

Case

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Signalment:

Sapphie is a 1 year, 2 month old, female entire grey collie cross bedlington terrier.

Case History:

Sapphie presented to the referring veterinary practice with a history of intermittent lethargy, variable appetite and poor weight gain. Prior to presentation, Sapphie had been off food for 24 hours. Significant findings on haematology included moderate neutropaenia and mild lymphopaenia. A two week course of oral amoxicillin/clavulanic acid was prescribed. Appetite and demeanour improved briefly, but nine days later clinical signs of listlessness, depression and wheezing were apparent. Injectable dexamethasone and amoxicillin/clavulanic acid were administered. Thoracic and upper respiratory tract radiographs, performed to rule out a tracheal or bronchial foreign body, were unremarkable. Due to concern over Sapphie's ongoing depression and poor body condition, referral was recommended.

Physical Exam:

At presentation (Day 1) to the Queen Mother Hospital for Animals (Royal Veterinary College), Sapphie was noted to be quiet but alert and underweight (9.9kg), with a body condition score of 3/9. Further significant clinical findings included pale mucous membranes, bradycardia (60bpm) and a grade II/VI systolic murmur over the left heart base.

Additional Findings:

CBC, biochemistry and urinalysis results are cited in Tables 1, 2 and 3. Findings on blood smear examination from Day 1 and 11 are shown in Images A and B. Echocardiography revealed adequate systolic function and a mild increase in left aortic outflow velocity, which explained the murmur. Systolic blood pressure (via Doppler) was within normal limits. Abdominal ultrasound was unremarkable.

Table 1. Haematology results

Parameter	Day 1	Day 4	Day 6	Day 11	Day 18	Day 21	Day 32	Day 123	Reference Interval	Unit
RBC	5.16	5.10	4.17	4.73	5.87	6.25	6.25	6.53	5.50-8.50	$\times 10^{12}/L$
HGB	11.7	11.7	9.5	11.2	14.4	15.0	15.1	15.3	12.0-18.0	g/dL
HCT	0.35	0.34	0.28	0.33	0.42	0.47	0.44	0.44	0.37-0.55	
MCV	68.2	67.3	67.5	69.4	71.8	74.5	70.4	67.5	60.0-77.0	fL
MCH	22.7	23.0	22.7	23.7	24.6	24.1	24.2	23.4	19.5-24.5	p/g
MCHC	33.2	34.1	33.6	34.1	34.2	32.3	34.3	34.7	31.0-37.0	g/dL
Platelets	276	302	163	>120 [#]	326	279	322	389	150-900	$\times 10^9/L$
WBC	4.7	2.4	3.4	6.9	3.9	4.3	8.4	11.2	6.0-17.1	$\times 10^9/L$
Neutrophils	4.6	1.3	2.0	5.9	2.7	3.1	6.6	5.9	3.0-11.5	$\times 10^9/L$
Lymphocytes	0.1	0.5	0.6	0.7	0.8	0.8	1.1	4.3	1.0-4.8	$\times 10^9/L$
Monocytes	0.60	0.70	0.80	0.30	0.30	0.20	0.70	0.70	0.15-1.00	$\times 10^9/L$
Eosinophils	0.0	0.0	0.0	0.0	3.0	0.2	0.1	0.3	0.0-1.3	$\times 10^9/L$
Reticulocytes			0	510,000					<60,000	/ μL
Polychromasia	Rare	neg	neg	+++	+	rare	rare	-		

Treatment initiated on day 7

([#]) Marked platelet clumping

Table 2. Biochemistry results

Parameter	Day 1	Day 4	Day 6	Day 32	Day 123	Reference Interval	Unit
Total protein	55.7	63.1	-	-	61.2	49.0-71.0	g/L
Albumin	36.4	39.8	-	-	29.2	28.0-39.0	g/L
Globulin	19.3	23.3	-	-	32.0	21.0-41.0	g/L
Sodium	142	153	-	-	146	140-153	mmol/L
Potassium	3.6	4.4	-	-	4.4	4.1-5.3	mmol/L
Chloride	110	109	-	-	111	107-115	mmol/L
Calcium	1.57	2.60	-	-	2.62	2.13-2.70	mmol/L
Free calcium	0.94	-	-	-	-	1.13-1.33	mmol/L
Inorg. phosphorus	1.6	1.5	-	-	1.5	0.8-2.0	mmol/L
Urea	7.8	9.2	-	-	8.3	3.0-9.1	mmol/L
Creatinine	87	99	-	-	80	20-150	µmol/L
Cholesterol	4.5	5.5	-	-	6.6	3.3-8.9	mmol/L
Total Bilirubin	5.3	5.6	-	-	1.5	0.0-2.4	µmol/L
Amylase	1137	2826	-	-	-	176-1245	U/L
Lipase	902	1650	-	-	-	72-1115	U/L
ALT	17	23	-	-	23	13-88	U/L
CK	294	141	-	-	128	61-394	U/L
ALP	66	64	-	-	41	19-285	U/L
Bile acids pre pran	-	2.8	-	-	-	0.1-5.0	µmol/L
Bile acids post pran	-	3.3	-	-	-	0.1-5.0	µmol/L
ACTH pre	-	<27	-	-	-	<250	nmol/L
ACTH post	-	123	-	-	-	<500	nmol/L
TLI	-	-	>55	-	-	0-35	µg/L
cPLI	-	-	-	69	-	0-200	µg/L
Ammonium	-	-	91	120	-	0-70	µmol/L
UPC	-	0.17	-	-	-	0.00-0.50	

Table 3. Urinalysis results (Bayer Labstix) Day 4

specific gravity	1.047
pH	5
nitrate	Negative
protein	1+
glucose	Negative
ketones	Negative
bilirubin	Negative
heme protein	2+

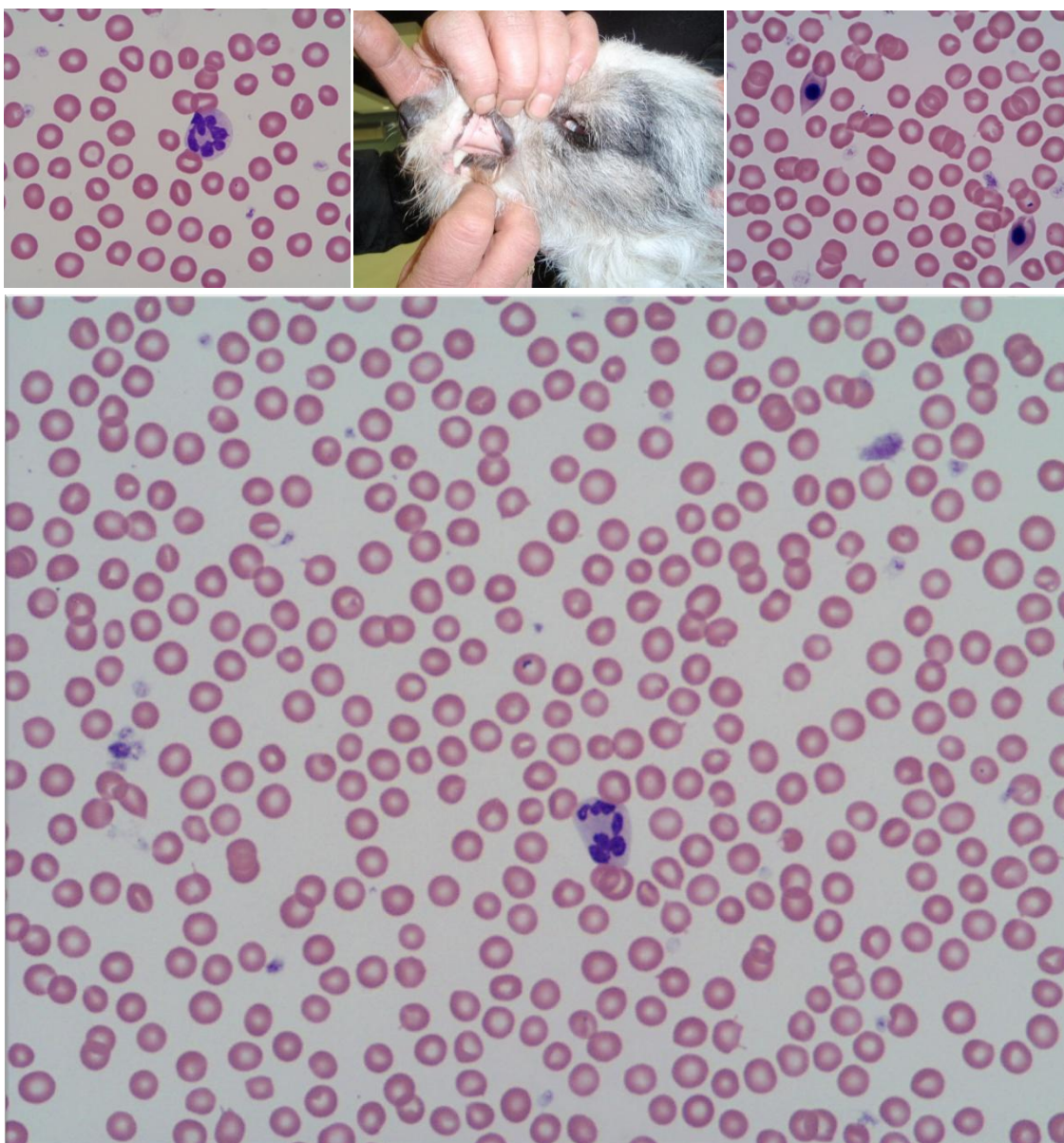


Image A: Montage of blood smear and clinical exam findings Day 1, (before treatment).

Centre, 50x oil;

Top left, 100x oil;

Top right, 100x oil;

Modified Wright's stain.

Top centre; Sapphie's mucous membrane colour.

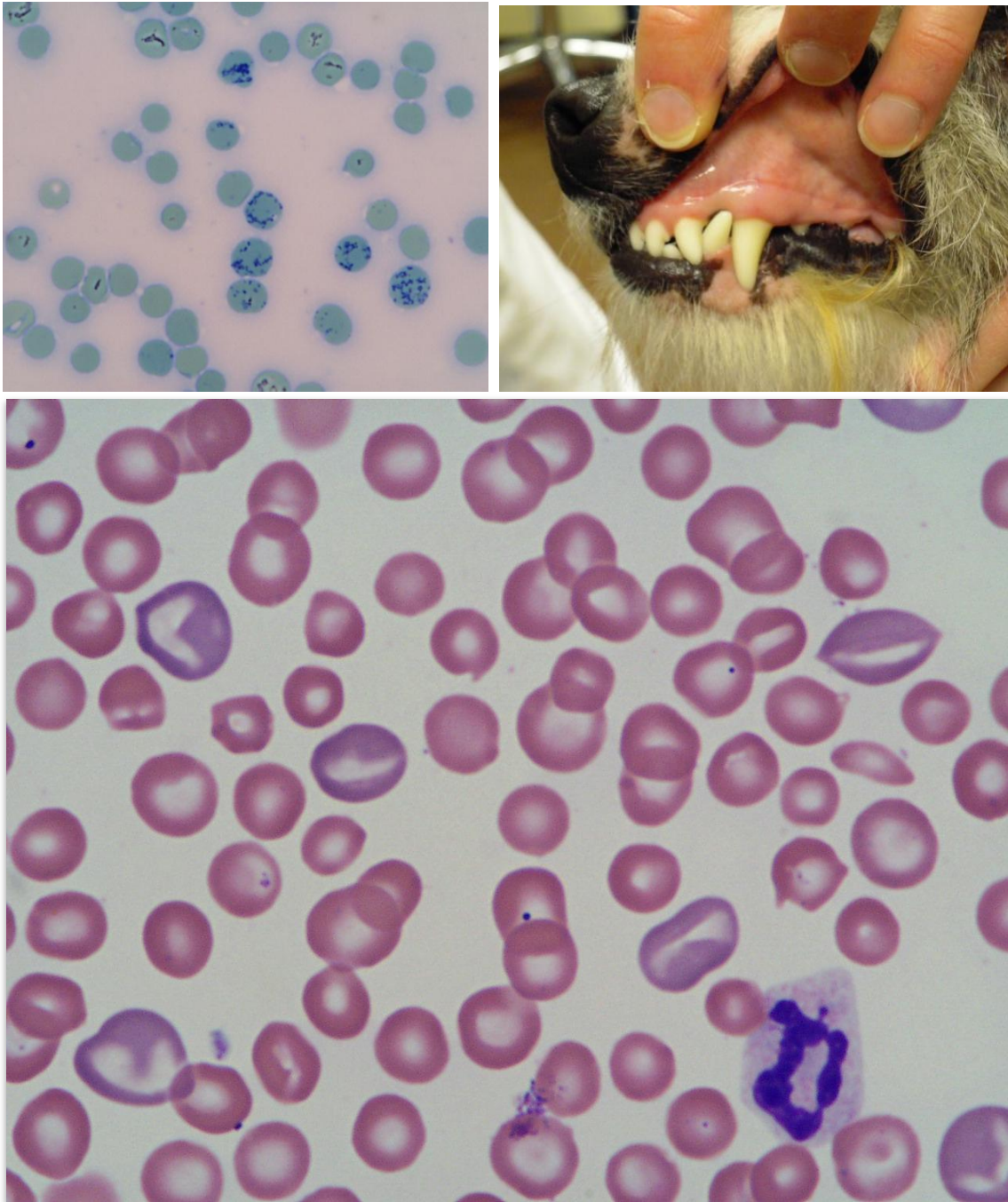


Image B: Montage of blood smear findings, on Day 11 (after treatment).
Centre, 100x oil, Modified Wright's stain;
Top left, 100x oil, New Methylene Blue stain;
Top right, Sapphie's mucous membrane colour.

Questions:

1. What differentials would you consider given the above data and signalment?
2. Would the breed influence your differentials?
3. How do you explain the elevated ammonia level in this dog?
4. What additional tests would you consider?