ESVCP Mystery Case 2022

CONTRIBUTOR NAME*	Maud Guerlin
CONTRIBUTOR EMAIL*	maud.guerlin@envt.fr
COAUTHORS	Kévin Mourou, Valeria Martini, Nicolas Soetart, Stefano Comazzi, Catherine Trumel, Fanny Granat
COMPANY OR UNIVERSITY	Toulouse University, ENVT

* Corresponding contributor

SIGNALMENT:

2 years-old neutered female Small Munsterlander dog.

HISTORY AND CLINICAL FINDINGS:

The dog was presented to the emergency care unit (of the National Veterinary School of Toulouse) after an insect bite on the lips. It had just spent five days in a dog boarding facility during which anorexia, diarrhea and one episode of vomiting were reported. Weight loss was also noticed by the owners.

On physical examination, the dog was underweighted (body condition score 3/9), dehydrated, and presented a generalized lymphadenopathy. Splenomegaly and intra-abdominal lymphadenopathy were also suspected on abdominal palpation.

LABORATORY FINDINGS

Complete blood cell count (CBC) with blood film and SNAP test 4Dx Plus® (Idexx), biochemistry and hemostasis panels, urinalysis, peripheral lymph nodes fine needle aspiration and serum protein electrophoresis were performed. Results are in tables 1 and 2, and in figures 1-4. Hemostasis panel was unremarkable except mild fibrin degradation products increase (5 < FDPs < 20 mg/L; RI < 5 mg/L). Complete urinalysis was unremarkable.

Table 1: Hematology results (Sysmex XN-V®, Sysmex)

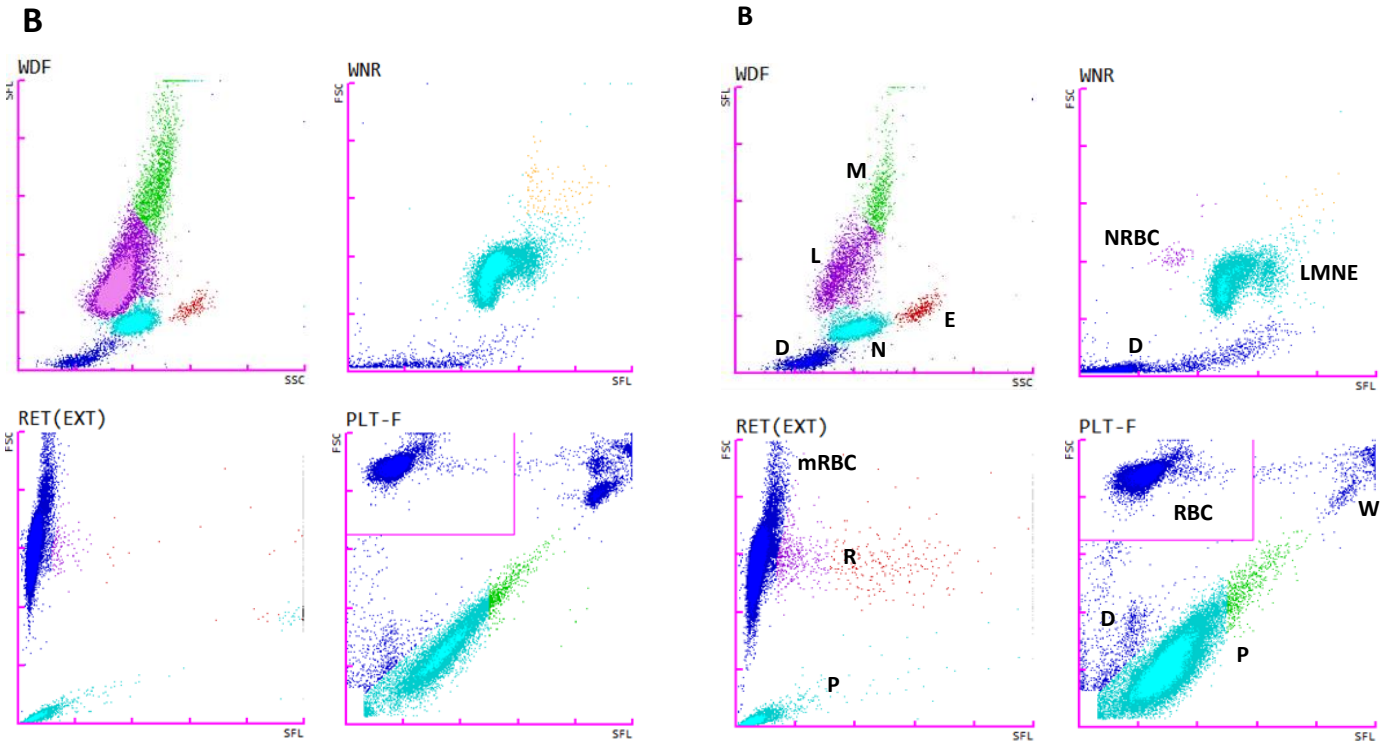
Analytes	Data	Reference Interval	Alarm
HGB (g/dL)	15.5	12.4-19.2	
RBC (.10^{12}/L)	6.72	5.20-7.90	
HCT (L/L)	0.45	0.35-0.52	
MCV (fL)	67.0	60.0-71.0	
MCH (pg)	23.1	21.9-26.3	
MCHC (g/dL)	34.4	34.4-38.1	
RDW-SD (fL)	30.7	31.1-38.9	
RDW-CV (%)	13.2	13.2-19.1	
PLT-I (.10^{9}/L)	181	64-613	
PLT-O (.10^{9}/L)	195	108-562	
WBC-WDF (.10^{9}/L)	37.79	5.60-20.40	Leukocytosis
WBC-WNR (.10^{9}/L)	34.37		
Neutrophils (.10^{9}/L)	7.82	2.90-13.60	

Lymphocytes (.10^9/L)	24.53	1.10-5.30	Lymphocytosis
Monocytes (.10^9/L)	1.72	0.40-1.60	Monocytosis
Eosinophils (.10^9/L)	0.19	< 3.10	
Reticulocytes (10^9/L)	10.10	19.40-150.10	
Reticulocytes (%)	0.15	0.30-2.37	
SNAP test 4 Dx Plus® (Idexx) (*Dirofilaria immitis, Ehrlichia canis, Ehrlichia ewingii, Anaplasma phagocytophilum, Anaplasma platys,* and *Borrelia burgdorferi*)	Negative	Negative	

Table 2: Biochemistry results (Vitros®, Ortho Clinical Diagnostics Inc.)

Analytes	Data	Reference Interval
Color of the plasma	Clear	Clear
Glucose (mmol/L)	5.6	3.7-8.2
Urea (mmol/L)	6.0	1.6-10.9
Creatinine (µmol/L)	71.0	44.0-133.0
AST (U/L)	154	1-37
ALT (U/L)	357	3-50
PAL (U/L)	151	20-155
GGT (U/L)	< 10	5-25
CK (U/L)	86	25-467
Total Bilirubin (µmol/L)	3.0	1.7-12.0
Total Protein (g/L)	64	48-66
Albumin (g/L)	29	23-39
Albumin to protein ratio	0.82	> 0.80
Ionized calcium (mmol/L)	1.33	1.20-1.50
CRP (mg/L)	22.5	0.5-10.0

Figure 1: Sysmex XN-V® cytograms from peripheral blood sample.



A: 2 years-old Small Munsterlander dog**. B**: Healthy dog for cell identification.

WDF, WBC differential scattergram; WNR, WBC count scattergram; RET (EXT), Reticulocyte extended scattergram; PLT-F, platelet scattergram with optic-fluorescent analysis; D, debris; E, eosinophils; L, lymphocytes; M, monocytes; mRBC, mature RBC; N, neutrophils; NRBC, nucleated red blood cells; P, platelets; R, reticulocytes; RBC, red blood cells; W, white blood cells.

Figure 2: Photomicrographs of the peripheral blood smear of the dog (modified May-Grünwald Giemsa stain, A: x 200; B: x 500; C: x 1000, oil).

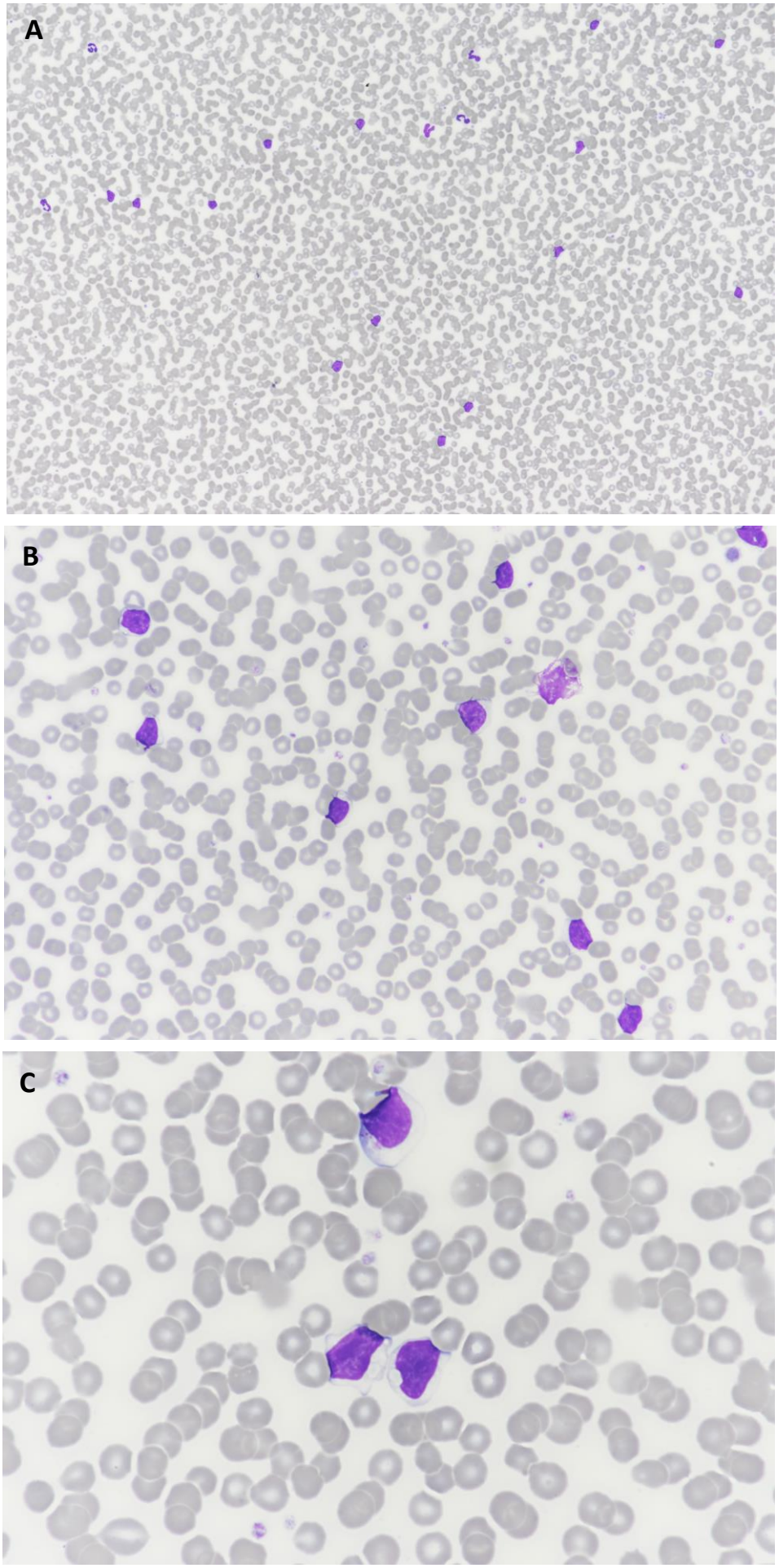


Figure 3: Photomicrograph of a prescapular lymph node aspiration of the dog (modified May-Grünwald Giemsa stain, A: x 500; B: x 1000, oil)). Popliteal and iliac lymph nodes were very similar.

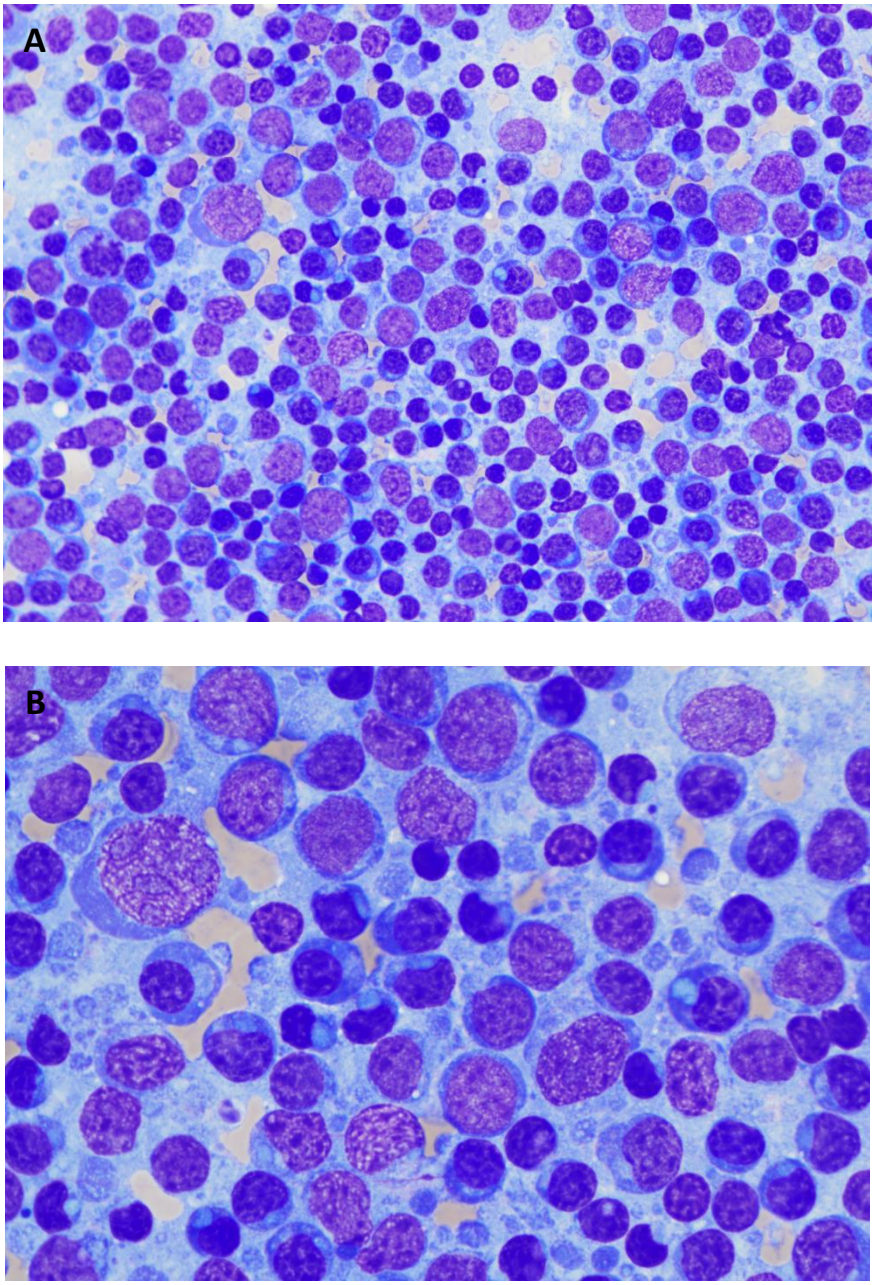
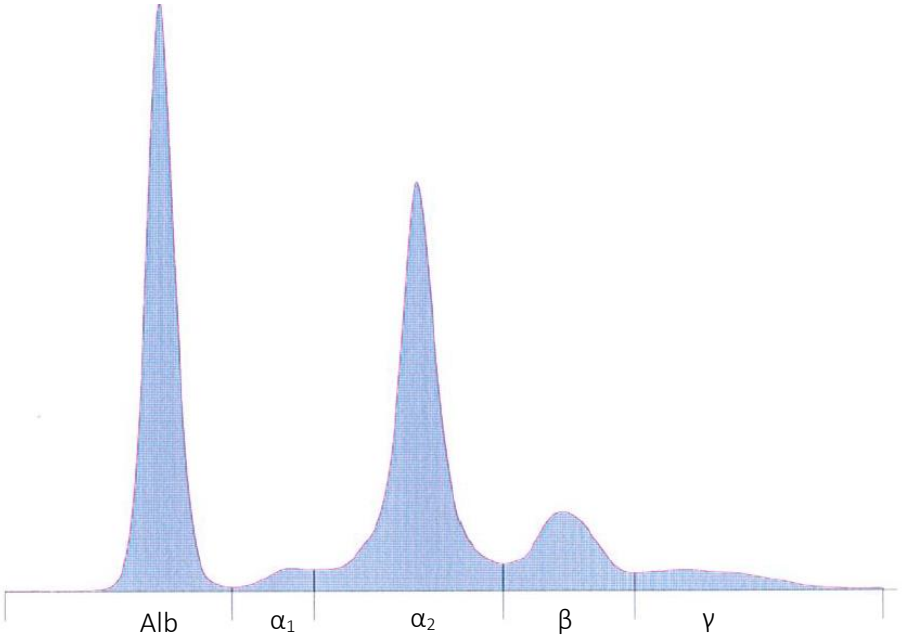


Figure 4: Serum protein electrophoresis (agarose gel Hydragel – Hydrasys2scan - SEBIA®)



Protein fractions	% [RI]	g/L [RI]
Total proteins (Vitros ®)	100	67 [48-66]
Albumin	39.4 [59.8-72.4]	26.4 [24.0-46.0]
α_1 globulins	2.3 [1.0-3.2]	1.5 [1.3-2.8]
α_2 globulins	41.3 [7.4-12.6]	27.7 [6.0-13.0]
β globulins	11.7 [7.5-12.9]	7.8 [6.9-19.6]
γ globulins	5.3 [8.0-15.8]	3.6 [3.5-9.4]

QUESTIONS:

Question 1: Based on CBC results and blood smear examination, what is the differential diagnoses for rouleaux formations?

Question 2: Based on lymph node cytological examination, what is the differential diagnoses and which additional tests do you propose?

Question 3: Based on serum protein electrophoresis, what is the most likely final diagnosis?