



PATIENT

Charlie Flores

SPECIES

Canine

BREED

Shih Tzu

SEX

Male

AGE

1.5

WEIGHT

13.6

INTERPRETED BY

Tam Mengine, DVM,
DABVP (canine/feline
practice)

IMAGING PERFORMED BY

Dr. Sharkawy

HOSPITAL NAME

Union Vet Animal
Hospital

REFERRING VET

Dr. Parthenia

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DATE

02/14/26

PRESENTING CLINICAL SIGNS

- VOMITING MULTIPLE TIMES DURING THE LAST 24 HRS

Abnormal PE/Chem/CBC/UA Results: BW- MILD ELEVATED ALT, AST. MILD ELEVATED ALBUMIN
MODERATE ABDOMINAL DISCOMFORT CPLI- SUSPECTED PANCREATITIS HEART MURMUR 2/6
Radiograph - Thick dilated stomach wall and moderate opacity only in one RL view

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (m-mode long axis)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	NM	N/A	1.1	1.3	39	NM	0.1
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LAD LA MAX 4 Chamber	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	NM	0.7	0.8	6.2 kg	2.2	2.3	1.4

Cardiac Presentation

The **left atrium** is of normal size with no evidence of spontaneous echo contrast or thrombus formation. The **left ventricle** is normal in diameter with normal wall thickness and demonstrates good systolic function. The **right atrium** is subjectively of normal size and **right ventricular** dimensions, and systolic function are subjectively normal. The **mitral** and **tricuspid valves** both exhibit normal appearance, and no vegetative lesions were seen. There is the appearance of significant turbulent mitral regurgitant flow, however it is unclear whether this is a true abnormality, or due to the PRF settings for color Doppler. The **aortic** and **pulmonary valves** both exhibit normal appearance and function, with normal flow velocity in the left ventricular and right ventricular outflow tracts. The **main pulmonary artery** appears normal. There was no evidence of a shunting lesion, such as an ASD, VSD or PDA. There is no evidence of pulmonary hypertension. No pericardial/pleural effusion or cardiac masses are seen. There is no evidence of an arrhythmia.

Urinary System

The urinary bladder is moderately distended with anechoic urine, and no luminal sediment is present. The ureteral papillae, trigone and pelvic urethra (visible to 2.0 cm) are of normal appearance, and the ureters are not visible (normal). No masses, calculi or mucosal irregularities are noted.



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The prostate is of appropriate size for patient age and neutering status, with a homogenous parenchyma and smooth capsule. The prostatic urethra is non-dilated with normal margins.

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Both kidneys exhibit mildly decreased cortico-medullary differentiation with a medullary rim sign. There is no evidence of nephrolithiasis, mineralization, pyelectasia or hydronephrosis. The proximal ureters are not visible (normal). The left kidney is 3.8 cm in length. The right kidney is 3.7 cm in length.

BREED

Shih Tzu

Adrenal Glands

The left adrenal gland is identified in its normal location. It is of normal size and shape with appropriate parenchymal echogenicity and normal phrenic vasculature. The left adrenal gland height is 3.6 mm at the caudal pole. The right is not distinctly visualized, but the region appears unremarkable.

SEX

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Spleen

The spleen is of appropriate size and has a normal, homogenous parenchyma with a smooth, continuous capsular surface. The splenic vasculature is normal with no evidence of congestion or thrombosis, and blood flow through the splenic hilus appears normal.

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Liver

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The liver is of appropriate size and shape, with sharp borders and a mildly coarse parenchymal echotexture that is hypoechoic to the spleen. The portal and hepatic vasculature are of normal size and appearance with no evidence of congestion or thrombosis.

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The gallbladder is moderately distended with anechoic contents. The wall was thin and continuous with no focal lesions. The cystic and common bile ducts are normal / not visible.

Gastrointestinal

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The stomach is markedly distended with echogenic fluid. The gastric wall measures 2.7 mm with normal deviations due to rugal folds and exhibits appropriate wall layering. The pylorus is not seen.

The visualized portions of the duodenum, jejunum, and ileum are of normal thickness with intact wall layering that exhibits the appropriate 1:3 muscularis to mucosa ratio. There are markedly fluid-dilated loops of bowel observed, along with a population of empty bowel loops, suggestive of an intestinal obstruction, however no obstruction can be seen.

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The visible portions of the colon are of normal thickness with intact wall layering measuring 1.4 mm. The ileocecal junction was not seen.

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Pancreas

The areas of the limbs and body of the pancreas are isoechoic to the surrounding mesenteric fat, with normal capsular appearance. There is no evidence of peripancreatic inflammation. The pancreatic duct appears normal.

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Free Abdomen

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There is no free fluid noted within the abdomen. There is hyperechoic, inflamed omental fat noted in the region of stomach. Enlarged abdominal lymph nodes are not observed. The aortic trifurcation has normal blood flow with no evidence of thrombosis.

PRIMARY FINDINGS



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- No evidence of hemodynamically significant cardiac pathology
- Possible mitral valve regurgitation (vs artefact)
- Fluid dilated stomach and a single dilated loop of bowel suspicious for obstruction, however, an actual obstructive lesion is not clearly visualized.

SECONDARY FINDINGS

- Bilateral renal medullary rims sign with subjectively decreased detail.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- No cardiac medication is warranted at this time.
- Given the normal chamber sizes, and appropriate systolic function, it is unlikely that there is hemodynamically significant cardiac pathology at this time.
- Given the patient's young age, if the murmur is persistent then evaluation by a board-certified cardiologist would be recommended to completely exclude the possibility of underlying congenital disease, as this may require advanced echocardiographic techniques, and occasionally advanced imaging such as CT-angiography.
- If the murmur increases in intensity, or symptoms of cardiac disease develop, then promptly rechecking an echocardiogram would be recommended.

The clinical history and ultrasound findings, which include two populations of bowel, one that is fluid-dilated and another that is empty, support an intestinal obstruction, however an actual obstructive lesion is not visualized. Recommendations include:

- ❖ 4 - 8 hours of IV fluid therapy, followed by ultrasound reassessment of the small bowel. If there remain two different populations of bowel, then the suspicion for mechanical obstruction increases.
- ❖ Surgical exploratory is recommended if there is no improvement in sonographic findings or if the patient's clinical signs do not improve. Clients should be advised that a negative exploratory is possible, and if this occurs it is recommended to obtain gastrointestinal biopsies to further investigate the clinical signs.

The presence of a medullary rim sign is typically an incidental finding in the dog. In this patient, there is also some subjective decrease in corticomedullary differentiation, which is unusual in a young dog. However, if renal values are normal and urine is well concentrated, with no evidence of proteinuria, then this is likely an incidental finding.



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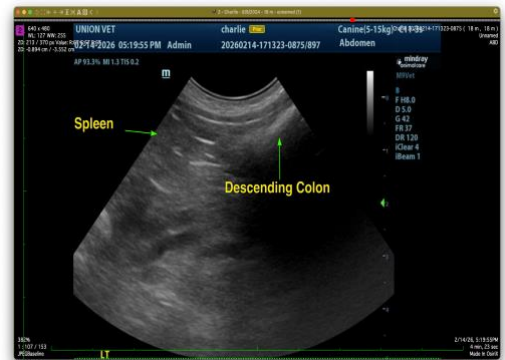
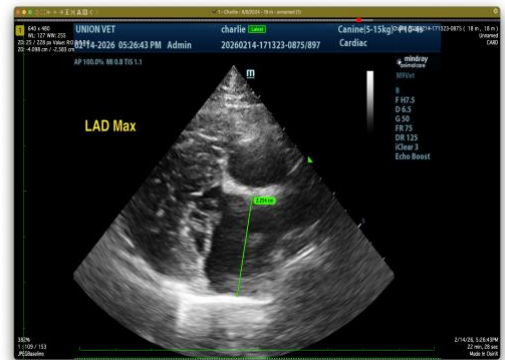
Dr. Parthenia

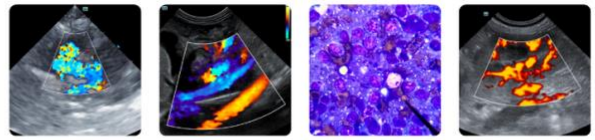
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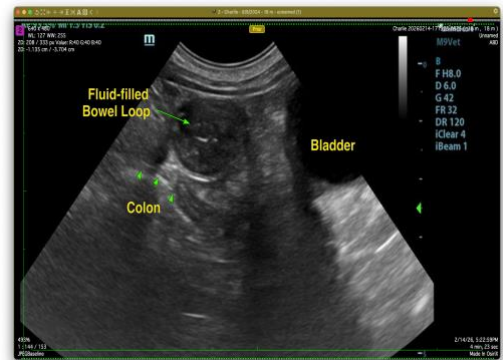
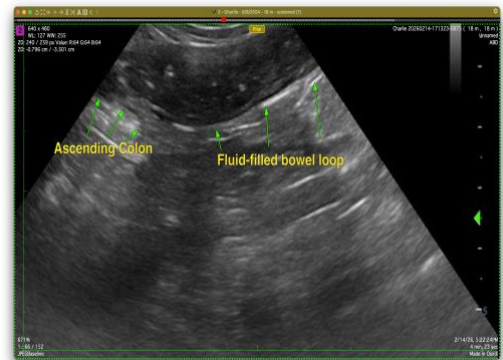
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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