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## Evolutionary history of large cercopithecine monkeys in Eurasia: internal cranial morphology and dispersal route

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*Procynocephalus* and *Paradolichopithecus* are the largest representatives of fossil cercopithecines known from the middle Pliocene to the early Pleistocene of Eurasia. The specimens from China and India are usually assigned to the former and those from Europe and central Asia are to the latter, although some scholars argue that the latter was a junior synonym of the former. The geological and geographical distributions suggest that *Paradolichopithecus/Procynocephalus* probably arose in the early Pliocene of western Eurasia and then dispersed eastward. Despite of few differences in external features, there are distinctions in the internal nasal regions among *Paradolichopithecus* crania from the three localities. *Para. arvernensis* from the late Pliocene of Seneze, France shows no maxillary sinus, whereas *Para. sushkini* from the late Pliocene of Kuruksay, Tajikistan, had this feature. The partial maxilla of *Para. gansuensis* recently reported from the early Pleistocene of Longdan, north western China shows no evidence for the formation of a maxillary sinus, as is seen in the Seneze cranium. Among extant cercopithecines, the maxillary sinus exists only in macaques. Therefore, such a discrepancy might reflect an intergeneric distinction between the Seneze/Longdan and Kuruksay specimens. Despite of no evidence for *Procynocephalus*, this genus is regarded as most closely related to macaques. Thus, *Para. gansuensis* might have dispersed eastward retaining a primitive condition though central Asia, while *Paradolichopithecus sushkini* and *Procynocephalus* would have acquired this feature independently in central Eurasia and dispersed to East through South and Southeast Asia.

Keywords: Cercopithecinae, Eurasia, dispersal route, maxillary sinus, Primates