


PATIENT

Amigo Shalev

SPECIES

Canine

BREED

German Shepherd

SEX

MN

AGE

2y

WEIGHT

25kg

INTERPRETED BY

 R. McKenzie Daniel,
 DVM, DABVP
 (Canine and Feline)

IMAGING PERFORMED BY

Dr. Callihan

HOSPITAL NAME

 Animal Emergency
 Care

REFERRING VET

Dr. Loeffler

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DATE

07/10/2022

PRESENTING CLINICAL SIGNS

History: Pt presents today for being down and labored breathing, drooling; History of having been to primary care vet for lethargy, anorexia, was presumed Addisonia and given cortisol injection with much improvement. Two days ago presented again to rDVM with high fever, vomiting and diarrhea, was given more corticosteroid and sent home

Abnormal PE/Chem/CBC/UA Results: -CBC: panleukopenia WBC 1.3K; PLT 50K -Elev tBili 2.2, ALP 341, Gluc 67, Glob 5, BUN 62, Cr 4.4 -Lactate 5.2 as we started resuscitation fluids (crystalloids + colloids), increased to 6.3 Abd radiographs from rDVM reported to show gas but nsf otherwise; we took single lateral and stomach was very distended (appropriate position) with gas and fluid, intubated dog and passed stomach tube to relieve pressure, ~ 1 L bright green fluid, same color as his green mucoid diarrhea Thoracic rads one area consolidation in left caudal lung lobe His BP is very low, planning NorEpi now as his fluids are replete

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT				1.5	16.7	40.6	0.55
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short axis Base view (cm)	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	1.7	1.1		3.4	3.6	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal left atrial size based on 3 separate methods of LA evaluation. The cranial and caudal mitral valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. The left ventricle presented thicknesses with linear contour and was not dilated nor restricted. The myocardium presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. Contractility of the ventricular walls was subnormal as evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The left ventricular outflow tract demonstrated normal laminar flow and subjective structural integrity. The right atrium and auricle revealed normal size, structure and content. No evidence of masses was noted. Tricuspid valvular assessment demonstrated adequate linear morphology and kinesis. The right ventricle was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. Pulmonary outflow tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No visible pericardial or free pleura fluid was noted. The cranial mediastinum and pericardial and extra-cardiac regions were free of masses in the visible window.



PATIENT	Urinary System
Amigo Shalev	The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.
SPECIES	
Canine	Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 8.6 cm in length. The right kidney measured 8.0 cm in length.
BREED	
German Shepherd	The area of the aortic trifurcation was free of pathology.
SEX	No overt pathology in the area of the residual prostate.
MN	Adrenal Glands
AGE	The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.70 cm width at the caudal pole and 0.5 cm width at the cranial pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.68 cm width at the caudal pole.
2y	
WEIGHT	Spleen
25kg	The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.
INTERPRETED BY	Liver
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)	The liver presented mildly enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with primarily anechoic luminal content. The cystic and common bile ducts were normal.
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Dr. Callihan	
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Animal Emergency Care	The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.
REFERRING VET	Gastrointestinal
Dr. Loeffler	The stomach presented intact yet mild prominent wall layering with a normal wall layer ratio. The lumen of the stomach contained a mild amount of retained nonshadowing ingesta/chyme with no signs of ileus, obstruction or foreign material. The gastric body wall measured 0.67 cm in width.
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11088ag	The small intestine exhibited segmental to generalized variable distention with retained fluid exhibiting subjective oral-aboral fluid movement. Subjective decreased mucosa echogenicity was present. A segment of caudal abdominal intestine exhibited subjective plication with concurrent retained fluid and luminal gas. A definitive linear hyperechoic echo was not obvious in this area yet cannot be excluded. The duodenum wall measured 0.42 cm in width, the jejunum wall measured 0.30 cm in width.
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PATIENT	The descending colon walls presented intact yet prominent wall layering with mild thickened to echogenic submucosa. Nonformed to liquid fecal matter was present in the colon lumen with lumen dilation. The descending colon wall measured 0.45 cm in width.
Amigo Shalev	
SPECIES	Pancreas
Canine	The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.
BREED	Free Abdomen
German Shepherd	No peritoneal effusion was present.
SEX	Intermittent focally enlarged mesenteric lymph nodes were present. These lymph nodes were homogenous, mildly hypoechoic and smoothly marginated. A normal width: length ratio was maintained (<0.5). Evidence of peri intestinal and perilymphatic inflammation was evident. An example of lymph node size was 1.0 cm.
MN	
AGE	ULTRASONOGRAPHIC FINDINGS
2y	<ul style="list-style-type: none"> • Normal cardiac structure with LV hypocontractility - systemic disease (suspected), athletic state, endocrine disease (Hypo T4, probably unlikely) can present in this manner. No DCM criteria. • Acute, moderate / severe gastroenterocolitis pattern exhibiting segmental to generalized yet variable GI ileus and segmental plicated appearing bowel in caudal abdomen - although not definitive, concern for ill visualized intestinal foreign body with generalized small bowel inflammatory pattern warranted given the degree and extent of GI ileus, contributing factors may include infectious / inflammatory disease, dysbiosis, enterotoxaemia, with occult neoplasia thought less likely. • Suspect intermittent mesenteric lymphadenitis secondary to bowel disease / inflammation • Reactive / vacuolar hepatopathy pattern - subjectively benign • Note: Adrenals and kidneys are sonographically normal.
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INTERPRETED BY	
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)	
IMAGING PERFORMED BY	INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS
Dr. Callihan	Given the patients current clinical state, aggressive therapy for acute, severe gastroenterocolitis with coverage for infectious component and potential for sepsis in light of the WBC and with continued fluid resuscitation and broad spectrum, 4 quadrant coverage antibiotic is warranted initially. Ex lap with biopsies considered essential is likely indicated given the GI presentation and patient history / clinical signs if the patient can be stabilized enough for anesthesia. Immune mediated or bone marrow disease could be considered a less likely differential diagnosis given leukopenia and thrombocytopenia or if HCT also decreases but WBC consumption is thought likely at this time. Monitoring of BP, CBC and lactate going forward is advised. Recheck ultrasound in 12-24 hours pending clinical response to therapy, monitoring of vitals and /or potentially prior to surgery depending on time frame between this interpretation and time of surgery to make sure the area of concerning intestinal plication hasn't changed or resolved, potentially sooner if patient continues to decline. Very guarded prognosis.
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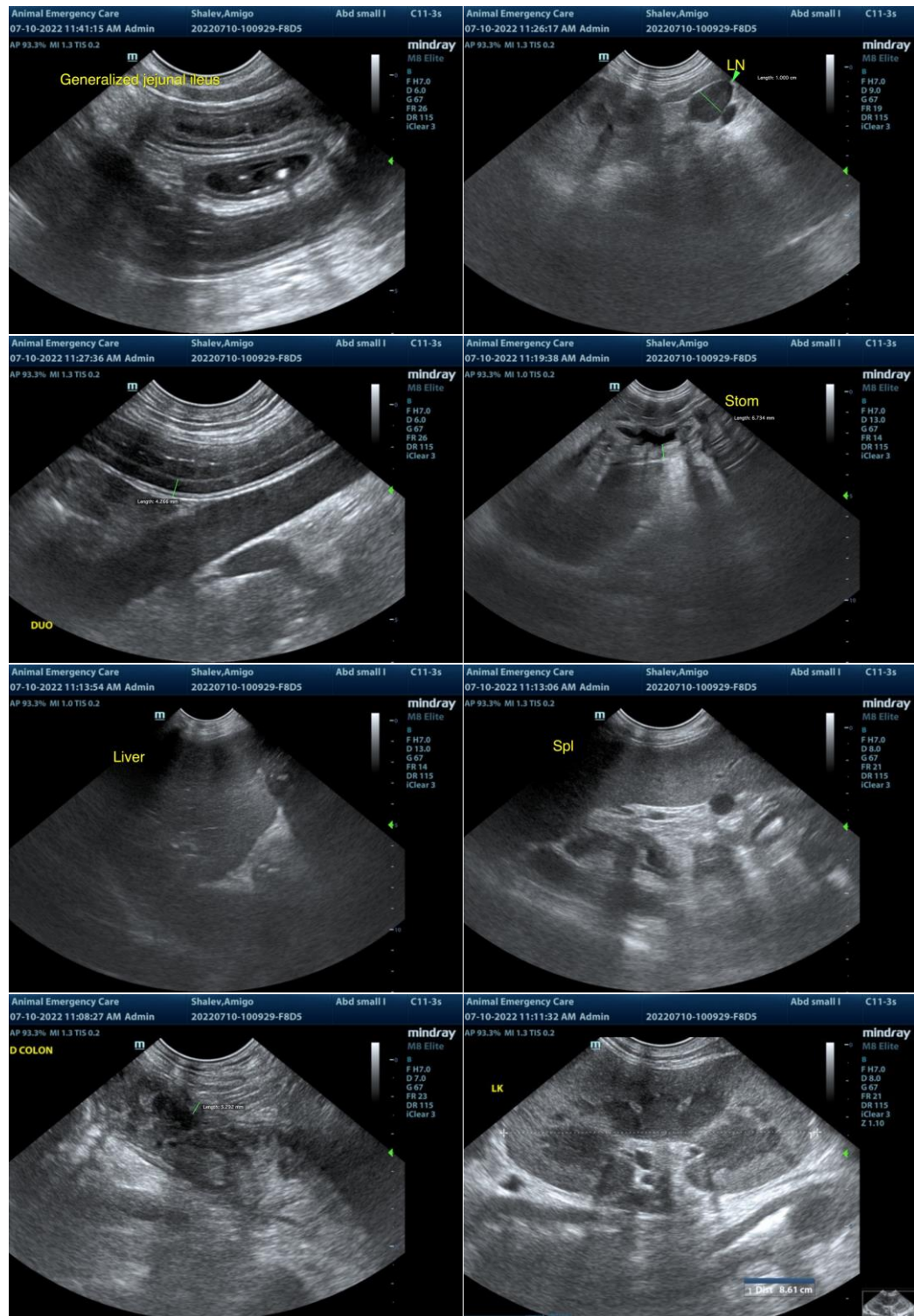
Dr. Loeffler

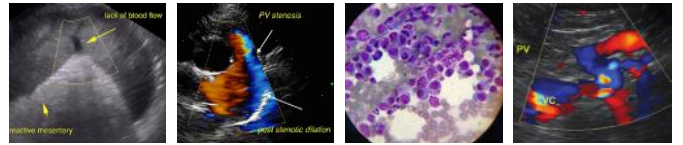
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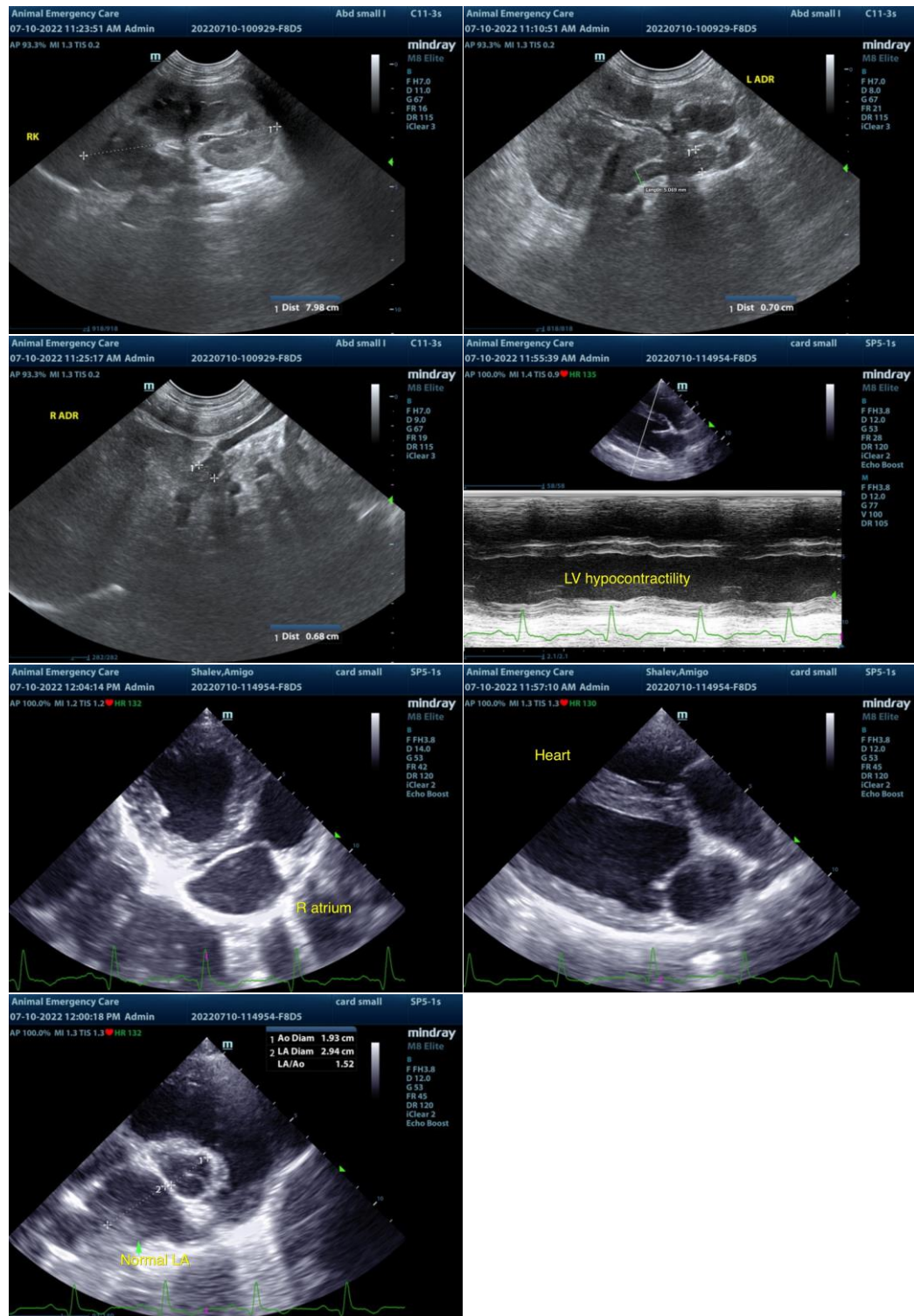
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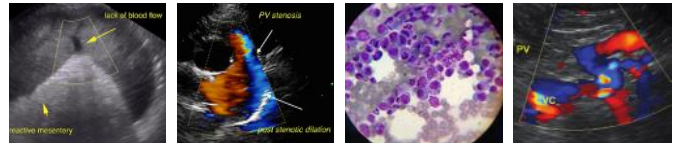
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I



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can be of any further assistance please contact me.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)

info@SonoPath.com

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