken with iPhone5.

Question1: What is your interpretation?

Question 2: What additional tests would help you refine the cytological interpretation?

Figure 1a

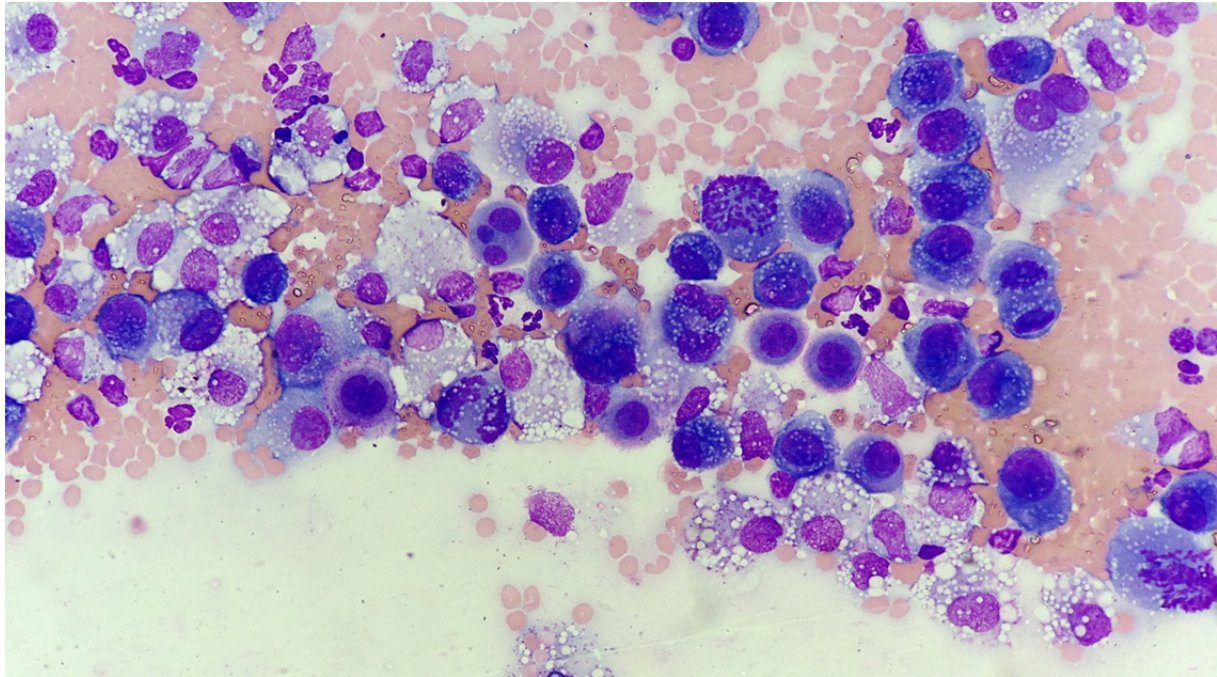


Figure 1b

