Urinary cytological twist

Contributors

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Specimens

Whole blood-EDTA; heparin-plasma; serum; urine; urinary cytology obtained through cystocentesis; cytocentrifuge preparation; liver and spleen fine needle aspirates (FNA).

Signalment

Eleven-year-old male neutered Rottweiler mixed breed dog.

History

The dog presented to the emergency service at the Hospital Clínic Veterinari (HCV) of the Universitat Autònoma de Barcelona (UAB), with a four-day history of apathy, anorexia, and polyuria/polydipsia.

Two weeks prior to the current episode, the dog developed nonspecific clinical signs such as vocalization. At that time, hematological analyses were performed by the referring veterinarian (data not available), and, according to the owners, there were no abnormalities. Aside from a corneal ulcer, the physical examination was unremarkable.

A nonsteroidal anti-inflammatory drug (NSAID), carprofen, was prescribed to address presumed pain-related signs, along with topical ophthalmic treatment. Clinical signs of pain resolved during the 8-day NSAID course, however, due to unsatisfactory improvement of the corneal ulcer, the dog was referred to the ophthalmology service at the HCV. A corneal ulcer with detached edges was diagnosed, with cytological findings revealing a scarce number of neutrophils with intra- and extracellular cocci. The area was debrided, and ocular treatment with drops was prescribed. After returning home from this consultation, the dog vomited once, followed by additional episodes throughout the night. From that point onwards, he became anorexic.

Clinical findings

On physical examination, the dog presented mentally alert, but markedly apathetic, with pink to slightly congestive mucous membranes, tachycardia (100 bpm), and showed generalized discomfort on abdominal palpation.

Upon admission to the emergency service, an abdominal point-of-care ultrasound was performed, as well as blood and urine analyses in the in-hospital laboratory: a complete blood cell count (ProCyte Dx Hematology Analyzer) with blood smear review, a complete biochemistry panel (Catalyst Dx Chemistry Analyzer and NOVA Stat Profile Prime Plus® Critical Care Blood Gas Analyzer), urinalysis (IDEXX VetLab UA Analyzer), and urine cytology. The latest was subsequently reviewed at the Clinical Pathology Laboratory of the UAB.

Table 1 - Hematology results for the EDTA-blood specimen performed on the ProCyte Dx. Bolded values are outside the reference interval.

Parameter (units)	Result		Reference interval
RBC (x10^{12}/L)	7.49		5.65 - 8.87
HCT (%)	46.4		37.3 - 61.7
Hgb (g/dL)	16.7		13.1 - 20.5
MCV (fL)	61.9		61.6 - 73.5
MCH (pg)	22.3		21.2 - 25.9
MCHC (g/dL)	36		32 - 37.9
RET (x10^{9}/L)	45.7		10 - 110
RET-He (pg)	**21.7**		**22.3 - 29.6**
WBC (x10^{9}/L)	6.38		5.05 - 16.76
	Automated Count	**Manual Count**	
Neutrophils (x10^{9}/L)	3.91	4.85	2.95 - 11.64
Lymphocytes (x10^{9}/L)	1.40	**0.73**	1.05 - 5.10
Monocytes (x10^{9}/L)	0.83	0.73	0.16 - 1.12
Eosinophils (x10^{9}/L)	0.20	0.06	0.06 - 1.23
Basophils (x10^{9}/L)	0.04	0	0 - 0.10
PLT (x10^{9}/L)	**129**	Adequate (platelet clumping)	**148 - 484**

Table 2 - Biochemistry results for the Heparin-plasma specimen performed on the Catalyst Dx and NOVA. Bolded values are outside the reference interval.[a] Parameter obtained with NOVA analyzer.

Parameter (units)	Result	Reference Interval
Glucose (mg/dL)	94	70 - 143
Creatinine (mg/dL)	**2.8**	**0.5 - 1.8**
BUN (mg/dL)	**51**	**7 - 27**
Phosphorus (mg/dL)	6	2.5 - 6.8
Calcium (mg/dL)	**14.9**	**7.9 - 12**

Sodium (mmol/L)	152	144 - 160
Potassium (mmol/L)	4.1	3.5 - 5.8
Chloride (mmol/L)	110	109 - 122
Total Protein (g/dL)	**8.3**	**5.2 - 8.2**
Albumin (g/dL)	3.5	2.2 - 3.9
Globulins (g/dL)	**4.8**	**2.5 - 4.5**
ALT (U/L)	82	10 - 125
ALP ((U/L)	76	23 - 212
GGT (U/L)	0	0 - 11
Cholesterol (mg/dL)	156	110 - 320
Free calcium (fCa)[a] (mmol/L)	**1.74**	**1.25 - 1.5**

Table 3 - Urinalysis results for the urine specimen performed on the IDEXX VetLab UA Analyzer. Bolded values are considered abnormal.

Parameter (units)	Result
Color	Straw
Turbidity	Very Cloudy
Specific gravity	1.030
pH	8
Protein	**3+**
Glucose	**1+**
Ketones	Negative
Blood/ Hemoglobin	**4+**
Bilirubin	Negative
Urobilinogen	Normal
Leukocyte esterase	2+

Urine cytological preparations were obtained by cystocentesis, centrifuged and stained with Wright-Giemsa, using Hematek 2000, for cytologic examination.

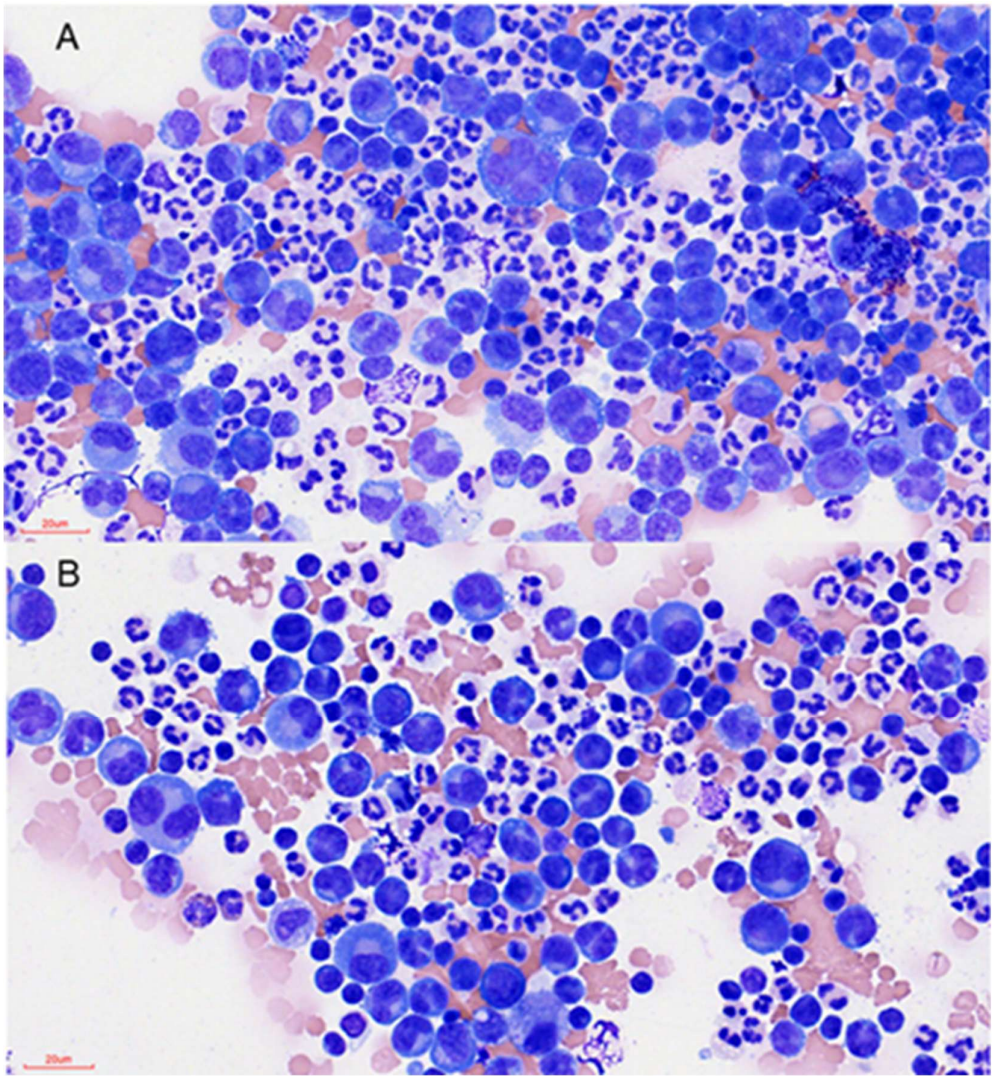

Figure 1 – A and B: urine cytological preparations of the dog from this report. Wright-Giemsa stain, images acquired using a digital slide scanner (Motic EasyScan One, MoticEurope SLU, Barcelona, Spain).

Questions

1. Considering the laboratory findings, what are your main differential diagnoses?

2. What other diagnostic tests would you consider performing?