ACTA PALAEONTOLOGICA POLONICA

Petrosal and cranial vascular system of the early Eocene palaeoryctid mammal *Eoryctes melanus* from northwestern Wyoming, USA

John R. Wible
Acta Palaeontologica Polonica 67 (1), 2022: 203-220 doi:https://doi.org/10.4202/app.00916.2021

The petrosal and neighboring bones of the early Eocene palaeoryctid mammal *Eoryctes melanus* are described in tympanic and endocranial views based on CT scan data of the holotype. A second cranium of *E. melanus* has fragments of an osseous bulla, which have been interpreted as possibly formed by an independent entotympanic. The CT scans of the holotype reveal that the medial bullar wall is formed by an expanded rostral tympanic process of the petrosal, but the element(s) in the bullar floor remain unknown. The CT scans also allow for a comprehensive reconstruction of the cranial arterial and venous system. The arterial pattern differs from that in early eutherians by the absence of the arteria diploëtica magna and the bifurcation of the end branches of the stapedial artery dorsal to the tympanic roof. The venous pattern includes a large frontal diploic vein arising from the dorsal sagittal sinus on the midline and running through the frontal bone in a canal. Comparisons are made with other palaeoryctids, various Paleogene mammals (pantolestids, leptictids, apternodontids, apatemyids, and cimolestids) and the extant lipotyphlan *Solenodon paradoxus*. For the last taxon, the structure of the piriform fenestra and associated arteries is detailed. Cranial features support the monophyly of palaeoryctids and suggest possible lipotyphlan affinities.

Key words: Mammalia, Lipotyphla, *Solenodon*, entotympanic, facial nerve, frontal diploic vein, piriform fenestra, stapedial artery, tympanohyal, zygoma.

John R. Wible [wiblej@carnegiemnh.org; ORCID: https://0000-0002-0721-1228], Section of Mammals, Carnegie Museum of Natural History, 5800 Baum Boulevard, Pittsburgh, Pennsylvania 15206 USA.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see creativecommons.org), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.


Full text (1,052.4 kB)