OCULAR ULTRASONOGRAPHY IN THE GIANT ANTEATER (MYRMECOPHAGA TRIDACTYLA)

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RESUMO

The giant anteater (Myrmecophaga tridactyla) is a vulnerable species which population is declining mostly due to habitat loss, environmental disasters, hunting and road kills. Considerable blunt traumas, especially in the head, can cause significant bone and ocular lesions and lead to transient to permanent visual impairments. Similarly, such traumas can cause brain injury with subsequent intracranial hypertension, which is a significant neurological emergency. If perpetuated, possible outcomes are permanent sequelae, reduced chances of rehabilitation or death. Ultrasonography of the eye and retrobulbar soft tissues is proposed as a quick, non-invasive and readily available resource to identify ocular traumatic injuries, such as detachments and dislocations, inflammation, hemorrhage and glaucoma; and high intracranial pressure, through measuring the optic nerve sheath diameter. The aim of this study was to determine the normal eye anatomy and biometric measurements of giant anteaters (M. tridactyla) by B-mode ocular ultrasound. Four healthy adult giant anteaters, weighting 40.5±6.64 kg, were submitted to ocular ultrasound evaluation. The procedure was performed using a 10 MHz linear transducer. The animals were chemically restraint with ketamine (2mg/kg), midazolam (0.4mg/kg) and detomidine (0.15mg/kg), intramuscularly. The eyes were approached through the eyelid and covered with acoustic gel to evaluate the globe and orbital structures. Student's t-test was performed to compare the values of left and right eyes (P<0.05). The visualized structures were the cornea, anterior chamber, anterior lens, iris, ciliary body, posterior chamber, vitreous chamber and retrobulbar soft tissue. Biometric mean and standard deviation values were: axial globe length (12.17±0.15mm), anterior chamber depth (1.42±0.36mm), vitreous chamber depth (6.50±0.41mm), lens thickness (4.27±0.31mm) and optic nerve sheath diameter (1.85±0.22mm). No significant differences were found between left and right eyes. The eye structures of giant anteaters are promptly identifiable on images and can be compared to domestic dogs. Generally, the ocular globe was slightly asymmetrical and flattened rostro caudally, and, as well as the anterior chamber, was considerably smaller compared to dogs. The ciliary body was less echogenic and defined and the rostral wall of the anterior chamber was less marked than in dogs. An important drawback regarding this pilot study is the small sample size and lack of anatomical parts for comparison. A larger sample is necessary to define the measurements with a better accuracy. However, it is important to mention that regardless of known measurements of eye structures, adequate understanding of the normal eye ultrasonographic features is essential to assess the extension of lesions and monitor treatment effectivity. Ophthalmologic ultrasound is a feasible technique to evaluate the eye and surrounding tissues in anesthetized giant anteaters and could be an important tool to evaluate the ocular health and indirect intracranial pressure in this species.

PALAVRAS-CHAVE: Emergency, Eye imaging, Head trauma, Ophthalmology

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