

## **What's Your Diagnosis???**

Renée Fahrenholz, Class of 2012

**Signalment-** “Emma”, a 9 year old, Female, Spayed, Domestic Short Haired Feline

**Presenting Complaint-** Weight loss, vomited the morning of her visit, pendulous abdomen, and pale mucus membranes

**History-** Emma was vomiting occasionally at home. Her owner noticed that Emma wasn't her usual self for the past couple of days; she lay around all night instead of roaming the house like normal. According to her owner, Emma had not urinated or defecated during this time. It was also noted that Emma was losing weight over the last 3 months.

**Physical Exam-** Upon presentation to KSU her vitals were as follows; Temperature = 102.4F, Heart Rate= 160b/min, Respiratory Rate = 28 b/min, BCS = 2/5, Weight = 3.48kgs, Mucus Membranes=pale. Emma's abdomen was soft and pendulous. A large, palpable mass was felt in her right abdomen. Peripheral lymph nodes were normal in size and shape. Dehydration was noted. Emma's heart auscultated normally.

**DDx-** Renomegaly: Hydronephrosis, Renal Infection/Abcessation, Neoplasia such as lymphoma.

### **Diagnostics and Treatments by Visit:**

**3/07/12:** Complete Blood Count, Chemistry, Urinalysis, Abdominal Radiographs, Abdominal Ultrasound, FeLV/FIV Test

A complete blood count was performed and results indicated a high WBC count. There was an acute inflammatory leukogram. The chemistry results showed elevated levels of BUN and Creatinine. The USG was 1.037 and the urinalysis results were positive for protein. There were occasional struvite crystals. The FeLV/FIV test was negative.

**Radiographs-** A VD and 2 Right Lateral Abdominal Views were taken.



Figure 1- VD Abdomen

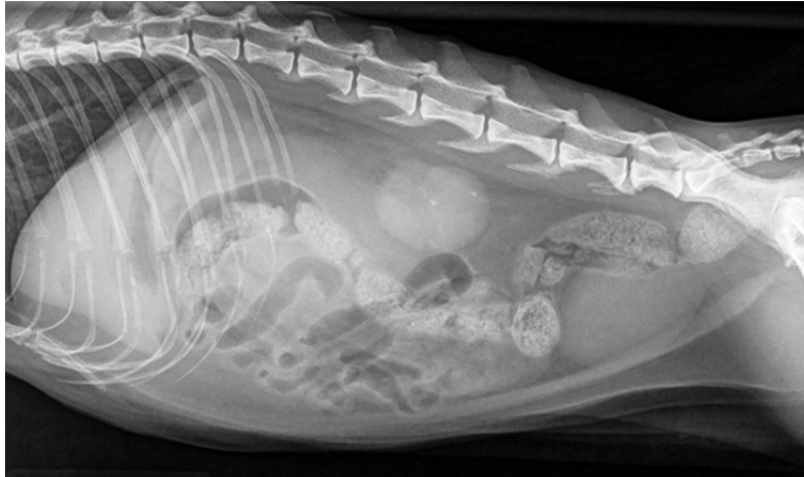


Figure 2- Right Lateral Abdomen

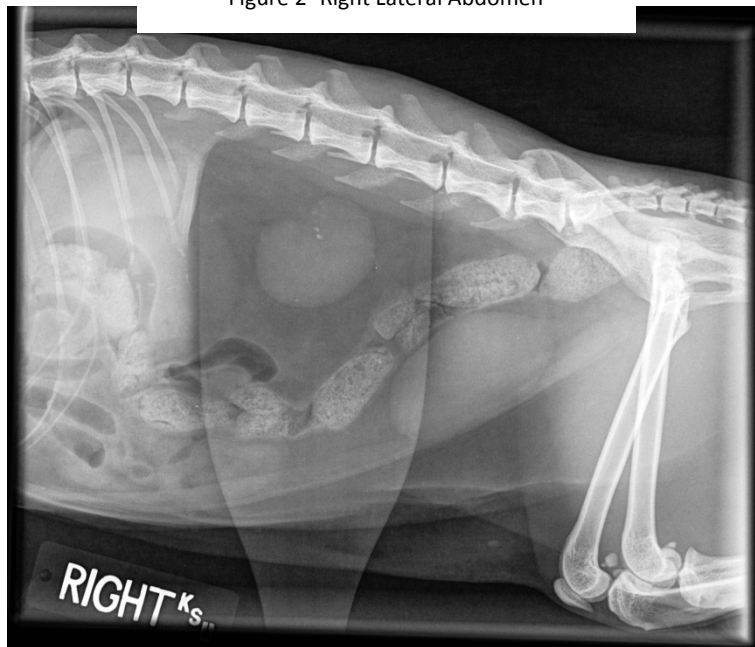


Figure 3- Right Lateral Abdomen compression with wooden spatula

The left kidney is normal in size and shape. There is a mass in the right craniodorsal abdomen. There is caudal and left displacement of the small intestine. Differentials for right mass : renomegaly, hydronephrosis, perirenal cyst, neoplasia, granuloma, or abscess. On the lateral view, there are two small, well defined mineral opacities located caudal to the right kidney. One opacity is superimposed with

the region of the right kidney on the ventrodorsal view. Both are superimposed with the left renal silhouette. One opacity moves with compression.

Suspect right ureterolith and left nephrolith.

At the completion of this visit, Emma was prescribed Clavamox for possible infection and sent home with subcutaneous fluids

**Ultrasound-** An abdominal ultrasound was performed on 3/7/12.

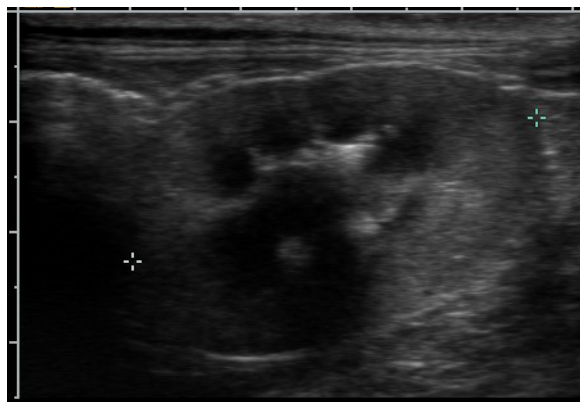


Figure 4- Left Kidney with hyperechoic foci

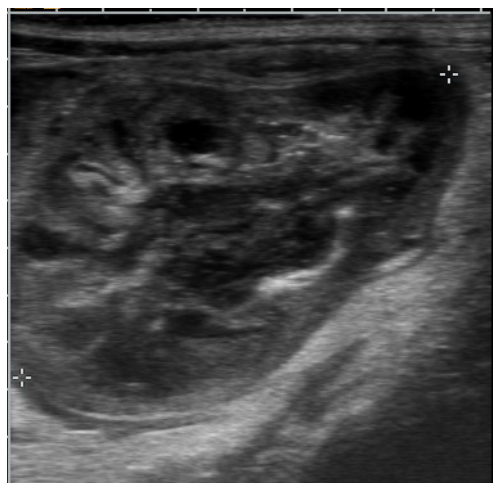


Figure 5- Right Kidney with irregular margins and bordered by fluid

3/7/12: The right kidney is markedly enlarged and has irregular margins. The internal architecture of the right kidney is distorted. The renal pelvis and collecting system are dilated with echogenic material. There are several variably sized hyperechoic foci present in the right kidney. The proximal ureter is dilated and torturous. The left kidney was of normal size and contained multiple small hyperechoic foci.

**3/08/12**: Ultrasound Guided Fine Needle Aspirates, Cytology and Aerobic Culture of aspirates

Cytology revealed neutrophilic inflammation and degenerate neutrophils. Aerobic Culture did not have growth present. The culture was negative.

**3/13/12**: Profile Renal Chemistry Bloodwork, Abdominal Ultrasound

Renal Profile: Azotemia and increased Phosphorus

Continue Clavamox and Subcutaneous Fluids

Recommend Hill's K/D Diet and consults with Internal Medicine and Surgery Services

**Ultrasound- 3/13/12**

Owner reported that Emma was doing better at home.



Figure 7- Right Kidney with increased perirenal fluid



Figure 8- Right Kidney with increased perirenal fluid

The dilation of the renal collecting system is more severe. There is increased hypoechoic material surrounding the kidney, which appears to be better encapsulated.

**Dx-** Right kidney hydronephrosis, right ureterolith, soft tissue structures and effusion noted in retro peritoneal space may represent urinoma, abscess or retroperitonitis. Left nephrocalcinosis/nephrolith.

**Tx Recommendations-** Assessment of Emma's glomerular filtration rate and surgical removal of the right kidney.

**Tx-** Owner elected conservative management.

Antibiotics: Clavamox given every 12 hours until gone for treatment of infection.

Pain Medication: Buprenorphine given transmucosally every 6-8 hours for pain.

Subcutaneous Fluids: 150 ml LRS to be given at home each day.

## **Discussion**

Hydronephrosis is a serious condition that results in distension of the renal pelvis and renal calicies with urine due to an obstruction. Hydronephrosis can lead to atrophy of the renal paranchyma, causing distortion of the renal architecture. If the obstruction is in the lower urinary tract, hydroureter can be seen. As the process of hydronephrosis continues, the kidney will transform into a non-functional sac filled with fluid. The obstruction of urine outflow can be congenital due to malformed ureter or kidney, or acquired due to neoplasia, ureter stricture, or ureteroliths.

Emma's hydronephrosis is most likely due to a ureteral calculus. The soft tissue structures and effusion noted in retro peritoneal space may represent a urinoma, abscess or retroperitonitis. Further diagnostics are required in order to determine their origin.

## **Renal Abscesses**

Renal abscesses usually occur due to ascending urinary infection. In some cases, tissue breakdown and necrosis will occur, leading to microabscess formation. These can liquefy and coalesce into large abscesses. Extra-renal abscess usually results from rupture of a renal abscess or infected hydronephrosis through the renal capsule.

Renal abscesses are most commonly a sequela of severe, acute pyelonephritis. They fail to respond to appropriate antibiotic therapy. Patients may also have an onset of symptoms with absence of localizing signs such as flank pain, pyuria or bacteriuria. Renal abscesses can be identified with ultrasound. The abscess can appear similar to a cyst when viewed with ultrasound, but can also mimic a renal neoplasm. Sometimes the abscess may be indistinguishable from adjacent renal parenchyma. Abscesses can contain a variable mixture of anechoic, hypoechoic, and hyperechoic components.

### Urinomas

A urinoma is an encapsulated extravasation of urine that forms through a tear in the collecting system or the proximal ureter when ureteral obstruction is present. Causes for urinomas include iatrogenic or surgical trauma, ureteric obstruction, ureteral tumor, stones, and periureteric fibrosis. Acute or subacute outflow obstruction can cause urine to leak into the perirenal space. Urinomas have a radiological appearance of a soft tissue mass. Large lesions can displace the kidney. Radiological and ultrasonographic findings of chronic obstruction are often present.