

## *What is Your Diagnosis?*

Izabela Ragan, Class of 2014

### **Signalment**

Species: Canine

Breed: English Bulldog

Sex: Male castrated

Date of birth: 04/14/11

### **Presenting Complaint**

Dog was presented for vomiting and lethargy.

### **History**

Patient was boarding when he became lethargic and began vomiting. He was presented to the referring vet for evaluation. Patient had a good appetite and was quiet, bright and alert.

Radiographs of the abdomen were taken and a CBC/Chem panel submitted. Dog had a history of foreign body ingestion including towels and ropes that have passed on their own. Patient was referred to KSU VHC.

### **Physical Exam**

Physical findings revealed normal TPR, bilateral flank alopecia, no pain of abdomen upon palpation, and lethargy.

### **Diagnostic Plan**

CBC/Chem panel

Decrease Cl, increase AST, increase BUN, neutrophilia

NOVA panel

Decrease Cl and decrease Na indicating a pyloric obstruction

Radiographs

Abdominal radiographs (3 views) were taken

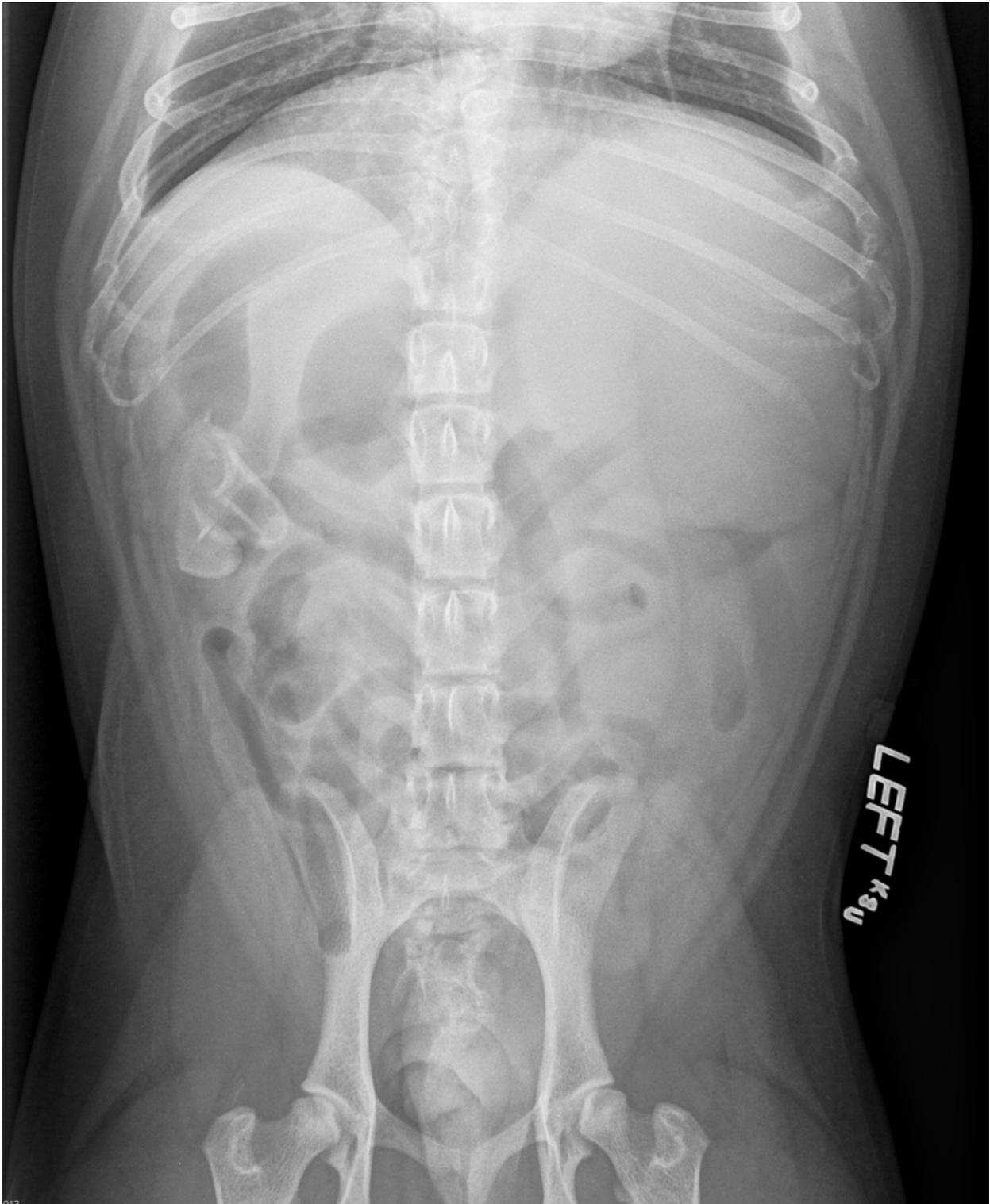


Figure 1. VD view

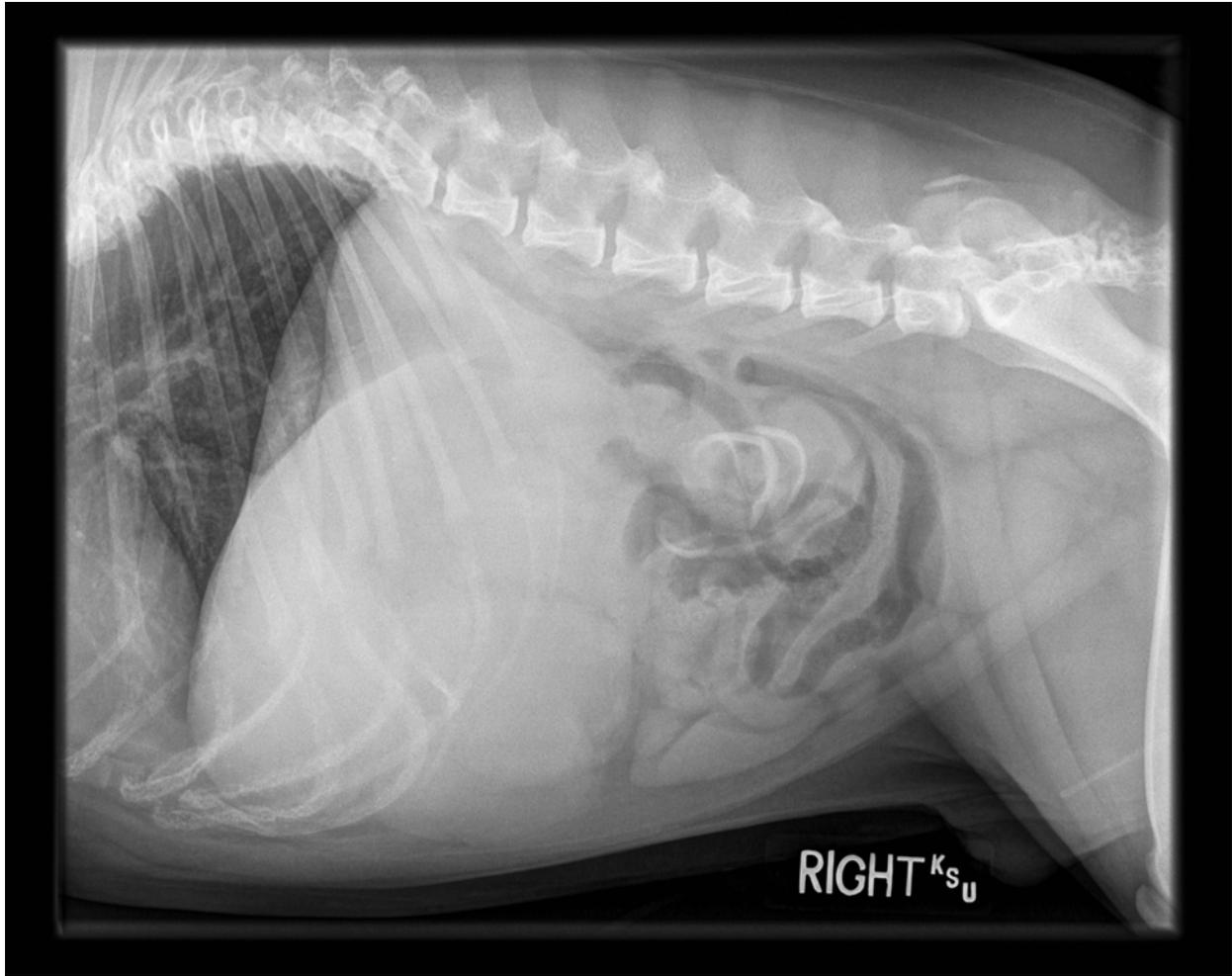


Figure 2. Right lateral view



Figure 3. Left lateral view

### **Radiographic Interpretation**

Abdominal contour and serosal detail unremarkable. Margins of the stomach extend beyond the costal arch and is distended with a homogenous gas and fluid opacity. A mineral opacity is noted in the cranial right abdomen within the duodenum, seen in Figure 3. The foreign object has smooth, sharply defined, rounded margins with a soft tissue opacity in the center of the object and mineral opacity towards the margins of the object, as seen in Figure 1. The object has three distinct rounded edges as seen in Figure 2. The duodenum contains gas around the foreign object and is distended about 2 times the size of L5 vertebra as seen in Figure 3. The rest of the intestines caudal to the object contain gas or a heterogeneous gas and fluid opacity and are of normal size. No other abnormalities were noted within the abdomen.

### **Radiographic Impression**

Gastric and duodenal distension. Mechanical obstruction within the duodenum consistent with a foreign body.

### **Final Outcome**

Dog was admitted for an abdominal exploratory and a duodenotomy to remove the foreign body. A picture of the foreign body recovered is shown below.



### **Discussion**

Mechanical obstruction of the intestines can be caused by foreign bodies, hernias, neoplasia, adhesions, intussusception, and volvulus. Radiographic changes from a foreign body obstruction include accumulation of fluid, food and gas proximal to the obstruction with empty bowel distal to obstruction. The most consistent radiographic sign seen is dilation around the site of the obstruction. Bowel distended more than 2 times of the width of L5 vertebral body is considered diagnostic for a suspected obstruction.

Foreign body obstructions within the intestines can be an acute or chronic issue. In addition the intestines can become completely or partially obstructed. Acute obstructions of the duodenum may not show radiographic signs if the animal is vomiting frequently leading to a decrease in fluid and gas in the GI tract. Chronic obstructions will present with bowel distension containing a mix of gas and fluid opacity. In addition, chronic obstructions may show gastric distension as seen in Figure 1. Partial obstructions will either show short segmental distension of bowel or not be apparent at all. If the partial obstruction is long standing there may be

heterogeneous gas and fluid opacity trapped proximal to the obstruction due to desiccation of ingesta. Complete obstructions will show more generalized intestinal distension and bowel will be empty distal to the obstruction.

Foreign bodies that have mineral or metal opacities will be better visualized on radiographs. Non-opaque objects may be recognized by geometrically shaped radiolucencies on the radiographs. To differentiate a small bowel versus a large bowel obstruction, a pneumocologram can be done to introduce gas into the colon as a negative contrast. Positive contrast such as barium can be used for upper GI radiographic studies. Partial obstructions can be confirmed with 24-hour serial surveys, ultrasound, or contrast studies.

### **References**

“Intestinal Obstruction”. The Merck Manual. Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc, August 2012. Accessed May 2013.

[http://www.merckmanuals.com/professional/gastrointestinal\\_disorders/acute\\_abdomen\\_and\\_surgical\\_gastroenterology/intestinal\\_obstruction.html?qt=intestinal\\_onstruction&alt=sh](http://www.merckmanuals.com/professional/gastrointestinal_disorders/acute_abdomen_and_surgical_gastroenterology/intestinal_obstruction.html?qt=intestinal_onstruction&alt=sh)

Thrall, Donald E. *Textbook of Veterinary Diagnostic Radiology*. 5<sup>th</sup> ed, Raleigh, NC: North Carolina State University. 2008.