



The basicranial anatomy of African Eocene-Oligocene anthropoids. Are there any clues for platyrrhine origins?

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A contentious issue in anthropoid evolution is clarifying the phylogenetic position of late Eocene and early Oligocene anthropoids from Egypt relative to Miocene-to-recent 'crown' Anthroidea. There is general agreement that African early Oligocene Aegyptopithecus and other Propithecidae are members of a stem catarrhine clade but do any of the other African Eocene-Oligocene anthropoids represent stem platyrrhines? Related to this, do any of the late Eocene taxa, such as the Oligopithecidae (Catopithecus and Oligopithecus), also represent stem catarrhines, or are they stem anthropoids with a few characters convergent on the catarrhine condition? The distribution of traits of the ear regions of living and fossil anthropoids is examined using CT scans of the temporal regions of a comparative sample of extant haplorhines as well as the Egyptian late Eocene Catopithecus and Proteopithecus and early Oligocene taxa Simonsius, Apidium, and Aegyptopithecus to determine if there are any characters of the ear region that distinguish crown platyrrhines from crown catarrhines and if any represent synapomorphies of Platyrrhini and thereby indicating that some late Eocene African taxa are sister to platyrrhine primates. The ear region of African anthropoids is essentially modern in form by the late Eocene (~35 Ma) and has undergone only a few and minor structural changes since. Overall, the few structural details of the ear region that separate Miocene to recent platyrrhines from crown catarrhines represent catarrhine synapomorphies. Several of these synapomorphies support linkage between early Oligocene Aegyptopithecus and crown catarrhines. In particular, failure to ossify the tentorium cerebelli and less certainly, reduction of Cartmill's canal and its constituent vein may be catarrhine synapomorphies. Miocene to recent platyrrhines are very similar to late Eocene African anthropoids in the anatomy of the arteries and veins, the design of the tympanic cavity, its accessory pneumatic sinuses, and the structure and relations of the tympanic bone. Proteopithecus remains a possible platyrrhine ancestor but only because of shared primitive retentions from a more distant common ancestor.

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