

ULTRASONOGRAPHIC ADRENAL GLANDS THICKNESS MEASUREMENT IN DOGS WITH PITUITARY-DEPENDENT HYPERADRENOCORTICISM IN COMPARISON WITH NORMAL DOGS MATCHED BY WEIGHT BODY. V De Marco^{1,2,3}, RS Pereira², NK Kage³, FA Santos², VK Ramos², S Buranello³, AAL Jorge¹ & BB Mendonca.¹

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Pituitary-dependent hyperadrenocorticism (PDH) is a common canine endocrinopathy that results in bilateral adrenocortical hyperplasia and small breeds are at increased risk for developing PDH. Adrenal thickness (caudal polar width) evaluated by ultrasonographic is an important tool to determine adrenocortical hyperplasia and the current cut-off for PDH diagnosis is 0.75 cm. However, a markedly variability in adrenal thickness has been reported in normal dogs, from 0.2 to 0.7 cm, probably reflecting weight-associated variation. Our aim was to determine the size of the adrenal glands ultrasonographically in normal healthy dogs weighing ≤ 10 kg and compare these measurements in dogs with PDH with similar weight. Ultrasonographic adrenal gland evaluation was performed in 50 dogs with PDH (30 females and 20 males) from various breeds (30 Poodles, 7 Teckels, 6 Yorkshires terrier, 1 Maltese and 6 mongrel dogs) and in 109 healthy control dogs. The diagnosis of hyperadrenocorticism was based upon the characteristic signs and symptoms, such as polyphagia, polyuria, polydipsia, abdomen enlargement, panting, hyperlipidemia, hyperphosphatasemia, low urinary density and cortisol levels $> 1,4$ $\mu\text{g/dl}$ after dexamethasone suppression test. PDH dogs had similar age in comparison with control ones (8.7 ± 2.6 vs. 7.7 ± 3.4 y., $p = 0.07$), but they were heavier than controls (7.7 ± 1.4 vs. 5.9 ± 2.2 kg, $p < 0.001$). There was no difference in breed distribution between both groups. There was no difference between left and right adrenal thickness measurements, which was positively correlated with animal weight ($r = 0.41$, $p < 0.001$) and age ($r = 0.364$, $p < 0.001$) in control group but not in PDH group. All dogs with PDH had bilaterally symmetrical normal shape adrenal glands. Adrenal thickness measurement in PDH dogs (0.74 ± 0.12 cm) was significantly greater than adrenal thickness in control dogs (0.5 ± 0.11 , $p < 0.001$). ROC curve analysis suggested that adrenal thickness measurement ≥ 0.59 cm has the highest accuracy for PDH diagnosis. Using this cutoff 45 (90%) of PDH dogs presented at least one enlarged adrenal, whereas 28/109 (25.7%) of control animals had adrenal thickness > 0.59 (sensitivity of 90%, specificity of 74%). Using the classical cut-off for adrenal thickness measurement of 0.75 cm, only 24 (48%) of PDH dogs of this cohort will be considered as having enlarged adrenals. In conclusion, our results indicate the need to correlate the thickness of the adrenal glands with the dog's body weight to improve the sensitivity of adrenomegaly detection in PDH dogs.

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