



## PATIENT

Beckett Pittenger

## SPECIES

Canine

## BREED

Bulldog Mix

## SEX

Neutered Male

## AGE

9 Weeks

## WEIGHT

18.5 Pounds

## PRESENTING CLINICAL SIGNS

History: acute onset collapse after playing with neighbors dog vomited twice, neighbor's dog is sibling and is lethargic

Abnormal PE/Chem/CBC/UA Results: NSF

## ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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	--	--	1.15	--	35	67	0.1
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	146	1.30	.99	--	2.07	2.35	--

## INTERPRETED BY

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

## IMAGING PERFORMED BY

Jenn

## HOSPITAL NAME

Rockaway AH

## REFERRING VET

Dr. Maniar

## INVOICE

15811

## DATE

5/30/22

### Cardiac Presentation

The **echocardiogram** presented a prominent **right heart** with mild **right ventricular** hypertrophy. No evidence of neoplasia was noted in the right auricle, or elsewhere in the heart. The **tricuspid** valve was mildly thickened. The right atrium was enlarged, measuring 1.5:1 ratio with the left atrium. The **pulmonary artery** was uniformly prominent with mildly depressed pulmonic velocity measured on PW Doppler. No overt heartworms were noted in the main or visible deep pulmonary arteries. Yet, theoretically heartworms could be present in the deep pulmonary vasculature out of visible sonographic range. More likely, however, this prominent right heart is due to excessive intra-thoracic pressures caused by chronic respiratory disease or potentially excessive intra-thoracic fat (Pickwickian syndrome). The **left heart** demonstrated a linear **ventricular septum**. Contractility was functionally adequate demonstrated by the FS% measurement. The **mitral valve** was not significantly insufficient and no significant **left atrial** dilation was noted. The **left ventricular outflow** demonstrated normal flow patterns and velocities through the aortic valve. No evidence of tumor, pericardial or pleural effusion was noted. The visible **extra-cardiac** tissues were uniformly linear without evidence of masses, infiltrative or inflammatory mediastinal tissue. No evident arrhythmic activity was noted during the exam.

### 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



<b>PATIENT</b>	was present. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal.
Beckett Pittenger	
<b>SPECIES</b>	The <b>kidneys</b> revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The right kidney measured 6.23 cm. The left kidney measured 6.0 cm.
Canine	
<b>BREED</b>	<b>Adrenal Glands</b>
Bulldog Mix	Both <b>adrenal glands</b> 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 right adrenal gland measured 2.25 cm x 0.47 cm at the caudal pole and 0.98 cm at the cranial pole. The left adrenal gland measured 1.9 cm x 0.56 cm at the caudal pole and 0.62 cm at the cranial pole.
<b>SEX</b>	
Neutered Male	
<b>AGE</b>	<b>Spleen</b>
9 Weeks	The <b>spleen</b> presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.
<b>WEIGHT</b>	<b>Liver</b>
18.5 Pounds	The <b>liver</b> revealed uniform size and contour, however, passive congestion pattern noted with dilated hepatic veins and a trace amount of ascites. The gallbladder and common bile duct were unremarkable.
<b>INTERPRETED BY</b>	<b>Gastrointestinal</b>
Eric Lindquist, DMV DABVP, Cert. IVUSS	Examination of the <b>gastrointestinal tract</b> 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.
<b>IMAGING PERFORMED BY</b>	<b>Pancreas</b>
Jenn	The base and limbs of the <b>pancreas</b> 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.
<b>HOSPITAL NAME</b>	<b>ULTRASONOGRAPHIC FINDINGS</b>
Rockaway AH	<ul style="list-style-type: none"> <li>Right sided heart failure</li> </ul>
<b>REFERRING VET</b>	<b>INTERPRETATION OF THE FINDINGS &amp; FURTHER RECOMMENDATIONS</b>
Dr. Maniar	Given the hepatic vein congestion, pulmonary hypertension is suspected and early right sided failure. Tricuspid insufficiency velocities would be ideal in order to assess the level of pulmonary hypertension that is suspected. However, the insufficiency jet is very minor and small on color flow assessment.
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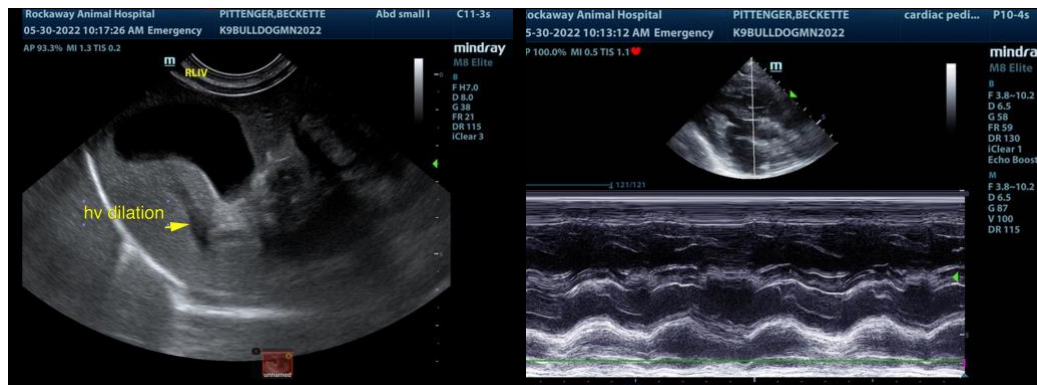
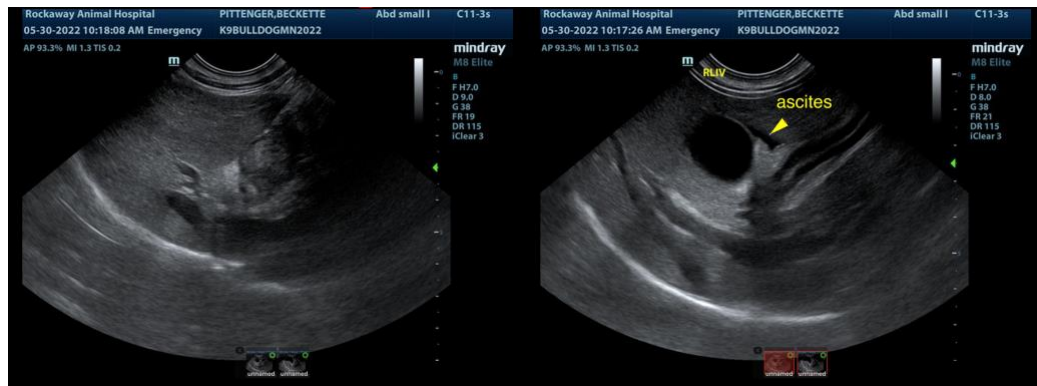
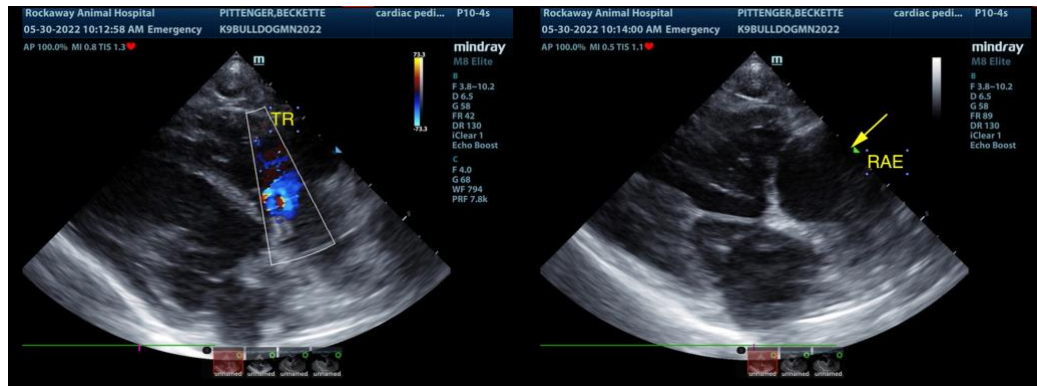
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Assessment for primary pulmonary disease indicated with chest radiographs. No overt congenital issue noted. Given the breed increased respiratory pressures may have been inducing early right sided enlargement and failure. Supportive care warranted otherwise. Recheck echocardiogram in 5-7 days to assess if this is a temporary issue or significant right sided disease is present. This is an odd case; with the right sided enlargement, I would expect a congenital issue, however, no structural evidence of congenital disease is noted at this time. I do not recommend any specific treatment at this point, other than rest and reassessment given the age of the patient. Fecal test warranted to assess for larval migrans that may be playing a role in the respiratory issues.





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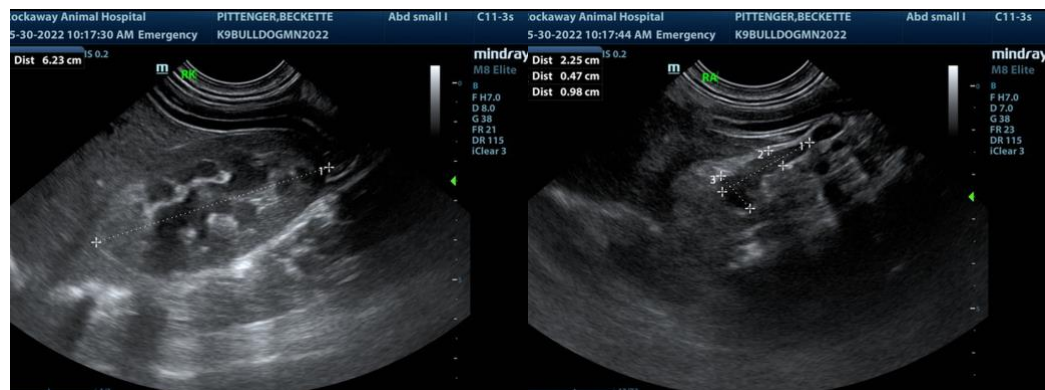
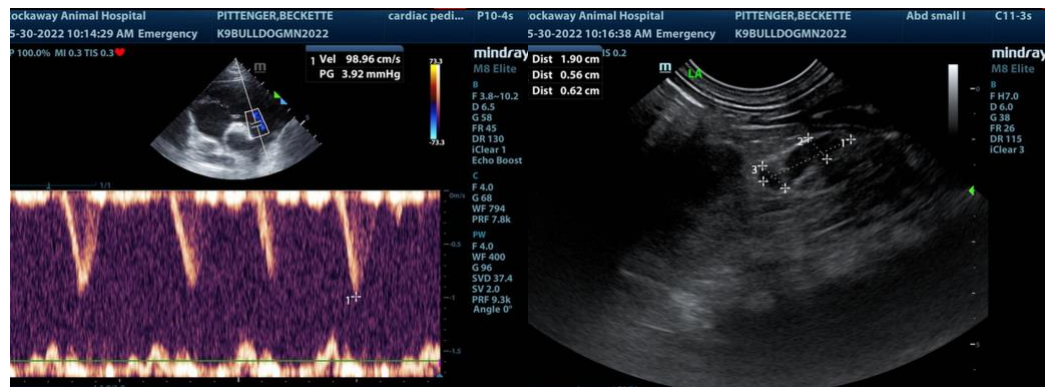
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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, CEO of SonoPath.com  
info@SonoPath.com