

Clinical pathology diagnostic challenge: case #24

Signalment: 7 year old Holstein cow.

History: anorexia, red udder.

Physical exam observations: animal in lateral recumbency, suffering from dehydration and hyperthermia.

CBC results

Hematocrit (0.24-0.46 L/L)	0.29
Hemoglobin (80-150 g/L)	99.1
Erythrocytes ($5.0-10.0 \times 10^{12}$ /L)	5.97
MCV (40-60 fL)	48.2
MCHC (300-360 g/L)	344
Reticulocytes (<1%)	-
Reticulocytes ($<60\,000 \times 10^6$ /L)	-
Platelets ($100-800 \times 10^9$ /L)	65.5
Fibrinogen (<8 g/L)	5
Leukocytes ($4.0-12.0 \times 10^9$ /L)	1.05
Neutrophils (mature) ($0.6-4.0 \times 10^9$ /L)	0.08
Neutrophils (band) ($0-0.1 \times 10^9$ /L)	0
Lymphocytes ($2.5-7.5 \times 10^9$ /L)	0.71
Monocytes ($<0.8 \times 10^9$ /L)	0.13
Eosinophils ($<2.4 \times 10^9$ /L)	0.13
Basophils (0 - rare $\times 10^9$ /L)	0

Clinical chemistry results

Glucose (2.6-4.9 mmol/L)	2.6
BUN (1.61-6.51 mmol/L)	7.8
Creatinine (54-132 μ mol/L)	118
Bilirubin (<14 μ mol/L)	12.2
GGT (9.5-39 U/L)	42
Alkaline phosphatase. (<100 U/L)	51
AST (30-104 U/L)	196
CK (<310 U/L)	4240
Total protein (59.5-80.0 g/L)	51.6
Albumin (27.7-40.4 g/L)	28.9
Globulins (26.2-45.2 g/L)	22.7
Calcium (2.22-2.70 mmol/L)	2.31
Phosphorus (1.05-2.83 mmol/L)	2.01
Potassium (3.86-5.28 mmol/L)	3.91
Sodium (134-147 mmol/L)	143.3
Chloride (96-109 mmol/L)	96.2
Total CO ₂ (22-33 mmol/L)	29.8
Anion Gap (7-18 mmol/L)	21.21
Magnesium (0.7-0.91 mmol/L)	0.76

Other tests

Coagulation tests

	Control*	Patient
PT (sec.)	11.8	13.6
PTT (sec.)	34.8	55.6
FDP (< 5 μ g/ml)	Neg.	Neg.

- Sample taken from a healthy bovine.

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