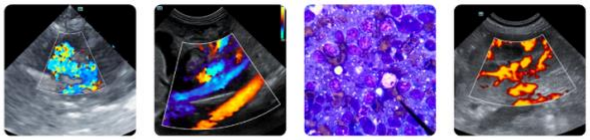

PATIENT

Dexter Terry

SPECIES

Canine

BREED

Weimaraner

SEX

Neutered Male

AGE

10 Years

WEIGHT

82.9

INTERPRETED BY

Eric Lindquist, DMV, DABVP (CFM), Cert. IVUSS

IMAGING PERFORMED BY

Dr. Heather Brenner

HOSPITAL NAME

Riverside AC

REFERRING VET

Dr. Heather Brenner

INVOICE

36615

DATE

4/14/26

PRESENTING CLINICAL SIGNS

History: Straining for stool with diarrhea, groaning, vomiting and drooling for 1 day, 10 lbs weight loss quickly per owner.

Abnormal PE/Chem/CBC/UA Results: Febrile 103.7, HR 180 bpm, turns head for mid caudal abdominal palpation. Radiographs abdomen and thorax loss detail right cranial abdomen ?liver mass? Severe broncho-interstitial lungs on VD thorax. Elevated WBC, NEU (19.2). Low EOS (0.01). Elevated ALKP(767), AST(608),ALT(1597), PL normal. Free catch urinalysis: Proteinuria (30mg/dL), RBC 12/hpf, no cells/bacteria/crystals.

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 were noted. Ureteral papillae were normal. The pelvic urethra was imaged 2.0 cm beyond the cystourethral junction. The iliac trifurcation was unremarkable.

The **left kidney** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some minor 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 this age patient. Medullary structure differed distinctly from that of the cortex, and no evidence of pelvic dilation was present. The left kidney measured 7.65 cm. The **right kidney** revealed multifocal cystic and irregular nodular changes with cortical infarcts. The right kidney measured 7.45 cm. Strong concern for an underlying neoplastic process or potential abscessation. Pinpoint mineralizations were noted in the kidneys bilaterally.

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 2.97 cm x 0.47 cm at the cranial pole and 0.57 cm at the caudal pole. The right adrenal gland measured 2.12 cm x 0.66 cm at the caudal pole and 0.54 cm at the cranial pole.

Spleen

The **spleen** was mildly enlarged and swollen with slight irregular contour. No significant parenchymal changes were noted.

Liver

The **liver** images from right and left intercostal as well as subcostal views revealed subjectively normal liver size, contour, and structure. Some mild age-related parenchymal remodeling was noted but likely not clinically significant at this time. Vascular tracts were of normal volume, and no evidence of congestion was noted. The hepatic lymph nodes were unremarkable. The gallbladder was moderately overdistended with echogenic debris consistent with emerging mucocele.

Gastrointestinal

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The **stomach** revealed significant thickening with echogenic mucosal remodeling and wall thickness up to 1.7 cm. No overt loss of mural detail, however, visible hyperechoic to mixed echogenic remodeling was noted at the gastric mucosa. The small intestine and colon were unremarkable, other than hyperperistalsis.

Pancreas

The **pancreas** revealed mixed hypoechoic and irregular parenchymal changes with enhanced surrounding mesentery, consistent with chronic active pancreatitis or history of pancreatitis.

ULTRASONOGRAPHIC FINDINGS

- Undefined right renal lesions, potential abscessation versus neoplasia.
- Bilateral pinpoint renal mineralizations
- Low grade chronic active pancreatitis pattern
- Chronic GI changes
- Mildly enlarged spleen with slight irregular contour
- Age-related hepatic changes
- Gallbladder debris, consistent with emerging mucocele

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There are multiple issues in this patient. Ultrasound guided sampling of the cystic and parenchymal portions of the right kidney would be ideal in this patient to assess for blood filled cavity, which would suggest potential hemangiosarcoma versus cystic changes. Embedded infection is possible, however given the relatively unremarkable urinalysis, abscessation is unlikely. Management for gastritis, inflammatory bowel and pancreatitis are recommended in the meantime. Recheck sonogram of the right kidney in particular, as well as the pancreas and stomach after 10 days of empirical measures is recommended.

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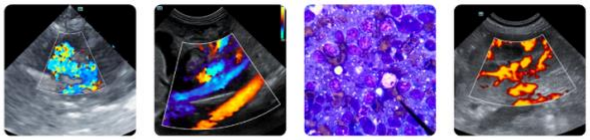

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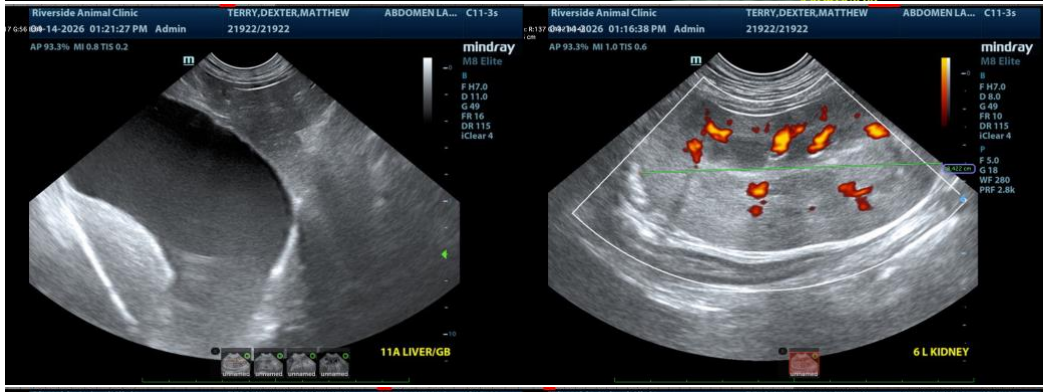

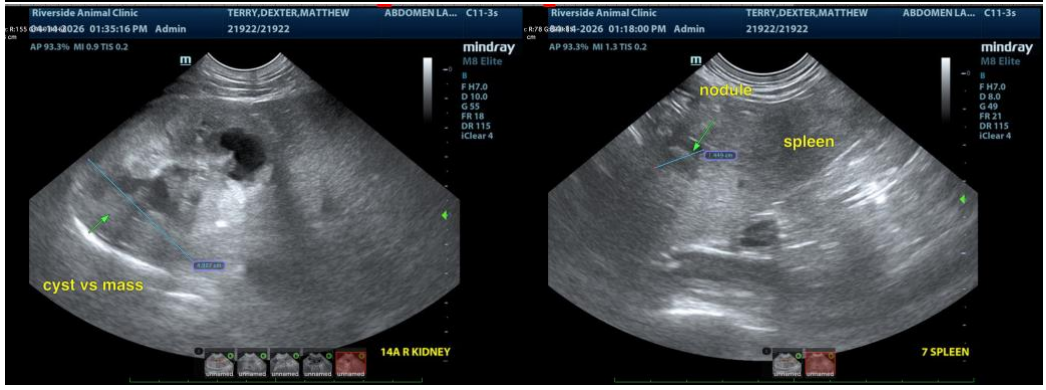

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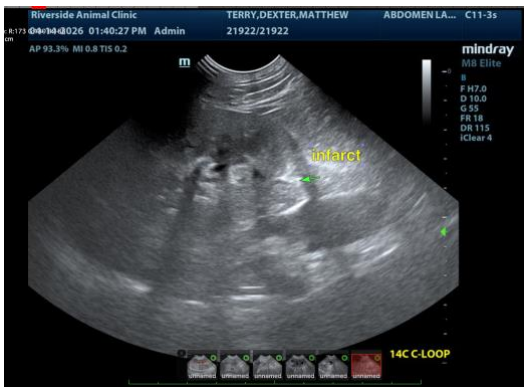


The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

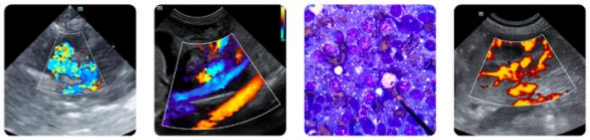
Eric Lindquist, DMV, DABVP(CFM), Cert. IVUSS,
CEO, Owner, Founder -- SonoPath.com
info@SonoPath.com

FEVER OF UNKNOWN ORIGIN

DESCRIPTON Fever of unknown origin (FUO) is any fever greater than a few days duration in which the cause is not obvious on initial history and physical examination. Important etiologies are infectious disease, immune-mediated diseases, and neoplasia. The common causes of FUO were summarized concisely in a presentation at the American College of Veterinary Internal Medicine 2004 Forum as follows:

Final Diagnosis	Bennett (Dogs & Cats)	Dunn and Dunn (Dogs Only)	Lunn (Dogs & 1 cat)	Total	Percent
Infection	21	16	10	47	28
Immune	18	22	6	46	27
Bone Marrow Disease	4	22	2	28	16
Neoplasia (outside marrow)	0	10	2	12	7
Miscellaneous	2	12	2	16	9
No Diagnosis	0	19	2	21	12
TOTALS	45	101	24	170	99

The types of infection diagnosed in this case series were varied, ranging from discospondylitis (8 cases), blastomycosis (6 cases), and bacterial endocarditis (4 cases), to leishmaniasis (1 case), prostatitis (1 case), and Ehrlichia canis infection (1 case); a multitude of other infectious causes also fell within the spectrum. Of the cases where immune-mediated disease was found, 44% had immune-mediated polyarthritis. Bone



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marrow diseases included myeloproliferative disease, myelodysplasia (8 cases), lymphocytic leukemia (8 cases), myeloma (3 cases), chronic granulocytic leukemia (3 cases), lymphoblastic leukemia, and malignant histiocytosis. The types of neoplasia located outside the bone marrow included lymphoma (6 cases), metastatic disease (2 cases), and neoplasms of the lung, spleen, and stomach. Finally, miscellaneous diseases included hypertrophic osteodystrophy (6 cases), meningitis (3 cases), portosystemic shunt (3 cases), lymphadenitis (2 cases), panosteitis, and intervertebral disc disease. Overall, the most common causes across all cases were polyarthritis (44 cases), lymphoid neoplasia (15 cases), discospondylitis (8 cases), myelodysplasia (8 cases), hypertrophic osteodystrophy (6 cases), and blastomycosis (6 cases).

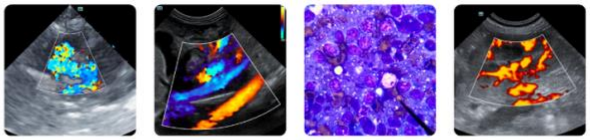
CLINICAL SIGNS Animals usually present with either persistent or waxing and waning fevers ranging from 103–106˚F (39.5–41˚C). Other clinical signs depend on the underlying cause of the fever. Careful and thorough physical examination is required to assess potential causes. History and physical examination represent the first, best, and least expensive opportunity to localize the disease process causing the fever.

DIAGNOSTICS FUO etiologies are partly related to geography and thus, locale or travel history should factor into a practitioner's diagnostic approach. A patient's lifestyle may also provide clues regarding exposure to certain etiologic agents. Therefore, obtaining a thorough history can unveil important pieces of the diagnostic puzzle. Physical examination is especially important and should include an inspection of all accessible lymph nodes, palpation and movement of the joints, a fundic examination, a neurological evaluation, spinal and limb palpation and range of motion tests, and a rectal examination.

A minimum database should include a CBC reviewed by a clinical pathologist, as well as a biochemical profile and urinalysis and retroviral testing in cats. In areas where tick-borne disease is prevalent, in-house testing should be performed early. Advanced laboratory work can include urine culture, blood culture, and infectious disease panels (PCR and/or serology). In dogs, one may screen for the following infectious agents: Ehrlichia spp., Borrelia burgdorferi, Rocky Mountain Spotted Fever, Bartonella spp. (culture and PCR), and Leptospira spp. in cases of hepatic or renal involvement. In cats, one should evaluate for FeLV, FIV, feline infectious peritonitis (FIP) virus, toxoplasmosis, Hemoplasma spp. (Mycoplasma), and Bartonella spp. (culture and PCR). Testing for Ehrlichia spp., Rickettsia spp., and Anaplasma phagocytophilum can also be considered. A fungal assay is indicated if the patient lives in or has had exposure to a region with a higher incidence of fungal disease. Other infectious disease tests may be performed depending on the geographical location of the pet. Screening for Brucella should be done in breeding dogs. Immune-mediated disease screening can include a Coombs test, a slide agglutination test (if the patient is anemic), and an antinuclear antibody (ANA) test. Immune disease is often a diagnosis of exclusion.

Imaging should include thoracic radiographs, abdominal ultrasound, and/or abdominal radiographs. Ultrasound can be very useful for assessing evidence of cholangiohepatitis, pyelonephritis, chronic urinary tract infection, abscess formation, peritonitis, and neoplasia. It also permits an examination of the intra-abdominal lymph nodes. An echocardiogram can offer assessment for vegetative endocarditis, whereas spinal radiographs offer assessment for discospondylitis. In cases where all other testing has proven negative and the patient has not responded to broad-spectrum antibiotics and supportive care, arthrocentesis should be considered to evaluate for septic joint disease, immune-mediated polyarthritis, and infectious disease. Finally, one can consider assessing the cerebrospinal fluid for meningoencephalitis, GME, and meningitis/arteritis. A bone marrow exam should be performed if blood dyscrasias are noted on the CBC.

TREATMENT Treatment of the fever depends entirely on the underlying cause. Ideally, a thorough diagnostic plan will yield a diagnosis that will guide the appropriate therapeutic course. However, if an exhaustive approach has not produced a definitive diagnosis and there is no response to broad-spectrum antibiotics, trial therapy with immunosuppressive agents such as prednisolone can be considered to treat presumed immune-mediated diseases. Given the potential for negative sequelae should an underlying infection be present, one must be certain that the investigation is thorough and monitor the patient's response carefully.



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CONCLUSION If a documented fever has not responded to antibiotics, antipyretics, or general nursing care, it is important to obtain a diagnosis to guide more specific treatment. A systematic physical examination and thorough history-taking will help inform further diagnostics in addition to what is revealed by the minimum database.

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