

Ultrasonography to examine the anatomic structure of eyeballs in Asian elephants (*Elephas maximus*)

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Abstract One of the elephant health problems is the ocular disorders. This study aimed to find the basic data of the inner ocular structure of elephant. The eyeballs of 20 Asian elephants (*Elephas maximus*) were examined using ultrasonography with 4-7 MHz. linear array and convex transducer by transpalpebral eyelid technique. Both eyes were scanned in horizontal and vertical plane to observe the shape, edge, size and echogenicity of the inner structure. From the sonogram, the eyelids appeared as hypoechoic structure in the near field. Cornea appeared as a curvilinear hypoechoic. Both anterior and vitreous chambers were completely anechoic. Iris could be seen as hypoechoic structure in intimate contact with the lens. The lens was anechoic structure, and posterior lens capsule was usually seen as a concave curvilinear hyperechoic from the central part of the lens only. Ciliary body was observed as small hypoechoic mass on each side of the lens. Ocular sonography should be performed in more than one plane, with stand-off pad or water between eyelid and transducer. Control of elephant could be a factor of operation success. This information could be used to support the diagnosis of ocular disorders by ultrasonography.

Keywords: Ultrasound, Eyeballs, Asian elephants
