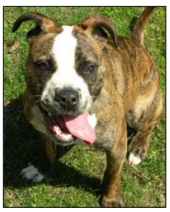
An SDMA case study: Mary Jane



Patient: Mary Jane, 3-year-old, spayed female Leavitt bulldog

Presenting reason: Mary Jane had just moved into the area and had come in for a checkup and to see how her kidney disease was doing.

History: Mary Jane was diagnosed with kidney disease by her former veterinarian when she presented for an ovariohysterectomy at 1 year of age. At the time, Mary Jane's owners were informed that she would likely not live very long, as she was being diagnosed so early in her life. The owners reported that Mary Jane appeared to be a happy and healthy dog aside from her diagnosis of kidney disease and noted normal thirst and urination, without urinary accidents or the need to go out at nighttime.

Her owners heard about a new test for kidney disease in dogs and cats that they thought may give them more information to potentially help Mary Jane. They considered Mary Jane a valued member of their family, and they were saddened by the possibility that her time with them is going to be short because of her condition.

Physical examination: Mary Jane was bright, alert, and responsive (BAR). She had a normal temperature, pulse, and respiration rate. She was well-hydrated and appeared well-muscled. The pet owner brought along copies of Mary Jane's lab work from her former veterinarian so it could be compared to current lab work results.

Previous laboratory results

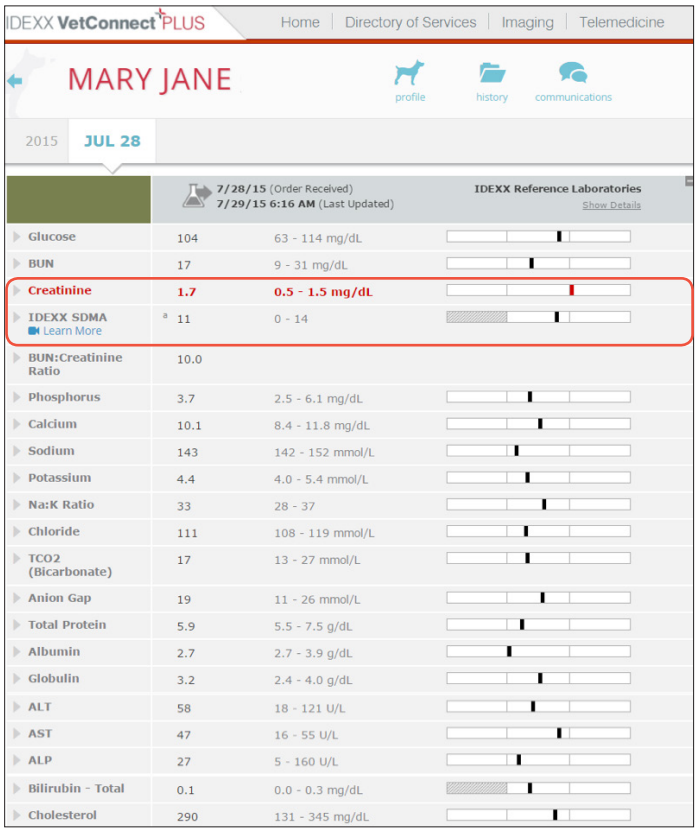
Chem 10			
Tests	**Results**	**Ref. Range**	**Units**
Total Protein	6.3	5.0–7.4	g/dL
Albumin	3.6	2.7–4.4	g/dL
Globulin	2.7	1.6–3.6	g/dL
A/G Ratio	1.3	0.8–2.0	Ratio
ALT (SGPT)	32	12–118	U/L
Alk Phosphatase	37	5–131	U/L
Urea Nitrogen	15	6–31	mg/dL
Creatinine	**1.7 (HIGH)**	**0.5–1.6**	**mg/dL**
BUN/Creatinine Ratio	9.4	4–27	Ratio
Glucose	90	70–138	mg/dL

Test Requested	**Results**	**Reference Range**	**Units**
URINALYSIS			
Collection Method			
Free-Catch			
Color	Yellow		
Appearance	Hazy		
Specific Gravity	1.038	1.015–1.050	
pH	6.5	5.5–7.0	
Protein	Neg	Neg	
Glucose	Neg	Neg	
Ketone	Neg	Neg	
Bilirubin	Neg	Neg To 1+	
Blood	Neg	Neg	
WBC	0–2	0–3	HPF
RBC	None Seen	0–3	HPF
Casts	None Seen		LPF
Amorphous Phosphate Crystals	None Seen		HPF
Bacteria	None Seen	None	HPF
Squamous Epithelia	None Seen	0–3	HPF

Diagnostic plan

A chemistry panel, including the IDEXX SDMA™ Test; complete urinalysis; the SNAP® 4Dx® Plus Test; and a fecal ova and parasites test were recommended.

Mary Jane's CBC came back within normal limits, and her SNAP 4Dx Plus Test results were all negative.



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7/28/15 (Order Received)
7/29/15 6:16 AM (Last Updated)
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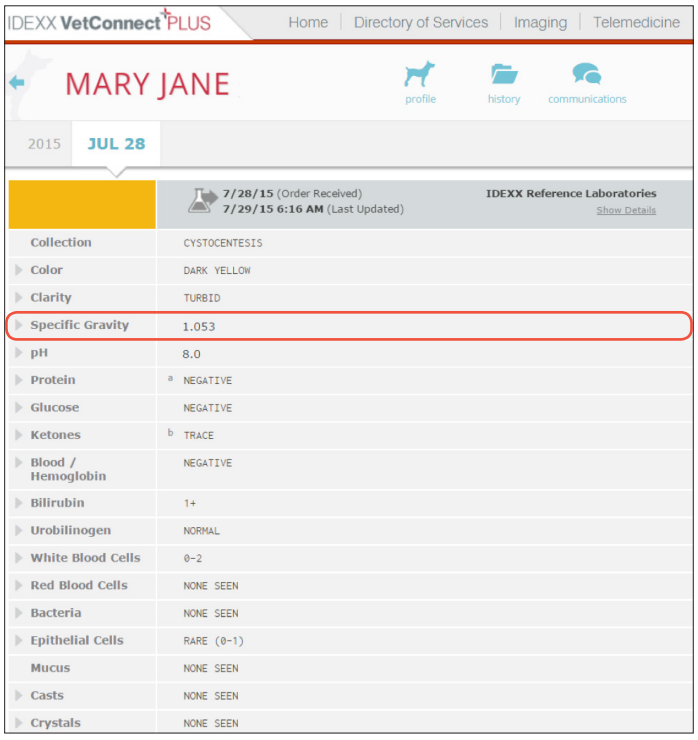
Glucose	104	63 - 114 mg/dL	
BUN	17	9 - 31 mg/dL	
Creatinine	**1.7**	**0.5 - 1.5 mg/dL**	
IDEXX SDMA Learn More	[a] 11	0 - 14	
BUN:Creatinine Ratio	10.0		
Phosphorus	3.7	2.5 - 6.1 mg/dL	
Calcium	10.1	8.4 - 11.8 mg/dL	
Sodium	143	142 - 152 mmol/L	
Potassium	4.4	4.0 - 5.4 mmol/L	
Na:K Ratio	33	28 - 37	
Chloride	111	108 - 119 mmol/L	
TCO2 (Bicarbonate)	17	13 - 27 mmol/L	
Anion Gap	19	11 - 26 mmol/L	
Total Protein	5.9	5.5 - 7.5 g/dL	
Albumin	2.7	2.7 - 3.9 g/dL	
Globulin	3.2	2.4 - 4.0 g/dL	
ALT	58	18 - 121 U/L	
AST	47	16 - 55 U/L	
ALP	27	5 - 160 U/L	
Bilirubin - Total	0.1	0.0 - 0.3 mg/dL	
Cholesterol	290	131 - 345 mg/dL	



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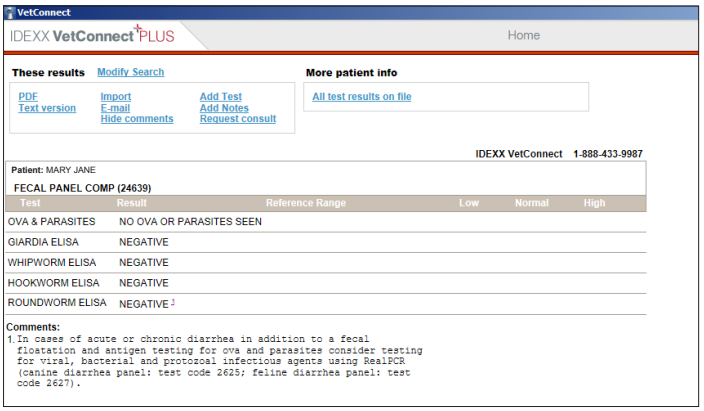
Collection	CYSTOCENTESIS
Color	DARK YELLOW
Clarity	TURBID
Specific Gravity	1.053
pH	8.0
Protein	[a] NEGATIVE
Glucose	NEGATIVE
Ketones	[b] TRACE
Blood / Hemoglobin	NEGATIVE
Bilirubin	1+
Urobilinogen	NORMAL
White Blood Cells	0-2
Red Blood Cells	NONE SEEN
Bacteria	NONE SEEN
Epithelial Cells	RARE (0-1)
Mucus	NONE SEEN
Casts	NONE SEEN
Crystals	NONE SEEN



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All test results on file

IDEXX VetConnect 1-888-433-9987

Patient: MARY JANE

FECAL PANEL COMP (24639)

Test	Result	Reference Range	Low	Normal	High
OVA & PARASITES	NO OVA OR PARASITES SEEN				
GIARDIA ELISA	NEGATIVE				
WHIPWORM ELISA	NEGATIVE				
HOOKWORM ELISA	NEGATIVE				
ROUNDWORM ELISA	NEGATIVE [1]				

Comments:
1. In cases of acute or chronic diarrhea in addition to a fecal floatation and antigen testing for ova and parasites consider testing for viral, bacterial and protozoal infectious agents using RealPCR (canine diarrhea panel: test code 2625; feline diarrhea panel: test code 2627).

Diagnostic review

The implications of an incomplete patient workup given today's diagnostic capabilities:

- Better information yields better patient outcomes and appropriate pet owner conversations—Innovations in diagnostics afford us the opportunity to more specifically identify disease conditions, investigate underlying causes and complications, and plan treatment and follow-up supportive care.
- While SDMA* and creatinine are inversely proportional to glomerular filtration rate (GFR), they vary in reliability for assessing kidney function—**SDMA has not been shown to be influenced by medications, advanced age, breed, or muscle mass like creatinine can be.**

Diagnosis

Mary Jane's kidney function was normal. Creatinine is not specific for kidney function, and it was likely increased because of Mary Jane's muscle mass.

Discussion

Creatinine is a breakdown product of muscle and, as such, blood creatinine concentration is highly influenced by muscle condition of patients.

SDMA is a more reliable indicator of kidney function than creatinine. Mary Jane's case is an example of how a healthy pet can have a creatinine that is increased above the reference interval while other commonly evaluated kidney disease parameters (e.g., SDMA, urine specific gravity) are within normal limits. SDMA should always be assessed first alongside creatinine to more reliably determine kidney health and response to treatment.

*Symmetric dimethylarginine