Haematological and Clinical Chemical Changes in a Beagle

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Signalment:

A 12 year old, male entire Beagle.

Clinical History:

It presented in September 2010 to the Dogs Trust Rehoming Centre in Harefield, West London, having been acquired from a rescue centre in Ireland. There was no clinical history available prior to the Irish rescue centre and no microchip or tattoo was present.

Physical Exam:

On admission to the Dogs Trust on 14th September 2010 (Day 1), it was thin but bright and alert. Significant clinical findings included pale mucous membranes, a slightly enlarged prostate, occasional cough, slight nasal discharge and positive tracheal pinch. Mild generalised seborrhoea was also noted.

Additional Findings:

Routine blood samples were submitted to the Royal Veterinary College Diagnostic laboratory. Haematology and biochemistry results are displayed in Tables 1 and 2. Findings on blood smear examination from Day 1 are shown in Figures 1 and 2.

Table 1. Haematology results.							
Parameter	Day 1	Day 30	Day 44	Day 112	Day 154	Reference Interval	Units
RBC	4.2	5.0	5.2	4.4	4.7	5.5 - 8.5	$x10^{12}$/L
HGB	9.8	11.8	12.4	10.6	11.2	12.0 - 18.0	g/dL
HCT	0.30	0.35	0.37	0.35	0.38	0.37 - 0.55	
MCV	70.8	69.7	70.6	80.1*	81.5*	60.0 - 77.0	f/L
MCH	23.2	23.7	23.9	24.1	23.9	19.5 - 24.5	p/g
MCHC	32.7	34.0	33.8	30.1	29.4	31.0 - 37.0	g/dL
WBC	8.0	7.4	8.0	7.3	4.9	6.0-17.1	$x10^9$/L
Neutrophils	5.5	3.3	2.6	4.3	3.0	3.0-11.5	$x10^9$/L
Lymphocytes	1.3	1.9	2.9	2.0	1.6	1.0-4.8	$x10^9$/L
Monocytes	0.8	1.8	1.4	0.7	0.2	0.2-1.5	$x10^9$/L
Eosinophils	0.4	0.4	1.1	0.4	0.2	0.0-1.3	$x10^9$/L
Polychromasia	neg	mild	mild	neg	mild		
Platelets	114**	249	282	111**	187	150 - 900	$x10^9$/L

* In vitro swelling
**Moderate platelet clumping, platelet numbers adequate

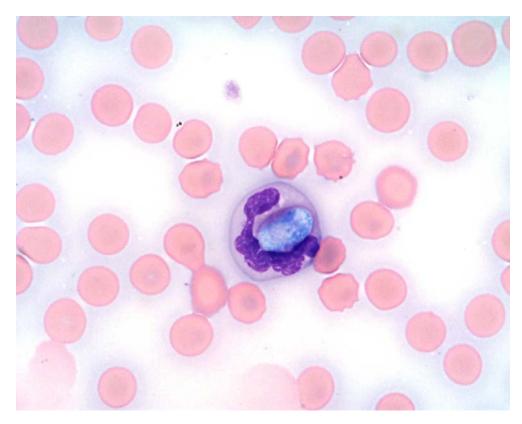| Table 2. Biochemistry results.			
Parameter	Day 1	Reference Interval	Units
Total protein	75.1	49.0-71.0	g/L
Albumin	27.7	28.0-39.0	g/L
Globulin	47.4	21.0-41.0	g/L
Sodium	150	140-153	mmol/L
Potassium	5.4	4.1-5.3	mmol/L
Chloride	109	107-115	mmol/L
Calcium	2.51	2.13-2.70	mmol/L
Glucose	5.3	3.0-6.0	mmol/L
Inorganic phosphorus	1.8	0.8-2.0	mmol/L
Urea	7.5	3.0-9.1	mmol/L
Creatinine	87	20-150	µmol/L
Cholesterol	5.2	3.3-8.9	mmol/L
Total Bilirubin	0.9	0.0-2.4	µmol/L
Amylase	1524	176-1245	U/L
Lipase	123	72-1115	U/L
ALT	27	13-88	U/L
CK	370	61-394	U/L
ALP	27	19-285	U/L
Thyroxine (T4)	17	13-52	nmol/L
TSH	0.97	<0.41	ng/ml

Figure 1. Day 1 blood smear. 100x oil; Modified Wright's stain.
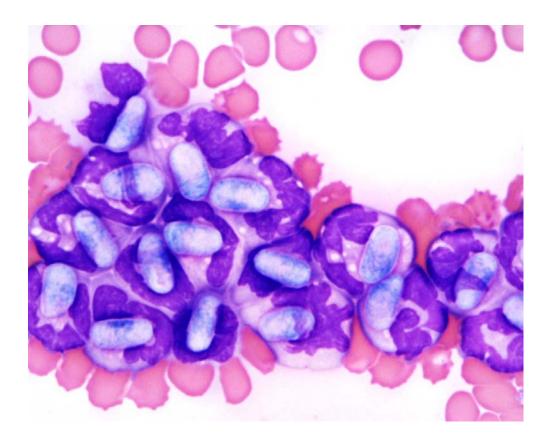

Figure 2. Day 1 blood smear. 100x oil; Modified Wright's stain

Questions:

Can you identify the structures within the leukocytes?

Based on the findings in Figure 2, what is the most likely diagnosis?

What further diagnostic testing would you recommend?