Clinical pathology diagnostic challenge : case #4

Signalment: 8 year old female Holstein cow.

History: 6.5 months pregnant, drying out period scheduled in 15 days, decreased appetite in the last few days, treated for mastitis with linquamycine (injected in the udder).

Physical exam observations: T 38.9 C, P 100 b/min, R 25 /min, atonic rumen, right-sided ping detected.

CBC results

Hematocrit (0.24-0.46 L/L)	0.40
Hemoglobin (80-150 g/L)	133
Erythrocytes (5.0-10.0 x 1012 /L)	6.91
MCV (40-60 fL)	58
MCHC (300-360 g/L)	333
Reticulocytes (<1%)	-
Reticulocytes (<60 000 x 106/L)	-
Platelets (100-800 x 109/L)	436
Plasma protein (60-80 g/L)	78
Fibrinogen (<8 g/L)	6
Leukocytes (4.0-12.0 x 109/L)	10.8
Neutrophils (mature) (0.6-4.0 x 109/L)	8.0
Neutrophils (band) (0-0.1 x 109/L)	0
Lymphocytes (2.5-7.5 x 109/L)	1.8
Monocytes (<0.8 x 109/L)	0.8
Eosinophils (<2.4 x 109/L)	0.1
Basophils (0 - rares x 109/L)	0

Clinical chemistry results

Glucose (2.6-4.9 mmol/L)	7.3
BUN (1.61-6.51 mmol/L)	8.9
Creatinine (54-132 µmol/L)	54
Bilirubin (<14 U/L)	25
GGT (9.5-39 U/L)	71
Alkaline phosphatase (<100 U/L)	87
AST (30-104 U/L)	310
CK (<310 U/L)	616
Total protein (59.5-80.0 g/L)	79.7
Albumin (27.7-40.4 g/L)	35.9
Globulins (26.2-45.2 g/L)	33.8
Calcium (2.22-2.70 mmol/L)	2.70
Phosphorus (1.05-2.83 mmol/L)	1.92
Potassium (3.86-5.28 mmol/L)	3.87
Sodium (134-147 mmol/L)	142
Chloride (96-109 mmol/L)	84
Total C02 (22-33 mmol/L)	29.6
Anion Gap (7-18 mmol/L)	32.3
Magnesium (0.7-0.91 mmol/L)	0.73

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