



## PATIENT

Patches Rascarin

## SPECIES

Canine

## BREED

Portugese Water Dog

## SEX

Neutered Male

## AGE

8 Years

## WEIGHT

25.6 kg

## INTERPRETED BY

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

## IMAGING PERFORMED BY

Nigel Gumley

## HOSPITAL NAME

Cedarview AH

## REFERRING VET

Dr. Christie Limbrick

## INVOICE

13043

## DATE

12/13/21

## PRESENTING CLINICAL SIGNS

History: Three days of coughing/laboured breathing. Today very laboured breathing with any exertion.

Abnormal PE/Chem/CBC/UA Results: Mild anemia, mild leukocytosis and neutrophilia Miliary generalized pulmonary infiltrates consistent with HSA or fungal infection. Transtracheal wash brought up significant blood-stained sputum. No fungal elements seen on cytology.

## 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	<1.6	28-40	40-100	<0.6
PATIENT	--	--	1.15	1.15	--	4522	NM
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	119	--	.60	--	3.86	2.42	--

## 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 adequate and in normal range for this patient 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** revealed a mass, measuring 3.15 cm x 1.82 cm. The right atrial mass appears to derive from the endocardium. The wall of the right atrium appears to be intact. There's a possibility, even though this is mass-like, that this lesion could represent thrombus. The right auricle itself appeared unremarkable. **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. Transdiaphragmatic view revealed comet tail/shower curtain lung pattern indicative of alveolar consolidations.

## Urinary System



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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 were noted. Ureteral papillae were normal.

**SPECIES**

Canine

The **kidneys** 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. Both kidneys measured 7.0 cm each.

**BREED**

Portugese Water Dog

**Adrenal Glands**

**SEX**

Neutered Male

The **left adrenal gland** was 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 0.46 cm at the caudal pole and 0.44 cm at the cranial pole.

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The region of the **right adrenal gland** revealed no evident pathology.

**Spleen**

**WEIGHT**

25.6 kg

The **spleen** 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. Folding of the spleen was noted, uniform.

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**Liver**

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. 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.

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**Gastrointestinal**

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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.

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Dr. Christie Limbrick

**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.

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**ULTRASONOGRAPHIC FINDINGS**

**DATE**

12/13/21

- Right atrial mass or adhered clot/thrombus
- Comet tail/shower curtain lung pattern



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- Splenic fold

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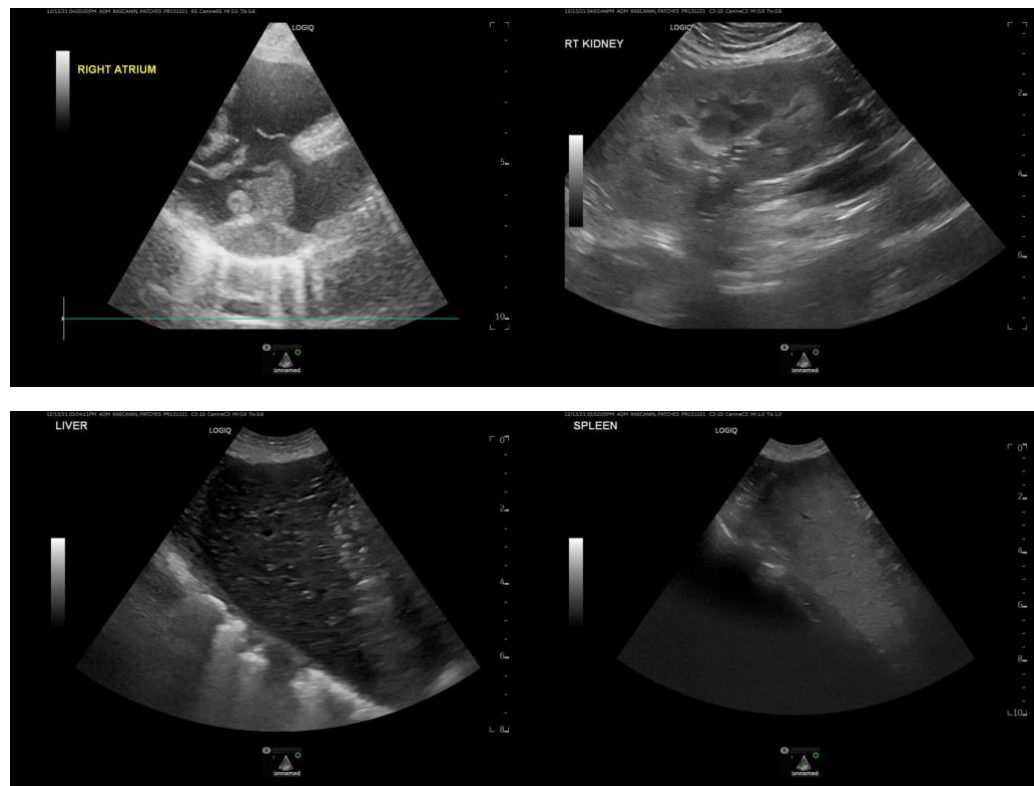
## DATE

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## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

If areas of lung consolidation are able to be sampled with ultrasound guided FNA, I recommend this approach. Full coagulation panel warranted to assess for potential of hypercoagulable state which would further justify the possibility of attached thrombus as opposed to right auricular mass. Plavix trial could be considered. Pulmonary thromboembolic disease can also present an alveolar lung pattern. Chest CT would be ideal. However, empirical treatment for thromboembolic disease could be considered, especially if hypercoagulable state is noted on full coagulation panel. Hemangiosarcoma is also, of course, possible, yet this would be an odd position for typical hemangiosarcoma as this is in the body and base of the right atrium and not in the auricle or right ventricular free wall. If an empirical antithrombotic approach is taken, echocardiogram recommended as well as chest radiographs daily to assess for any progression or regression. CBC path review warranted given the anemia.

\*Note: the abdomen does not represent any primary pathology.





**PATIENT**

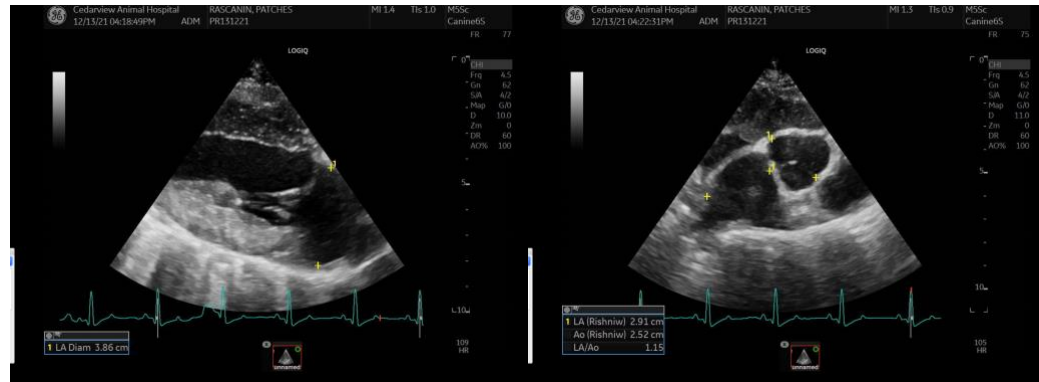
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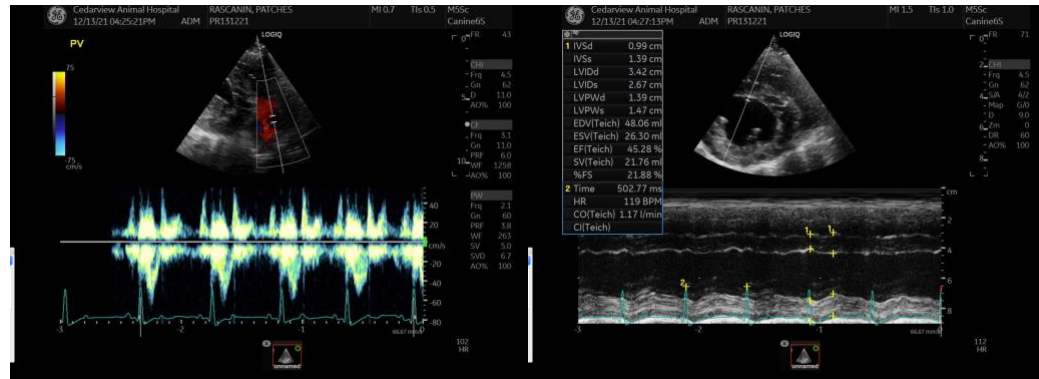
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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  
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