

Introduction/Purpose: The azygos vein (AV) has not been described as a visible structure on normal canine survey thoracic radiographs. However, the authors noticed a small vascular structure occasionally superimposed on the aortic arch on lateral radiographs (double vessel sign, DVS). The purpose of this study was to investigate whether this structure is the AV and whether AV conspicuity is associated with right heart disease in dogs.

Methods: A single-center, retrospective, descriptive, case-control study with institutional ethical approval was performed using canine lateral thoracic radiographs. The control group included dogs without thoracic disease but with thoracic radiography and CT. Radiographs were assessed for DVS. The AV at level of the aortic arch was identified on CT. A sagittal maximum-intensity-projection CT image including AV and aorta, mimicking a radiograph, was assessed for DVS. The case group included dogs with echocardiographically confirmed right heart disease and thoracic radiographs. CT/echocardiography was performed within 15 days of radiography. A Chi-square test was performed to compare the radiographic conspicuity of the DVS between the two groups.

Results: Thirty-two case and 46 control dogs met the inclusion criteria. Nineteen control dogs had radiographic DVS, all of which had a DVS and corresponding AV on CT. No statistical difference was found in radiographic AV conspicuity between the case and control groups ($p = 0.46$).

Discussion/Conclusion: A small vascular structure superimposed on the aortic arch seen on canine lateral radiographs represents the AV. In dogs, the DVS is a normal radiographic anatomic feature and does not indicate right heart disease.

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Effect of Radiographic Technique in Abdominal Radiography on the Performance of Six Commercial Artificial Intelligence Radiology Services

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Keywords: convolutional neural networks, deep learning

Introduction/Purpose: Commercial artificial intelligence (AI) algorithms for veterinary radiology are widely marketed to general practitioners (GPs). The effect of variation and errors in radiographic technique has not been published, potentially inflating marketed performance metrics. The study aims to evaluate the performance of commercial AI services on GP-sourced canine abdominal radiographs, with respect to alterations in radiographic technique.

Methods: Radiographs with confirmed diagnoses were retrospectively selected from participating clinics. Studies were anonymized and submitted to six AI services, then modified ($<5^\circ$ rotation) and resubmitted. A board-certified radiologist recorded the number of projections, radiographic errors (e.g., patient rotation, collimation, exposure), and radiologically visible pathology.

Results: Fifty-three radiographic studies were included. The most common radiographic diagnoses were reduced serosal detail, small intestinal obstruction, and gastric foreign body. There were 48 three-view and five two-view studies. Thirty-seven contained radiographic errors and 16 did not. Performance

declined with errors: Matthews correlation coefficient (MCC) decreased from 0.32 to 0.27, balanced accuracy from 67% to 66%, F1 score from 41% to 37%, and error rate increasing from 17% to 19%. Three-view studies performed worse than two-view studies: MCC decreased from 0.42 to 0.27, balanced accuracy from 74% to 65%, F1 score from 50% to 37%, and error rate increasing from 16% to 19%. Overall, performance remained in the low-to-moderate range.

Discussion/Conclusion: AI performance evaluated on real-world cases may be negatively impacted by radiographic errors. Larger scale studies are required to confirm the statistical significance of these findings, and external validation and algorithm refinement are necessary prior to widespread clinical adoption.

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Abdominal Ultrasonographic Findings in Dogs With a Diagnosis of Tick-Borne Disease

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Keywords: *Anaplasma*, *Babesia*, *Ehrlichia*, ultrasonography

Introduction/Purpose: Data on abdominal ultrasonographic changes in dogs diagnosed with tick-borne diseases are limited. This study aimed to describe the abdominal ultrasonographic findings in dogs diagnosed with anaplasmosis, babesiosis, and ehrlichiosis.

Methods: In this retrospective descriptive cross-sectional study, medical records from two university teaching hospitals were searched from 2013 to 2024 for dogs diagnosed by cytology and/or PCR with anaplasmosis, babesiosis, or ehrlichiosis that underwent abdominal ultrasonographic examination at the time of the diagnosis. Dogs with long-standing corticotherapy or concurrent diseases affecting abdominal organs were excluded.

Results: Fifty-two dogs were included: 42 with babesiosis, 6 with anaplasmosis, 3 with ehrlichiosis, and 1 with both babesiosis and anaplasmosis. Forty-nine dogs (95%) had abnormalities on ultrasonographic examination. Splenic and hepatic nodules, mainly hypoechoic, were observed in respectively 27/51 (52.9%) and 17/52 (32.7%) cases. Splenomegaly and hepatomegaly were found in respectively 13/51 (25.5%) and 21/52 (40.4%) cases. Lymphadenomegaly was described in 16 dogs (30.8%) affecting all lymph nodes (2/16, 12.5%) or specific lymph nodes (14/16, 87.5%), hepatic lymph nodes being affected in 6/16 cases (37.5%). Nineteen dogs (36.5%) had peritoneal effusion, mostly in mild amount (13/19, 68%). Biliary sludge was found in 31/48 cases (64%), associated with thickening (4/31, 12.9%), and/or a double-rim appearance (7/31, 22.6%) of the gallbladder wall.

Discussion/Conclusion: Abdominal ultrasonographic findings observed in dogs diagnosed with tick-borne diseases include splenomegaly and hepatomegaly with parenchymal nodules, biliary sludge, mild peritoneal effusion, and lymphadenomegaly. Further studies are recommended to evaluate the progression of these findings posttreatment and determine potential causal associations.

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