



The Ferret, Adrenal Glands and Ultrasonography

Normal ferret adrenal glands are flat and bilobed in shape in the sagittal plane, and are usually homogeneous and hypoechoic to the surrounding fat. Corticomedullary distinction can be seen in some cases. Normal ferret adrenal size has been reported to be (length x thickness) 5.4-9.8 x 2.3-3.6 mm for the left adrenal gland and 5.8-10.5 x 2.2-3.8 mm for the right adrenal gland.

The ultrasonographic change most commonly seen in ferret adrenal gland disease is an increase in pole thickness with a normal gland length. Increased thickness and length can both be seen in some cases, or the pole thickness may be normal but asymmetrical. The presence of an adrenal gland mass or nodule in a ferret is assumed to represent cortical neoplasia or hyperplasia, but the pattern of gland size and shape change has not been found to be specific to lesion type. Normal adrenal size and shape have been reported with adrenal hyperplasia and adenomas. When an abnormal adrenal gland is seen, it can be described as an adrenal mass if there is a diffuse increase in thickness and/or length, or as an adrenal nodule if there is a focal increase in thickness or an asymmetry of the poles. Bilateral adrenal involvement has been reported in approximately 20% of those ferrets with adrenal disease, although initial ultrasound examination did not always reveal that bilateral disease existed. Vascular invasion has not been reported to be identified ultrasonographically, but an absence of periglandular fat, direct contact with the aorta, caudal vena cava or liver, or deviation or compression of a vessel may be indirect evidence of vascular invasion and/or incomplete resectability. The parenchyma of an abnormal adrenal gland may become heterogeneous. Mineralization has only been reported in one adrenal adenocarcinoma, thus conclusions regarding the significance of this change cannot be made. Pheochromocytomas, originating from the adrenal medulla rather than the cortex, are rare in this species.

Further confirmation of adrenal disease in the ferret can be accomplished with hormone panels that measure serum estradiol, 17-hydroxyprogesterone and androstenedione. In a normal, neutered ferret, levels of these steroid hormones are very low. Intact ferrets have variable levels of these hormones present. In ferrets with adrenal disease, levels of one or more of these hormones may be high.