

PATIENT

Marshmallow
Musgrove

SPECIES

Canine

BREED

Chihuahua

SEX

Spayed female

AGE

10 years

WEIGHT

6.1 lbs

INTERPRETED BY

Eric Lindquist, DMV,
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Sara Hansen

HOSPITAL NAME

Linn VH

REFERRING VET

Dr. Stern

DATE

6/20/23

Invoice

47858

PRESENTING CLINICAL SIGNS

History: Hx of cough since May 2023. Previous hx of synovial histiocytic sarcoma in stifle, limb amputated Nov, 2022. 5/23/23: H/L WNL, no murmur detected, initial rads no obvious metastasis, VHS 9, ddx chronic/allergic bronchitis, rx pred and clavamox. 6/6/23: Recheck, cough worsening, no response to meds. Harsh lung sounds, sinus arrhythmia (new), dyspnea. Repeat rads show pleural effusion. Performed thoracocentesis, ~60-70ml drained, submitted for cytology (report attached), rx furosemide while o deciding on further diagnostics. 6/12/23: recheck, per o p improved, right lung sounds harsh, still no murmur, mild to no dyspnea, rads similar to post thoraco, o still deciding, increased furosemide to TID 6/19/23: recheck, lung sounds harsh dorsally bilateral, dyspnea returned, rads pleural effusion significantly increased.

ABNORMAL Laboratory Findings BW WNL, cytology from thoracocentesis = modified transudate, report attached Heart Rate and Respiratory Rates P 100 RR 28 Blood Pressure Measurements not done Current Medications Furosemide 7.5mg TID (increased today, prev 5mg TID) Radiographic Findings Pleural effusion

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. The left kidney measured 3.38 cm and the right kidney measured 3.42 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 1.78 x 0.46 cm at the caudal pole and 0.43 cm at the cranial pole. The right adrenal gland measured 0.6 cm at the cranial pole and 0.4 cm at the caudal pole.

Spleen

The **spleen** in this patient was uniform, yet volume contracted. Hydration status should be assessed.



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The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. A slight gallbladder polyp was noted and measured 0.6 cm. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident. Transdiaphragmatic view revealed pleural effusion and multi-focal lung consolidations/lung masses.

Gastrointestinal

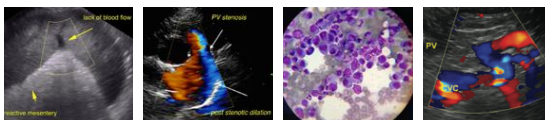
Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The echocardiogram in this patient demonstrated significant volume contraction and deviated heart owing to regional mass effects. Contractility appeared to be adequate. However, multi-focal lung consolidations and undifferentiated tissue masses are noted throughout the chest. The pleural effusion is non-cardiogenic. Thoracic neoplastic process is suspected.



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CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base;)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	NM	NM	1.0	NM	63	94	NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	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	BELOW	BELOW	BELOW	BELOW
PATIENT	NM	NM	0.55	6.1 lbs	1.0	1.18	

ULTRASONOGRAPHIC FINDINGS

Unremarkable abdomen.

Minor gallbladder polyp.

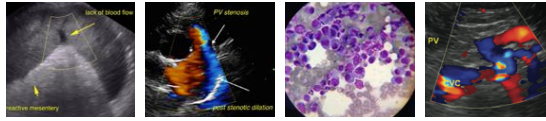
Multi-focal lung consolidations/masses.

Non-cardiogenic pleural effusion.

No evidence of primary disease.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Pleurocentesis and cytospin of the free fluid and immediate slide preparation is recommended to assess for cytological neoplasia. The prognosis is guarded to poor depending upon depending on cytology results. Chest CT can be considered, yet the pathology does not appear resectable. Sarcomatosis, carcinomatosis or similar is suspected.



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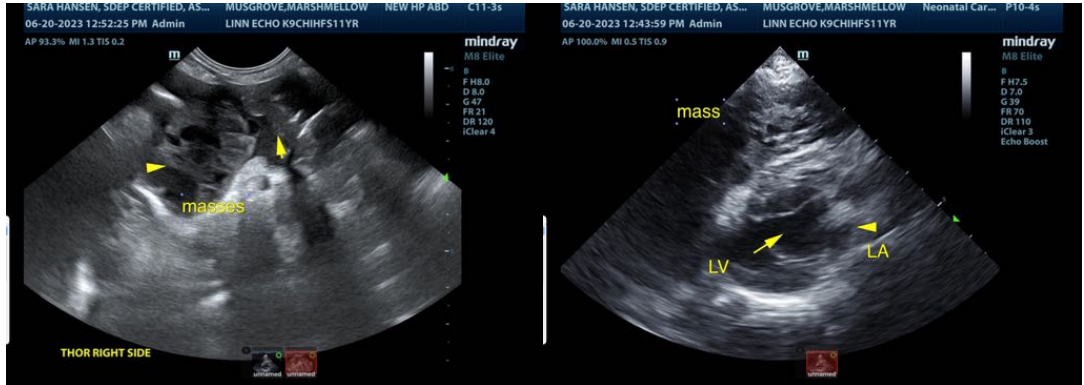
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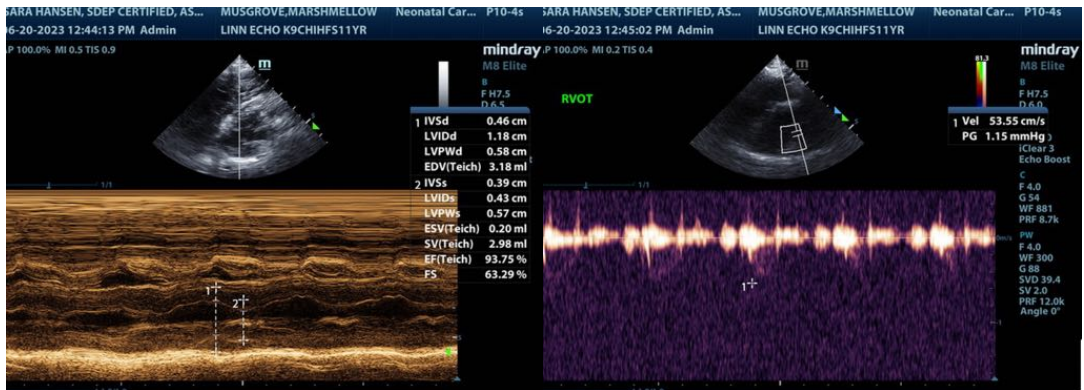
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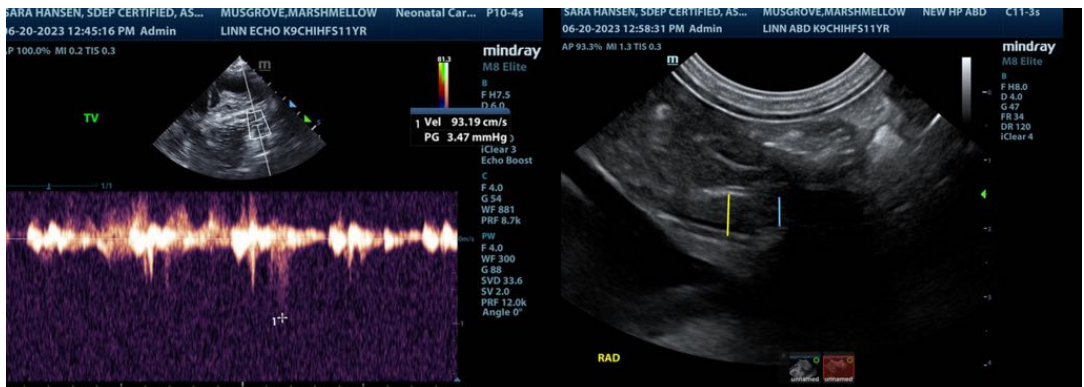
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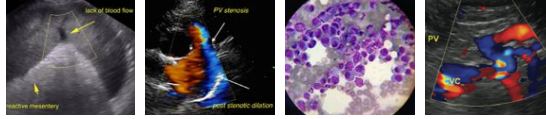
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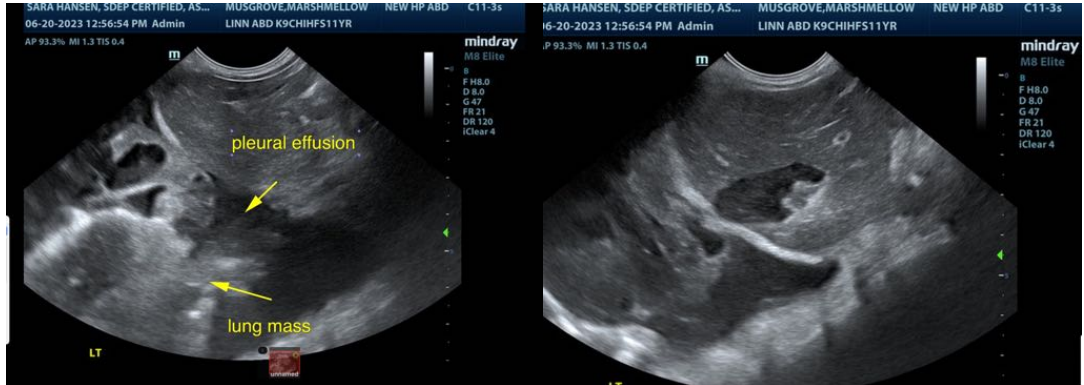
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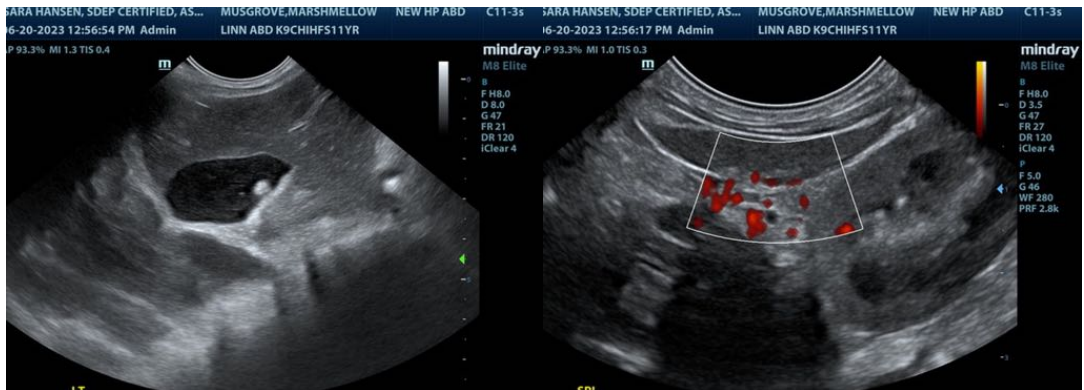
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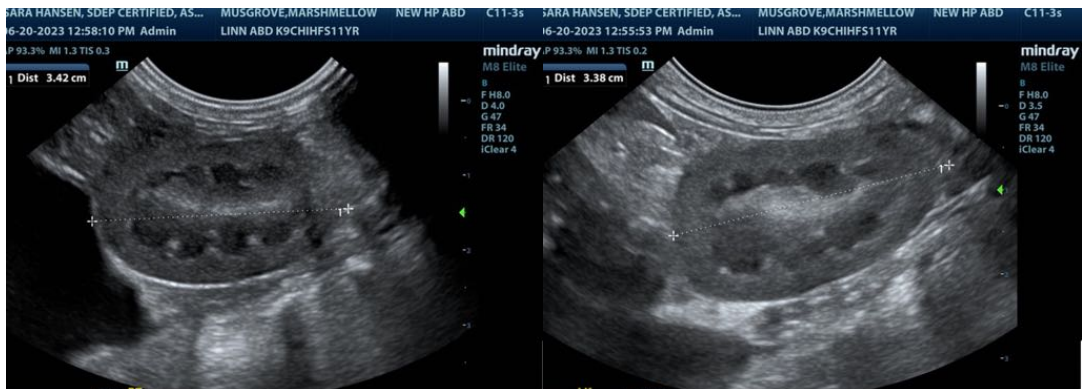
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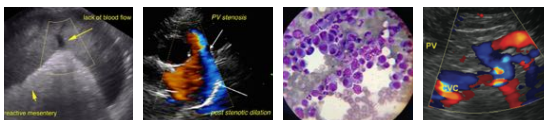
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

Eric Lindquist, DMV, DABVP, Cert. IVUSS

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