


**PATIENT PRESENTING CLINICAL SIGNS**

Bella Cook History: History of anorexia. Radiographs raised concern for duodenal distension. Dietary indiscretion is a factor for this patient.

**SPECIES ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

Canine **Urinary System**

**BREED** Urinary bladder is adequately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

Shih Tzu

**SEX** Left kidney is normal in size (4.58 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

Female Spayed

**AGE** Right kidney is normal in size (4.83 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

13 years

**WEIGHT**
**Adrenal Glands**

Left adrenal gland is normal in size (0.61 cm at cranial pole / 0.58 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

8.2 kg

**INTERPRETED BY**

Right adrenal gland is normal in size (1.02 cm at cranial pole / 0.63 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal. A hyperechoic nodule is noted in the cranial pole. Nodule does not disrupt normal shape and/or architecture.

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**Spleen**

Spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). Several small (approximately 0.50 cm in diameter) hypo- to anechoic non-capsule-disrupting nodules throughout the parenchyma are noted. Splenic vasculature appears normal.

Dr Sarah Barthelemy

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**Liver**

Liver is subjectively normal in size with normal smooth curvilinear peripheral contour. Parenchyma is appropriately hypoechoic to the spleen in echogenicity and appropriately mildly coarse and homogenous in echotexture. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

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**REFERRING VET**

Dr Leslie Gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

**INVOICE Gastrointestinal**

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is mildly distended with fluid, as well as some echogenic non-shadowing luminal contents and gas consistent with normal ingesta/chyme. In addition, there is a larger curvilinear structure with strong acoustic shadow, concerning for a foreign object. There is no evidence of infiltrative disease. Pyloric outflow tract appears to contain some echogenic non-shadowing contents, consistent with ingesta, but foreign material within the pylorus cannot be definitively ruled out, especially given the fact that the proximal duodenum contains similar-

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appearing material, but also contains a bright curvilinear structure with strong acoustic shadow, concerning for a foreign material. The remainder of the small bowel is normal.



**PATIENT** The visible small intestines are normal in wall thickness and layering. Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

Bella Cook

**SPECIES** The visible colon is normal in wall thickness and layering. Contents are consistent with normal formed feces and gas.

Canine

**BREED** *Pancreas*

The observed pancreas appears appropriately isoechoic to surrounding omental fat. Visible capsule is smooth and normal in contour. Visible pancreatic parenchyma is homogenous and unremarkable. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Shih Tzu

**SEX**

*Free Abdomen*

Female Spayed There is no evidence of peritoneal effusion. There is no apparent lymphadenopathy.

**AGE**

**ULTRASONOGRAPHIC FINDINGS**

13 years

**Primary Findings**

**WEIGHT**

- The appearance of this patient's stomach and proximal duodenum are both concerning for foreign material, given the shadowing pattern. Having said that, the fluid distinction within the stomach and cranial to the proximal duodenum foreign object is very mild, implying it may not be causing a complete obstruction, but potentially a partial obstruction or an early emerging obstruction.

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**Secondary Findings**

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- Hypo to anechoic splenic nodules – likely represent benign lesions such as cysts, hematomas, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.
- Hyperechoic adrenal nodule in the right cranial pole – Differentials include primary adrenal cortical adenoma or adenocarcinoma, pheochromocytoma, myelolipoma, adrenal hyperplasia secondary to pituitary disease or metastatic disease. Ultrasound alone cannot differentiate between functional and non-functional nodules and/or between benign and malignant disease. Small nodules without other evidence of abdominal disease (to suggest metastatic disease) and/or clinical signs (to suggest adrenal disease) are most often incidental and should be monitored.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Dr Leslie

If not already evaluated, a general metabolic health screen is recommended in the form of a CBC, chemistry panel, electrolytes and urinalysis. Following that, if patient is stable to undergo surgery, an exploratory laparotomy is recommended for further evaluation of the stomach as well as the proximal duodenum, and removal of the suspect foreign material. Alternatively, if surgery is not elected immediately, given the lack of an obvious obstructive pattern at this time, aggressive supportive/symptomatic medical management could be attempted in the form of fluid therapy, antiemetics, gastric protectants, etc., while closely monitoring the patient, followed by recheck imaging in 12-24 hours to see if there is any movement in the foreign material, vs a progressive obstructive pattern. If a conservative approach is elected, recheck imaging and/or surgery should be considered sooner, and not delayed, if patient's clinical signs persist and/or progress.

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Bella Cook

**SPECIES**

Canine

**BREED**

Shih Tzu

**SEX**

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**AGE**

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Dr Sarah Barthelemy

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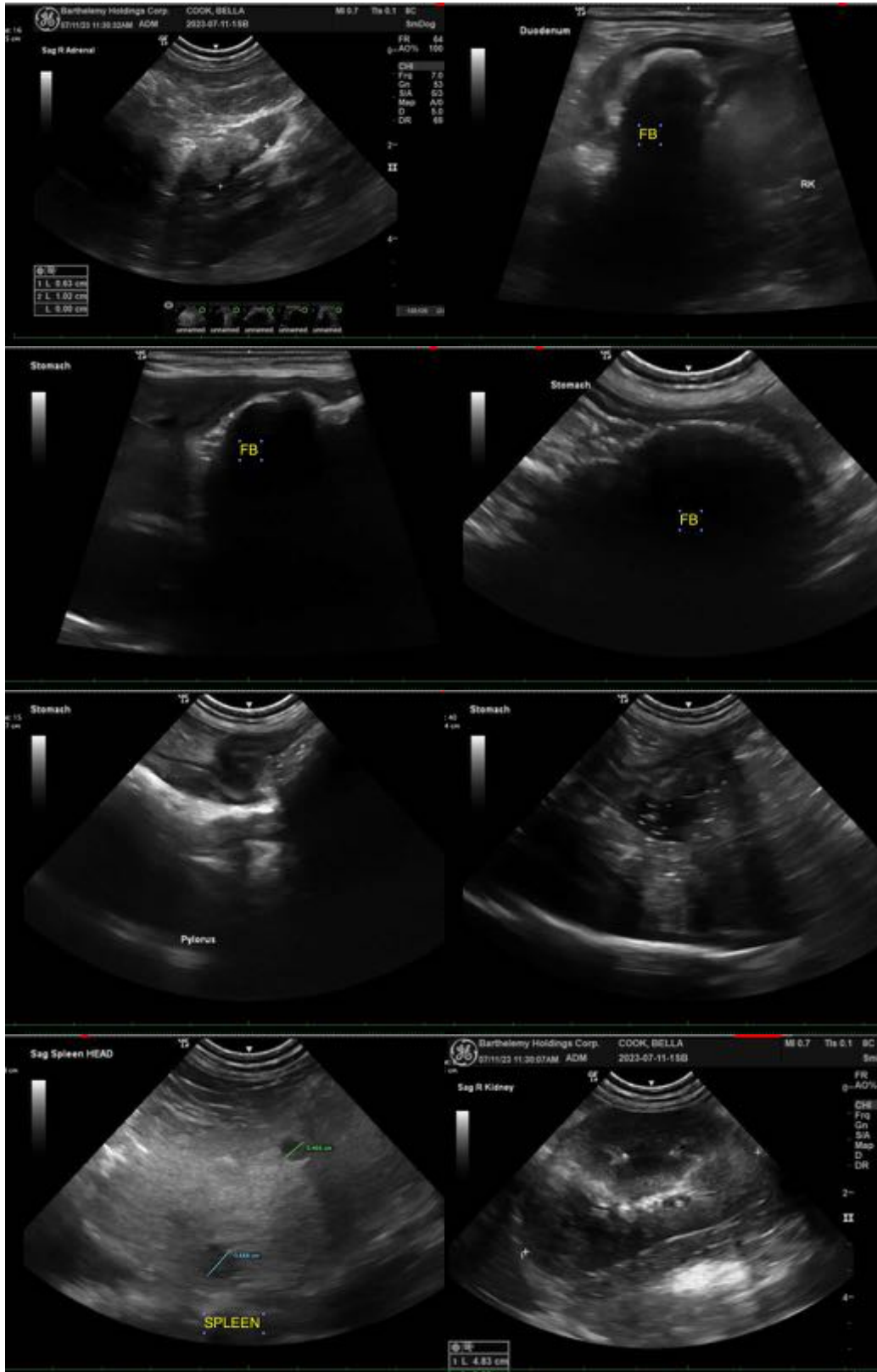
Dr Leslie

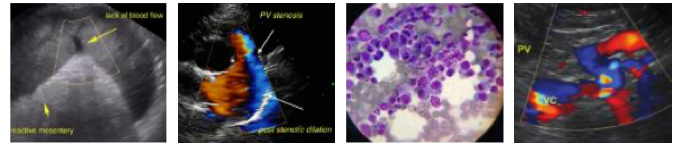
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**PATIENT**

Bella Cook

**SPECIES**

Canine

**BREED**

Shih Tzu

**SEX**

Female Spayed

**AGE**

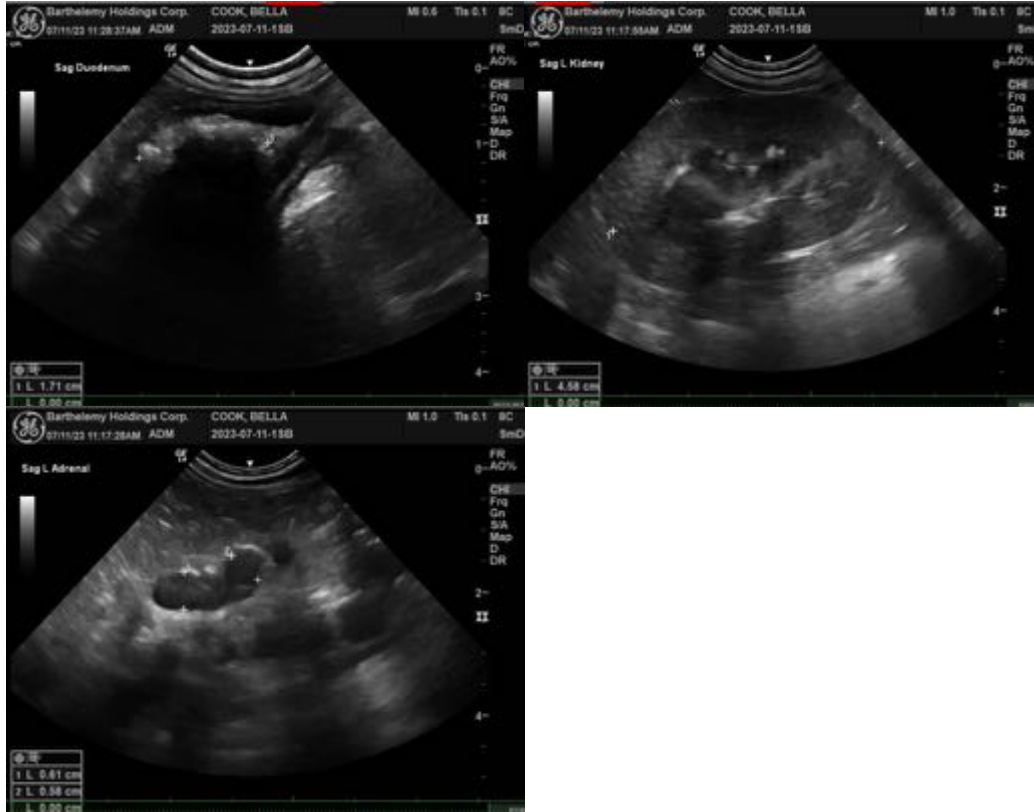
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Dr Sarah Barthelemy

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

**HOSPITAL NAME**

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

**REFERRING VET**

Dr Leslie

**Beth Johnson, DVM DACVIM**  
info@SonoPath.com

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