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SIGNALMENT: A 10-year-old, female Flat-coated retriever living south of Stockholm, Sweden.

History and Clinical Findings
She have had poor appetite, polydipsia, sporadic vomiting and been depressed since two weeks. Ticks have been found on her earlier. At admittance May 24 to an Animal Clinic in Stockholm she had temperature 39.6^{o}C and was slightly depressed, but otherwise in good condition, normal mucous membranes, normal heart and lung sounds and soft abdomen. Anaplasma phagocytophilium infection was suspected based on fever, thrombocytopenia and increased CRP (218mg/L, reference value <7mg/L). No Anaplasma inclusions were seen in blood smear. She was treated with doxycycline.
The clinical signs did not improve and she went back to the clinic for a second examination May 31. She was slightly more alert after one week of treatment, but still fever (39.2^{o}C, 39.4^{o}C) and polydipsia. At admittance the clinic she had temperature 39.3^{o}C and had slightly pale mucous membranes but no other specific clinical findings. CRP was 135mg/L (reference value <7mg/L) Serum biochemistry May 24 and 31: ALP was slightly increased, while ALAT, creatinine, glucose, Na and K were within normal ranges.

EDTA blood samples were sent to the SLU University Animal Hospital for evaluation because of a leukocytosis and abnormal blood picture both from May 31 and June 16. Both samples had a similar and unusual WBC dot plot pattern on the Advia 2120 graphics.

HEMATOLOGY DATA: Advia Automated Differential WBC Counts

Test	May 31*	June 16*	Reference
WBC Basophil (default)	24.6×10^9/L	38.0×10^9/L	5.8-16.0
WBC Peroxidase	18.2×10^9/L	22.2×10^9/L	5.8-16.0
Neutrophils	7.1×10^9/L	8.3×10^9/L	3.3-10.4
Lymphocytes	11.9×10^9/L	19.3×10^9/L	1.5-4.7
Monocytes	2.6×10^9/L	4.9×10^9/L	0.1-1.0
Eosinophils	0.6×10^9/L	2.0×10^9/L	0.2-1.6
LUC	2.3×10^9/L	2.9×10^9/L	0-0.2

LUC is "large unstained cell" category for the Advia 2120.
*Instrument leukocyte alarms: WBC-CE, PX-NV

Erythrocytes and thrombocytes 31 May: Slight anemia (Hb 99 g/L) without increase in reticulocytes (50 x 10^9/L) and no polychromasia. Slight thrombocytopenia based on manual estimate on blood smear with many large PLT.

Tasks

Interpret the instrument graphical reports and give suggestions what could cause the changes in the cytograms.
Which WBC count would be more accurate?
Blood smear analysis and our interpretations will be given at the ESVCP meeting in London. Indicate what we should expect to see in the blood smear.

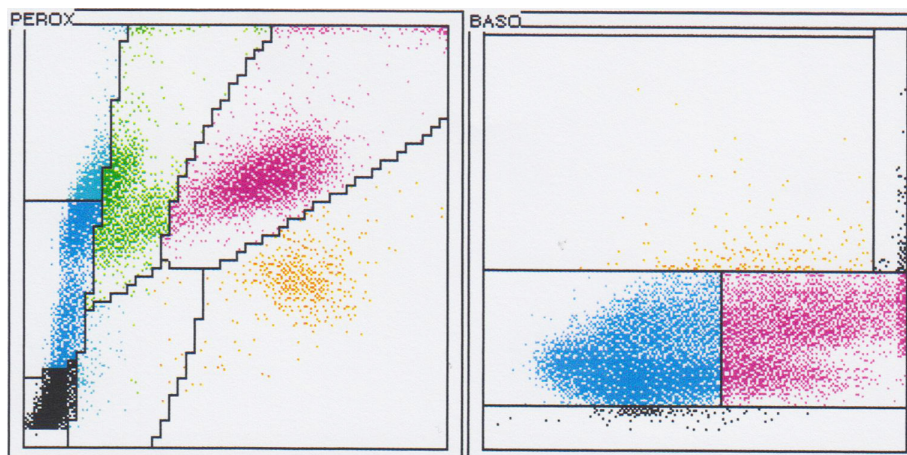Figure 1 Advia WBC graphic May 31, 2017. Mailed sample one day old.

Figure 2 Advia WBC graphic June 16, 2017. Mailed sample four days old
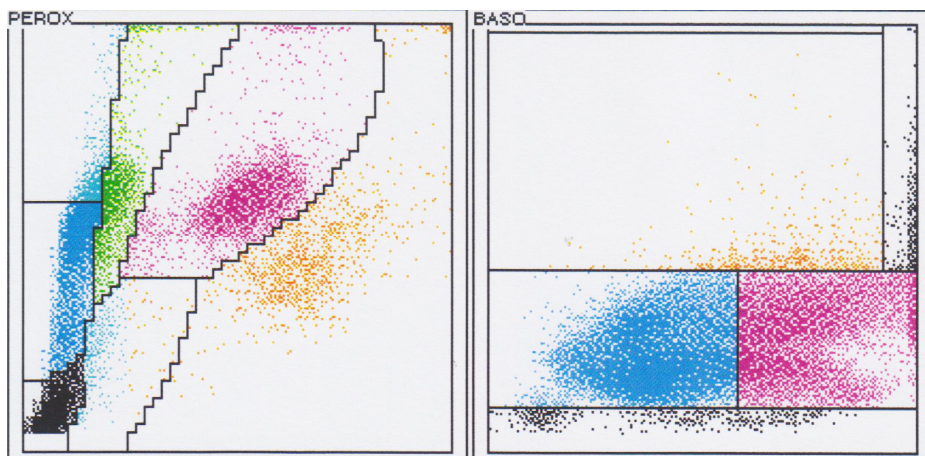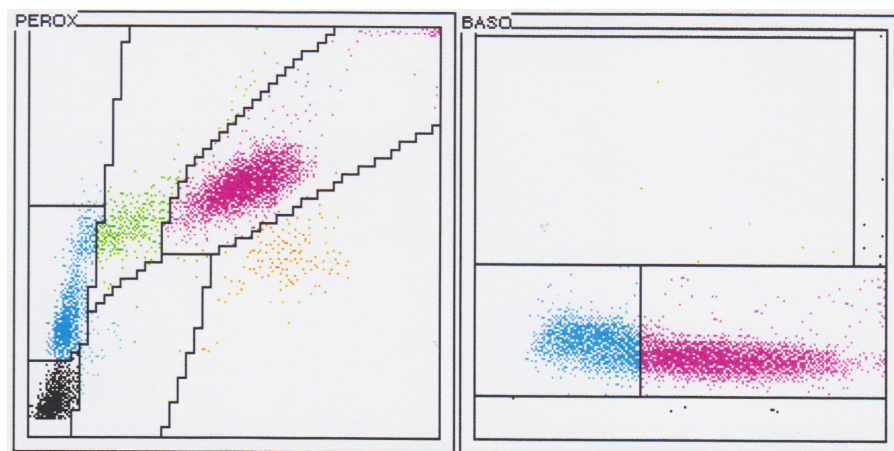

Figure 3 Normal Advia WBC graphics dog

Boule Hematology Analyzer results May 31, 2017. Fresh sample

Test	May 31	Reference
WBC	19.3 x 10^9/L	6.0-17.0
Granulocytes	16.0 x 10^9/L	3.5-12
Lymphocytes	2.5 x 10^9/L	0.9-5.0
Monocytes	0.8 x 10^9/L	0.3-1.5

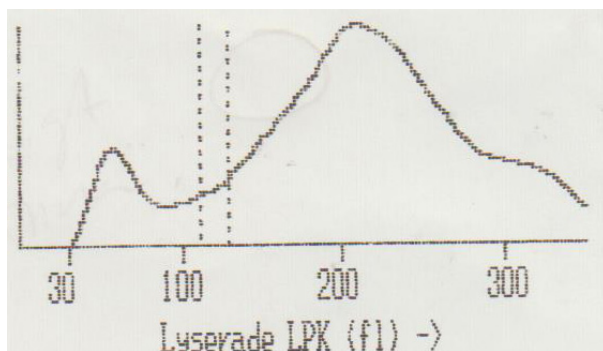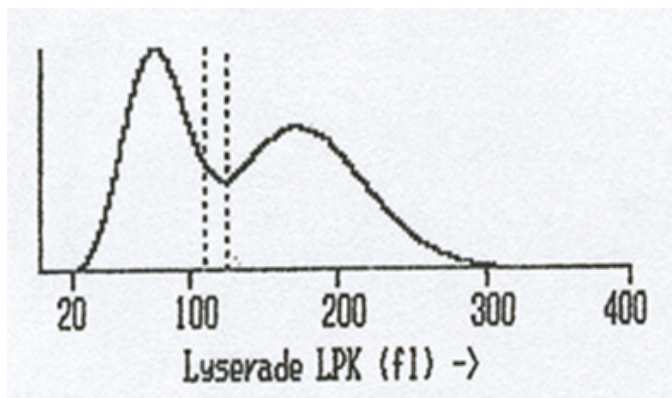Figure 4 Boule WBC histogram for patient May 31

Figure 5 More normal canine Boule WBC histogram

Lyserade LPK means lysed WBC.