

Case Number One: "Sky"

**Signalement:**

7 year old SF Weinmaraner

**History:**

3 week history of vomiting, anorexia and weight loss. Recent bouts of foul smelling diarrhea and melena

**Physical Exam**

Body condition score 2/5;  
Possible thickening of intestines mid abdomen

**Radiographs:**

Possible mineralized density in intestine

**General Blood Work (without UA):**

CBC

	In Range	Out of Range	Reference Range	Units
WBC	14.8		6.0-17.0	K/uL
RBC		5.02 L	5.50-8.50	M/uL
HGB		7.5 L	12.0-18.0	g/dL
HCT		25.0 L	37.0-55.0	%
MCV		53.2 L	60.0-77.0	fL
MCH		15.0 L	19.0-25.0	pg
MCHC		30.0 L	32.0-36.0	%
PLT		741 H	200-500	

Cannot get accurate platelet count due to clumping.  
Platelet estimate increased.

	In Range	Out of Range	Reference Range	Units
Polys 87%		12833 H	3600-11500	/uL
Lymphs 2.0%		295 L	1000-4800	/uL
Monos 10.0%		1475 H	150-1350	/ul
Eosin 1.0%		148	0-1250	/uL

\*\*\*To be reviewed\*\*\*

Slight polychromasia.  
Slight hypochromasia.  
Slight microcytosis.  
Hematocrit recheck

Glucose	98		65-130mg/dL	
BUN	9		6-29mg/dL	
Creatinine	0.5	L	0.6-1.6mg/dL	
Sodium	146		140-158mEq/L	
Potassium	6.0	H	4.0-5.7mEq/L	
Na/K Ratio	24	L	27-40	

Chloride	114	100-118mEq/L
CO2	22	18-26meq/L
Anion Gap	16	13-25
Calcium	10.0	8.0-12.0mg/dL
Phosphorus	5.5	3.0-7.0mg/dL
Osm Calc	289	270-310
Total Protein	5.7	5.4-7.6g/dL
Albumin	3.0	2.3-4.0g/dL
Globulin	2.7	2.4-4.4g/dL
A/G Ratio	1.1	0.6-1.2
Tot Bilirubin	0.1	0.0-0.5mg/dL
ALP	27	10-84U/L
GGT	3	0-10U/L
ALT	18	5-65U/L
AST	43	16-60U/L
Cholesterol	168	150-275mg/d

### **Interpretation:**

From pathologist review of the CBC: Moderate microcytic hypochromic anemia with decreased reticulocyte hemoglobin concentration (CHr = 15.2 pg; > 20 pg is considered more normal in dogs) is highly suggestive for iron deficiency anemia; any evidence of melena? Chronic NSAID use? GI lesions? Other sites of chronic blood loss?

Thrombocytosis is often noted with iron deficiency anemia. Consider serum iron/TIBC/ferritin and monitor for trends. Leukogram could be due to cortisol-induced stress alone; no evidence of left shift or toxic change is noted

This case highlights the importance of a slide review in an ill patient. These subtle changes in RBC morphology were helpful in assessing the anemia as an iron deficiency anemia, a microcytic hypochromic anemia, with the most likely cause being external blood loss. Generally, we think of gastrointestinal loss as a common source, with differentials including foreign body, ulceration, neoplasia, etc. The analyzer reticulocyte count provides a retic hemoglobin value that can further support hypochromasia.

The history of melena was helpful in assessing the anemia as GI blood loss rather than due to internal hemorrhage, coagulopathy or an immune-mediated process, but sometimes the history is vague and assessment of RBC morphology can be critical in determining our next diagnostic steps. Furthermore, immunosuppressive therapy for a patient with suspected IMHA could be detrimental to a patient with GI blood loss. Slide review can make all the difference.

### **Additional Diagnostic Tests:**

Addison's disease can cause significant gastrointestinal hemorrhage. A resting cortisol was ordered and the result of 5.7 ug/dl ruled-out this differential. A patient with a resting cortisol >2.0 ug/dl has a 99% chance of NOT having Addison's Disease. With a resting cortisol of <2.0ug/dl, an ACTH response test would have been necessary to rule-in Addison's Disease. This patient had not received steroids prior to this test.

**Diagnosis:**

“Sky” received supportive therapy including fluids on initial presentation until the blood results were received. Based on the baseline cortisol result, the veterinarian performed exploratory surgery, finding nodules of varying sizes throughout the intestinal and abdominal cavity, with extensive adhesions. Suspecting neoplasia, the owners elected to euthanize the dog.