Neuroanatomy of the Upper Cretaceous turtle *Chedighaii hutchisoni* Gaffney, Tong & Meylan, 2006 (Pleurodira, Bothremydidae).

Fernanda O. Deantoni.

Departamento de Geologia e Paleontologia, Museu Nacional, Universidade Federal do Rio de Janeiro, RJ, Brazil.

fer.deantoni@gmail.com.

Background. While Computed Tomography scanning is a powerful non-invasive tool for the study of paleoneurology, the neuroanatomy of turtles remains unexplored in comparison to other higher taxa. I herein present data on the morphology of intracranial structures of *Chedighaii hutchisoni* based on CT scan generated endocasts.

Methods. The CT scan of *C. hutchisoni* (KUVP 14765, holotype) was virtually manipulated using software Mimics (Materialise) v.10.01, with manual correction and preparation of internal structures in coronal view.

Results. The endocast presents poorly demarcated flexures and cartilaginous rider, and cerebral hemisphere region larger than medulla. The abducens nerve (CNVI) canal is slightly curved and thinner than the internal carotid canal (cci). The semicircular canals are approximately the same caliber as the cci. The anterior (csa) and posterior (csp) semicircular canals form an angle of 80° and are equally elevated. The facial nerve (CNVII) canal is short and extends posterolaterally into the prootic; the junction with the cci happens at mid-length of the CNVII canal. One ramus of the statoacustic nerve (CNVIII) is visible. In the ophistotic there is one paired foramina for the glossopharyngeal nerve (CNIX).

Discussion. The endocast of *C. hutchisoni* is in many aspects similar to the other bothremydids *Galianemys whitei* and *G. emringeri*, with some particularities. The canal of CNVI shows an intermediate condition between *G. whitei* (shorter, thinner than cci and rounded, handle-shaped) and *G. emringeri* (longer, thicker than cci and almost rectilinear). The semicircular canals are slightly thicker than in other studied pelomedusoids and chelids (e.g. *Chelus fimbriatus* and *Elseya dentata*), and the bony labyrinth is similar to that of *G.*

emringeri, although in both *Galianemys* species the csa is more elevated than the csp in the common crus. The angle between csa and csp is also similar to *G. emringeri* and other pelomedusoids such as *Podocnemis unifilis*, *P. expansa*, *Caninemys tridentata* and *Peltocephalus dumerillianus*. *C. hutchisoni* presents one paired foramina for CNIX, not visible in both *Galianemys* species. Compared to an endocast of *C. barberi* (originally misidentified as *Bothremys* sp.), *C. hutchisoni* presents greater cerebrum/medulla width proportion, the cci of *C. barberi* is thicker and enters the sella turcica in a acuter angle, and CNVI is visible in ventral view in *C. barberi*, whereas in *C. hutchisoni* it hides beneath the cci. Further studies will help elucidate the variation of intracranial structures in Bothremydidade and in the remaining pleurodires families.

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