

## What's Your Diagnosis?

By Sohaila Jafarian, Class of 2018

**Signalment:** Greeley, 3 yo MC DSH

**Presenting Complaint:** ADR

**History:**

Patient is an indoor/outdoor cat. Previously healthy and up to date on vaccines

**PE Findings:**

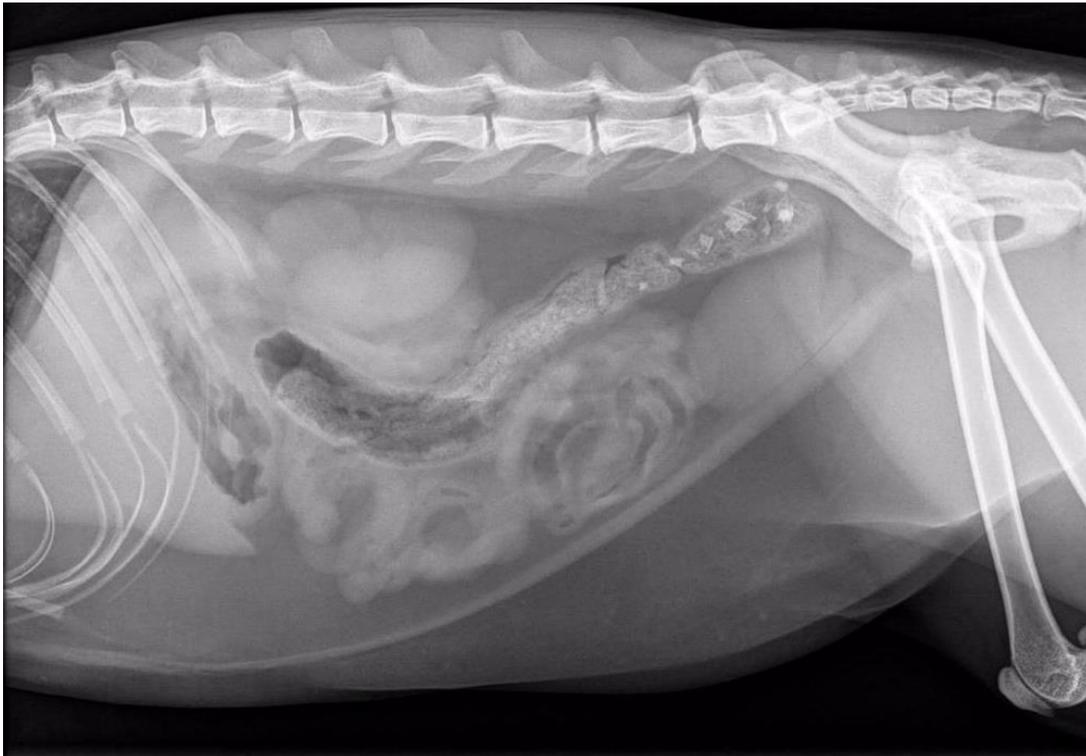
On presentation, Greeley was febrile with a temperature of 106.1°F, heart rate of 180 beats/minute, and respiratory rate of 20 breaths/minute. No abnormalities were heard on cardiopulmonary auscultation. He was painful on abdominal palpation and appeared very weak and depressed. Greeley was estimated to be ~7% dehydrated. His third eyelids were elevated and a non-engorged tick was found on him. No wounds or bite marks were present on his skin.

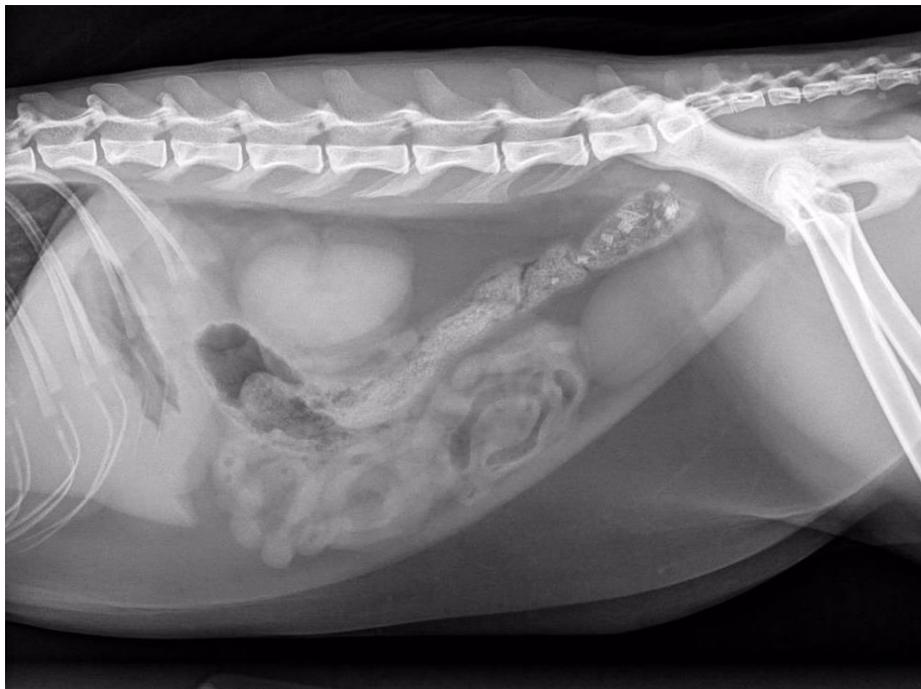
**Initial Diagnostic Tests:**

**CBC (5/21/17):** Acute inflammatory leukogram with degenerative left shift, marked thrombocytopenia, mild non-regenerative anemia

**Chemistry (5/21/17):** Elevated creatinine, hyperphosphatemia, hypoalbuminemia, hypocalcemia, and hyperbilirubinemia

**Radiographs (5/21/17):**





### **Findings:**

Greeley has a pendulous abdomen, but serosal detail is good and no effusion or air is appreciated within the peritoneal space. The gastric axis is displaced caudally and the caudal ventral margin of the liver lobes also appear slightly rounded. The head of the spleen appears enlarged on VD, but cannot be appreciated on either lateral projections.

### **Conclusions:**

Hepatomegaly and splenomegaly, both of which are nonspecific and could be due to inflammatory, infectious, metabolic/endocrine, nodular hyperplasia, or neoplasia. Because of the patient's acute onset, fever, and inflammatory leukogram infectious cause is a top differential.

### **Follow-up Diagnostic Tests:**

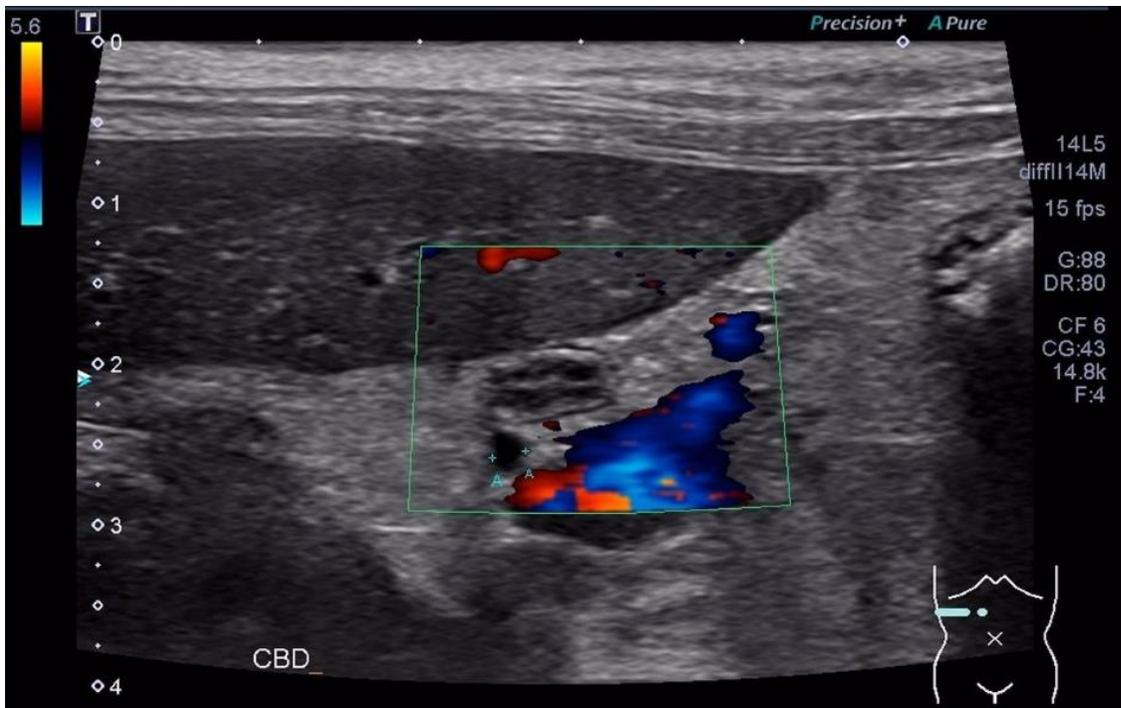
**CBC (5/23/17):** Marked leukopenia characterized by marked neutropenia (with marked toxic changes) and lymphopenia, marked thrombocytopenia, mild non-regenerative anemia, atypical lymphocytes

**Chemistry (5/23/17):** Hypoproteinemia, hypoalbuminemia, elevated ALT, elevated CK, hyperbilirubinemia

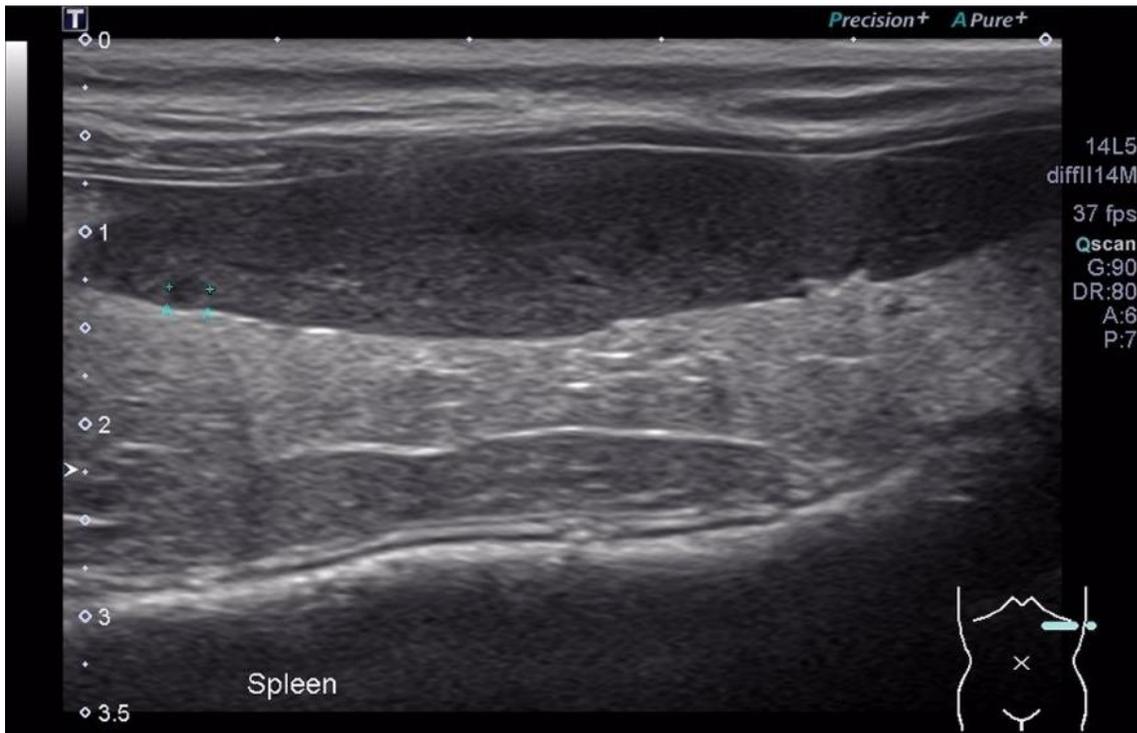
### **Abdominal ultrasound (5/23/17):**

Liver





Spleen



### **Findings:**

When comparing the echogenicity of the falciform fat to the echogenicity of the liver, the liver is diffusely less echogenic, which is an abnormal finding. The echogenicity of the liver should normally be the same as falciform fat. The common bile duct is abnormally distended proximally, but appears to taper to a normal diameter. The spleen, when compared to the liver, was also hypoechoic with multiple ~2 mm hypoechoic nodules. Segments of the small intestine had increased wall thickness, the largest segment measuring up to 2.4 mm thick, with the average normal feline SI wall measuring ~2.1 mm. Some abdominal lymph nodes were enlarged up to 5.2 mm.

### **Conclusions:**

Hepatic and splenic hypoechoogenicity is indicative of either inflammatory or infiltrative disease as noted on the radiographs. Lymphadenopathy of the abdominal lymph nodes is also indicative of inflammatory disease. Increased wall thickness and echogenicity of the small intestine indicates the possibility of inflammatory disease as well.

**Follow-up Diagnostic Tests:** The combination of clinical signs, lab results, and imaging lead to the suspicion of Tularemia and a PCR was performed.

**Francisella tularensis (Tularemia) real-time PCR (5/23/17):** Positive

### **Treatment Plan:**

Two week of a fluoroquinolone antibiotic, pradofloxacin, and continued supportive care consisting of IV fluids, buprenorphine for pain, and cerenia for nausea. Supportive care should be continued until Greeley is no longer febrile and is eating and drinking normally.

### **Follow-up:**

Continue antibiotic and supportive care with rDVM and consult KSU VHC as needed. Because Tularemia is a zoonotic disease, use gloves and wash hands after handling Greeley. Be wary and do not let Greeley bite or scratch you. Minimize risk of reinfection in the future by continuing flea and tick prevention and limiting outdoor access.

### **Discussion:**

Tularemia is a zoonotic infectious bacterial disease caused by the gram negative bacteria *Francisella tularensis*. According to Kansas Department of Health and Environment, Tularemia is found in numerous wild animals, most commonly rabbits, hares, voles, and various hard ticks. It is transmitted by the bite of an infected arthropod, by inoculation of skin, conjunctiva, or oropharyngeal mucosa with contaminated water, blood, or tissue from infected animal carcasses, by handling or ingesting insufficiently cooked meat of infected animals, by drinking contaminated water, by inhalation of contaminated dust or aerosols, and rarely from bites of carnivores whose mouth presumably was contaminated from eating an infected animal; and from contaminated pelts and paws of animals.

Cats are most commonly infected by catching wildlife such as rabbits or by a tick infected with Tularemia. The risk of a human becoming infected by a cat is low, but is most commonly through a bite or scratch wound. According to the CDC, there were 34 cases of human Tularemia in 2015, however the cause of these infectious were not made available. Additionally, a study in 2014 found that of all Tularemia cases in Nebraska from 1998-2012, 48% human infectious were cat related. Care should be taken when handling an animal positive for Tularemia.

The signs and symptoms of Tularemia vary from mild localized infection to an acute systemic disease. Systemic disease usually includes fever, marked depression, enlarged lymph nodes, hepatomegaly, splenomegaly, icterus, leukocytosis or panleukopenia, thrombocytopenia, increased liver values, and increased bilirubin. Greeley's clinical signs, lab results, and diagnostic imaging results all matched the systemic disease associate with Tularemia which was confirmed with PCR.

### **References:**

Green CE (ed): Infectious Diseases of the Dog and Cat, ed 3, 2006, Elsevier.

Newell SM1, Graham JP, Roberts GD, Ginn PE, Harrison JM. Sonography of the normal feline gastrointestinal tract. Veterinary Radiology Ultrasound. 1999 Jan-Feb; 40 (1): 40-3.

Larson, Marilyn A., Paul D. Fey, Steven H. Hinrichs, and Peter C. Iwen. "Francisella tularensis Bacteria Associated with Feline Tularemia in the United States." Emerging Infectious Diseases 20.12 (2014): n. pag. Web.

[www.cdc.com/tularemia/statistics/index.html](http://www.cdc.com/tularemia/statistics/index.html)

Kansas Department of Health & Environment