

Can maxillary canal morphology inform varanopid phylogenetic affinities?

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Varanopidae have historically been classified as members of the basal synapsid grade “Pelycosauria”. However, recent phylogenetic works proposed that varanopids may in fact belong to the Diapsida. Here, we use µCT scanning and digital 3D reconstruction to compare the maxillary canal of the early diapsid *Orovenator mayorum*, the basal archosauromorph *Prolacerta broomi*, the ophiacodontid “pelycosaur” *Varanosaurus acutrostris*, and the varanopid *Heleosaurus scholtzi*. We find that the maxillary canals of *Orovenator* and *Prolacerta* are very similar and differ markedly from those of *Heleosaurus* and *Varanosaurus*. In the latter two, the morphology of the maxillary canal closely matches that of the Therapsida, which could support the traditional position of varanopids among the Synapsida.

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 [Supplementary file \(148.5 kB\)](#)