

Clinical pathology diagnostic challenge : case #13

Signalment: 2 week old Charolais calf.

History: distension, weakness, anorexia.

Physical exam observations: abdominal distension, rapid respiratory rate.

CBC results		Clinical chemistry results	
Hematocrit (0.24-0.46 L/L)	0.36	Glucose (2.6-4.9 mmol/L)	5.7
Hemoglobin (80-150 g/L)	121	BUN (1.61-6.51 mmol/L)	73
Erythrocytes (5.0-10.0 x 10 ¹² /L)	8.35	Creatinine (54-132 µmol/L)	2096
MCV (40-60 fL)	43	Bilirubin (<14 µmol/L)	9.9
MCHC (300-360 g/L)	336	GGT (9.5-39 U/L)	15
Reticulocytes (<1%)	-	Alkaline phosphatase (<100 U/L)	67
Reticulocytes (<60 000 x 10 ⁶ /L)	-	AST (30-104 U/L)	145
Platelets (100-800 x 10 ⁹ /L)	445	CK (<310 U/L)	149
Plasma proteins (60-80 g/L)	78	Total protein (59.5-80.0 g/L)	86.8
Fibrinogen (<8 g/L)	5	Albumin (27.7-40.4 g/L)	34.8
Leukocytes (4.0-12.0 x 10 ⁹ /L)	9.4	Globulins (26.2-45.2 g/L)	52.0
Neutrophils (mature) (0.6-4.0 x 10 ⁹ /L)	4.6	Calcium (2.22-2.70 mmol/L)	2.55
Neutrophils (band) (0-0.1 x 10 ⁹ /L)	0	Phosphorus (1.05-2.83 mmol/L)	1.67
Lymphocytes (2.5-7.5 x 10 ⁹ /L)	2.9	Potassium (3.86-5.28 mmol/L)	3.14
Monocytes (<0.8 x 10 ⁹ /L)	1.1	Sodium (134-147 mmol/L)	137
Eosinophils (<2.4 x 10 ⁹ /L)	0	Chloride (96-109 mmol/L)	86.5
Basophils (0 - rare x 10 ⁹ /L)	0	Total CO2 (22-33 mmol/L)	22.6
		Anion Gap (7-18 mmol/L)	31.0

Urinalysis (free catch)

Color	pale yellow
Turbidity	3 +
Specific gravity	1.014
pH	8.5
Proteins	1.0 g/L
Glucose	-
Ketone bodies	-
Bilirubin	-
Blood (ery. / μL)	250 Ery/ul
Erythrocytes	40-50 / 400x
Leukocytes	too numerous to count / 400x
Renal cells	0 / 400x
Transitional cells	2-3 / 400x
Epithelial cells	0-1 / 400x
Cylinders	0 / 100x
Lipids	-
Crystals	mild calcium carbonates
Bacteria	2-3 + rods

Cytology (Abdominal tap)

Appearance	pale yellow, mildly cloudy
Proteins	24 g / L
Leukocytes	$0.66 \times 10^9 / \text{L}$
Abdominal fluid creatinine levels:	3285 $\mu\text{mol} / \text{L}$

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