

ESVCP Mystery Case 2021

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SIGNALMENT:

A 8 month-old intact male Staffordshire Bull Terrier dog.

HISTORY AND CLINICAL FINDINGS:

The dog was presented with a 24 hours-history of lethargy, anorexia, vomiting and pigmenturia (probably hemoglobinuria).

On physical examination, the dog was dehydrated and severely lethargic. He had pale and tacky mucous membranes, increased breath sounds and a prolonged capillary refill time.

No abnormality was noted through a complete (abdominal and thoracic) radiographic and ultrasonographic investigation.

Complete blood cell count (CBC), blood film, biochemical and urine analysis were also performed. Results are in tables 1, 2 and 3.

Table 1: Hematology results obtained with the Sysmex XN-V® (Sysmex)

Analytes	Data	Reference Interval	Alarm
HGB (g/dL)	10	12.4-19.2	
RBC ($\cdot 10^{12}/L$)	3.4	5.2-7.9	
HCT (L/L)	0.29	0.35-0.52	
MCV (fL)	75.9	60.0-71.0	
MCH (pg)	25.9	21.9-26.3	
MCHC (g/dL)	34.1	34.4-38.1	
RDW-SD (fL)	36.2	31.1-38.9	
RDW-CV (%)	13.2	13.2-19.1	
PLT-I ($\cdot 10^9/L$)	174	64-613	
PLT-O ($\cdot 10^9/L$)	234	108-562	
PLT-F ($\cdot 10^9/L$)	204	-	

WBC-WDF (.10 ⁹ /L)	2.41	5.60-20.40	*
WBC-WNR (.10 ⁹ /L)	22.31		« Difference between WNR and WDF. Check the results. »
Neutrophils (.10 ⁹ /L)	3.02	2.90-13.60	*
Lymphocytes (.10 ⁹ /L)	9.67	1.10-5.30	*
Monocytes (.10 ⁹ /L)	0.02	0.40-1.60	*
Eosinophils (.10 ⁹ /L)	5.45	< 3.10	*
Reticulocytes (10 ⁶ /μL)	76.8	19.4-150.1	« RET Abn Scattergram »
Reticulocytes (%)	1.99	0.30-2.37	
SNAP test 4 Dx Plus® (Idexx) (<i>Dirofilaria immitis</i> , <i>Ehrlichia canis</i> , <i>Ehrlichia ewingii</i> , <i>Anaplasma phagocytophilum</i> , <i>Anaplasma platys</i> , and <i>Borrelia burgdorferi</i>)	Negative	Negative	

*: indicates low reliability

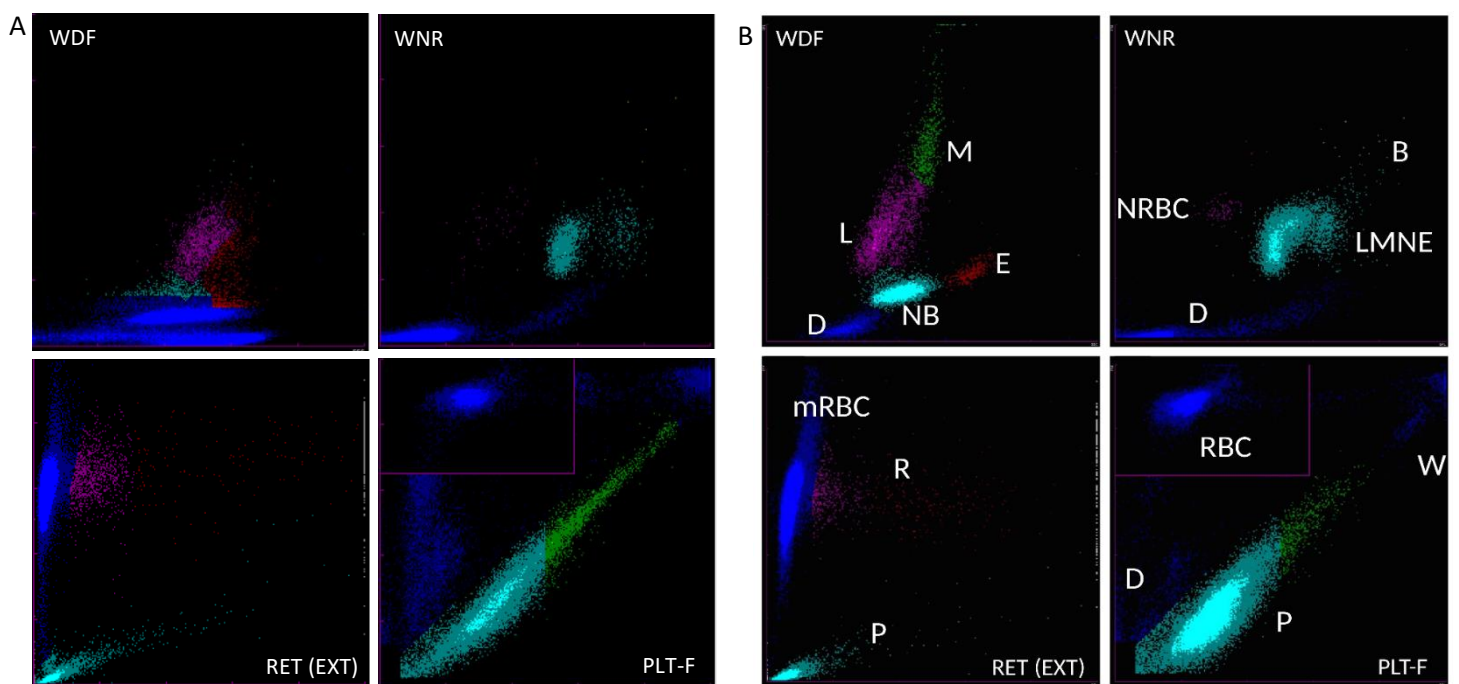
Table 2: Biochemistry results (Vitros®, Ortho Clinical Diagnostics Inc.)

Analytes	Data	Reference Interval
Color of the plasma	Dark orange to red	Clear
Glucose (mmol/L)	7.5	3.7-8.2
BUN	7.3	1.6-10.9
Creatinine (μmol/L)	41.5	44.0-133.0
AST (U/L)	143	1-37
ALT (U/L)	99	3-50
PAL (U/L)	115	20-155
GGT (U/L)	7	5-25
CK (U/L)	241	25-467
Total Bilirubin (μmol/L)	19.6	1.7-12.0
Total Protein (g/L)	58	48-66
Albumin (g/L)	31	23-39

Table 3: Non verified and partial urinalysis results (performed by a student at the emergency unit)

Analytes	Data	Reference Interval
Source	Unknown	-
Color	Dark red	Clear yellow
DU	> 1.060	1.015-1.045
Sediment	Red blood cells: non quantified Bilirubin crystals +++	< 5 cells / 40 PF
Dipstick	Not performed	-

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



A: 8 month-old Staffordshire Bull Terrier dog. B: Healthy dog for cell identification.

WBC differential scattergram (WDF); WBC count scattergram (WNR); Reticulocyte extended scattergram (RET(EXT)); and platelet scattergram with optic-fluorescent analysis (PLT-F) ; B, basophils; 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 cell.

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

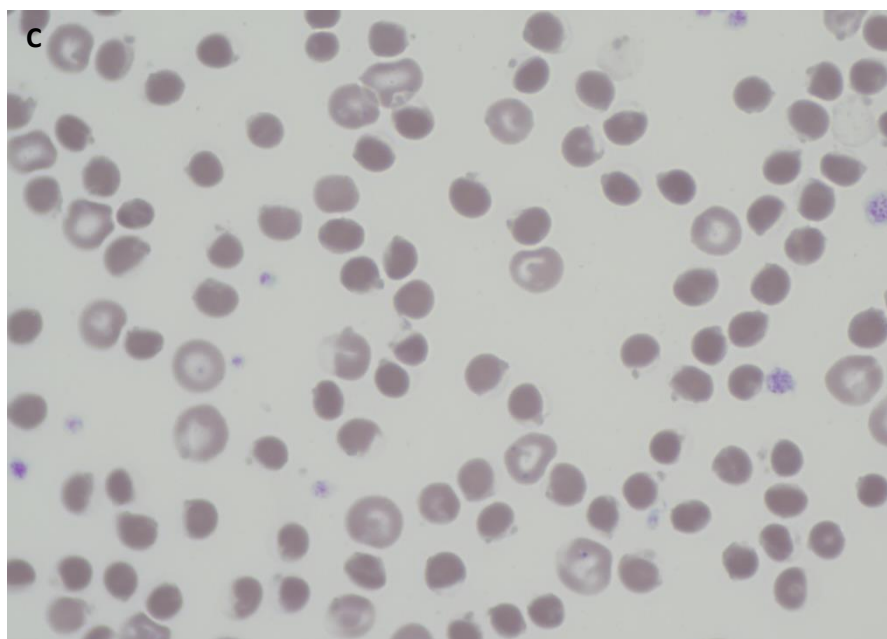
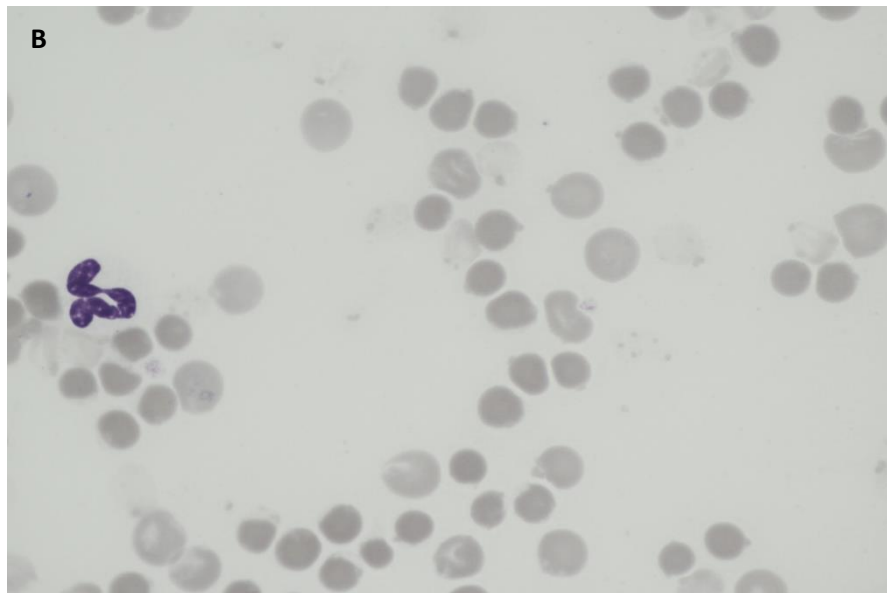
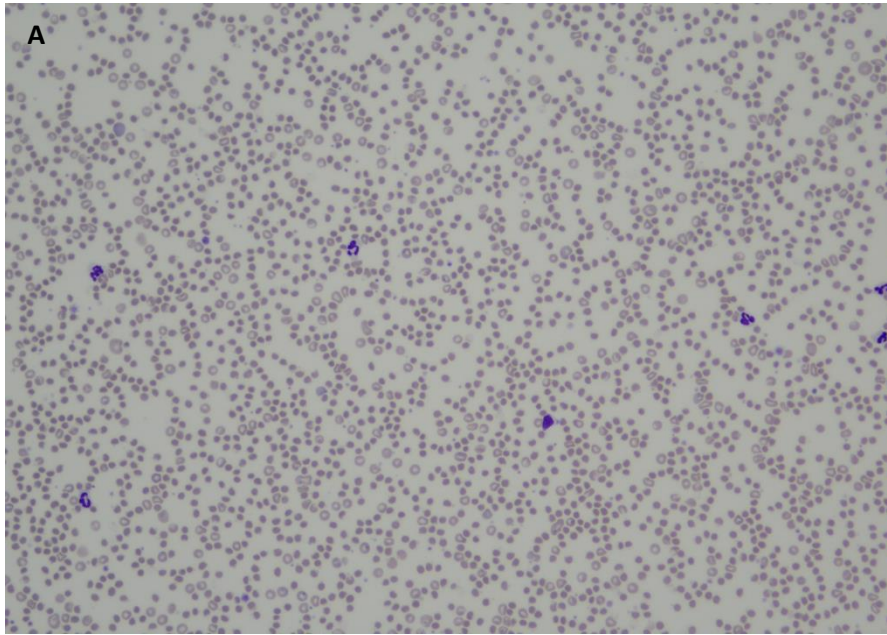


Figure 3: Photomicrograph of peripheral blood smear of the dog, Testsimplets® (Waldeck), x 1000, oil.

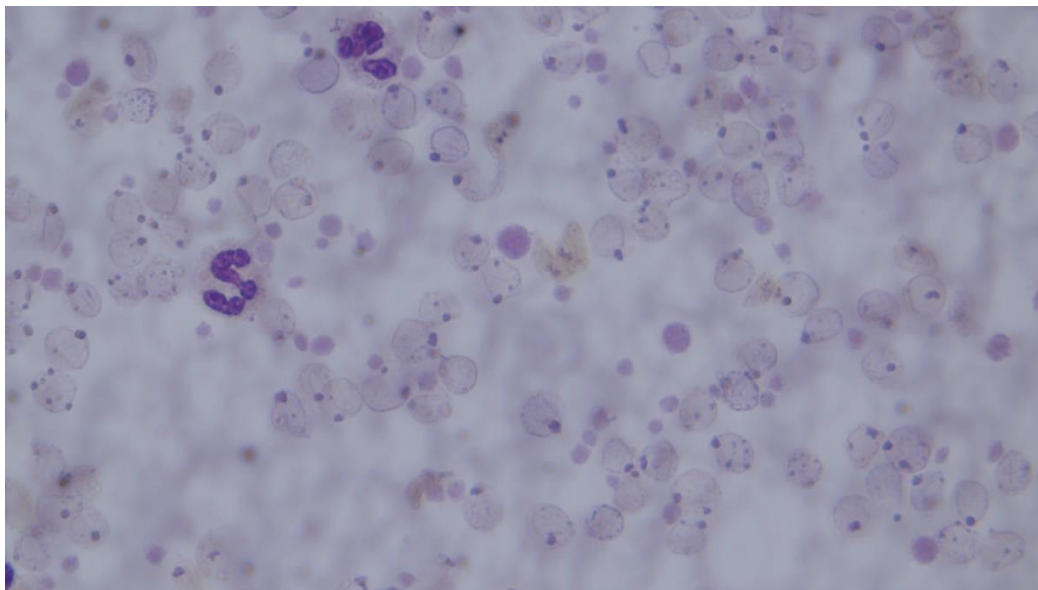


Figure 4: Macroscopic appearance of the heparinized plasma



QUESTIONS:

Question 1: Based on the blood smear evaluation, what is the most likely hypothesis of anemia in this dog?

Question 2: Can you explain the discrepancy between the WBC scattergrams and their unusual aspect?