

## Clinical pathology diagnostic challenge : case #35

**Signalment:** 4 year old male mixed breed dog.

**History:** weakness and dyspnea (for a few weeks).

**Physical exam observations:** hyperthermia and increased respiratory sounds, moderate dehydration.

### CBC results

|                                                   |      |
|---------------------------------------------------|------|
| Hematocrit (0.37-0.55 L/L)                        | 0.34 |
| Hemoglobin (120-180 g/L)                          | 116  |
| Erythrocytes ( $5.5-8.5 \times 10^{12}$ /L)       | 4.66 |
| MCV (60-77 fL)                                    | 73   |
| MCHC (320-360 g/L)                                | 341  |
| Reticulocytes (<1 %)                              | 0    |
| Reticulocytes ( $<60\,000 \times 10^6$ /L)        | 0    |
| Platelets ( $200-900 \times 10^9$ /L)             | 8*   |
| Plasma protein (60-80 g/L)                        | 47   |
| Leukocytes ( $6.0-17.0 \times 10^9$ /L)           | 2.1  |
| Neutrophils (mature) ( $3.0-11.5 \times 10^9$ /L) | 0.2  |
| Neutrophils (band)( $0-0.3 \times 10^9$ /L)       | 0.4  |
| Lymphocytes ( $1.0-4.8 \times 10^9$ /L)           | 1.0  |
| Monocytes ( $<1.4 \times 10^9$ /L)                | 0.5  |
| Eosinophils ( $0.1-1.3 \times 10^9$ /L)           | 0    |
| Basophils (0 - rare $\times 10^9$ /L)             | 0    |

\* Confirmed on the smear

### Clinical chemistry results

|                                      |       |
|--------------------------------------|-------|
| Glucose (3.38-6.88 mmol/L)           | 5.3   |
| BUN (2.09-7.91 mmol/L)               | 19    |
| Creatinine (58-127 $\mu$ mol/L)      | 180   |
| ALT (4-62 U/L)                       | 15    |
| Alkaline phosphatase (6-80 U/L)      | 87    |
| Total protein (56.6-74.8 g/L)        | 38.9  |
| Albumin (29.1-39.7 g/L)              | 15.7  |
| Globulins (23.5-39.1 g/L)            | 23.2  |
| Calcium (2.38-3.00 mmol/L)           | 2.02  |
| Phosphorus (0.75-1.70 mmol/L)        | 1.65  |
| Potassium (3.82-5.34 mmol/L)         | 3.14  |
| Sodium (143-154 mmol/L)              | 134.3 |
| Chloride (108-117 mmol/L)            | 105   |
| Total CO <sub>2</sub> (17-25 mmol/L) | 15.5  |
| Anion Gap (12-24 mmol/L)             | 16.94 |

### Other tests

#### Urinalysis (catheterization)

Clinical chemistry and physical exam.

|                  |                         |
|------------------|-------------------------|
| Color            | dark yellow             |
| Turbidity        | 0-1+                    |
| Specific gravity | 1.033                   |
| pH               | 7.5                     |
| Proteins         | 4 g/L                   |
| Glucose          | neg.                    |
| Ketone bodies    | -                       |
| Bilirubin        | 3+ (confirmed/Ictotest) |
| Sang             | 250 Ery. / $\mu$ L      |

#### Microscopic exam (per field (400x))

|                  |                             |
|------------------|-----------------------------|
| Erythrocytes     | 1 - 5                       |
| Leukocytes       | 1 - 3                       |
| Renal cells      | 0                           |
| Transition cells | 3-7                         |
| Epithelial cells | 0 - 1                       |
| Cylinders        | 0 - 1 hyalin, 0 -2 granular |
| Lipids           | 1+                          |
| Crystals         | 0                           |
| Bacteria         | 2+ cocci                    |

**Coagulation tests**

|                 | Control* | Patient |
|-----------------|----------|---------|
| OSPT (sec.)     | 5.8      | 6.2     |
| APTT (sec.)     | 13.8     | 21.9    |
| FDP (< 5 µg/ml) | -        | neg.    |

\* Sample taken from a healthy dog.

**Cytology**

Tracheal wash  
Appearance pale to pink yellow, clear

Using the laboratory changes, submit a differential diagnosis and justify it (pathophysiology). If needed list other possible tests to confirm your diagnosis.