Dataset

3D models related to the publication: An unexpected late paroxyclaenid (Mammalia, Cimolesta) out of Europe: dental evidence from the Oligocene of the Bugti Hills, Pakistan

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Abstract
This contribution contains the three-dimensional digital models of eleven isolated fossil teeth of a merialine paroxyclaenid (*Welcommoides gurki*), discovered from lower Oligocene deposits of the Bugti Hills (Balochistan, Pakistan). These fossils were described, figured and discussed in the following publication: Solé et al. (2024), An unexpected late paroxyclaenid (Mammalia, Pantolesta) out of Europe: dental evidence from the Oligocene of the Bugti Hills, Pakistan. Papers in Palaeontology. https://doi.org/10.1002/spp2.1599

Keywords: Indian Subcontinent, Merialinae, Paleobiogeography, Paleogene, Paroxyclaenidae

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INTRODUCTION

We present here the three-dimensional (3D) digital models of eleven isolated dental remains of a fossil Paroxyclaenidae (Fig. 1; Table 1) that were unearthed in detrital lower Oligocene deposits (Bugti Member, Chitarwata Formation) at the Paali Nala locus 2 locality (DBC2), situated on the south flank of the Zin anticline, Bugti Hills, Balochistan, Pakistan (e.g., Marivaux et al., 1999, 2001, 2002, 2005; Welcomme et al., 2001; Marivaux and Welcomme, 2003; Métais et al., 2009, 2017). These specimens (two well-preserved lower molars, one partial lower molar [trigonid], seven moderately well-preserved upper molars, and one pristine deciduous upper premolar) have allowed the description of a new merialine paroxyclaenid (*Welcommoides gurki* Solé et al., 2024), which is the largest and latest species of the group to be known thus far. The occurrence of this paroxyclaenid representative in the Oligocene of Pakistan is somewhat unexpected inasmuch as these mammals were so far only known during the Eocene in Europe. *Welcommoides* is a late representative out of Europe of that poorly-known mammal group. It displays a suite of unusual dental characters compared with merialines, thereby suggesting that this South Asian lineage had diverged for some time from its lower Eocene European counterparts (Solé et al., 2024). The discovery of a merialine paroxyclaenid in the Oligocene of Pakistan provides an additional example in support of the hypothesis that low latitudes of South Asia were a tropical refugium during the global climatic deterioration recorded at the Eocene/Oligocene transition (Beard, 1998; Qi and Beard, 1998; Marivaux et al., 2002; 2005, 2006; Jablonski, 2003; Marivaux, 2006; Coxall and Pearson, 2007; Ni et al., 2016; Solé et al., 2024).

Inv nr.	Description
UM-DBC 2225	Left m3
UM-DBC 2226	Right m3
UM-DBC 2227	Trigonid of a right lower molar
UM-DBC 2230	Right DP4
UM-DBC 2228	Right M1
UM-DBC 2229	Right M2
UM-DBC 2236	Left M2
UM-DBC 2231	Left M3
UM-DBC 2232	Left M3
UM-DBC 2234	Left M3
UM-DBC 2233	Left M3

Table 1. List of models of specimens belonging to *Welcommoides gurki*. Collection: Institut des Sciences de l'Evolution de Montpellier, Université de Montpellier, France.

METHODS

The dental specimens documenting *Welcommoides gurki* from the Oligocene of Pakistan (Fig. 1) were scanned with a resolution of 5 µm, using a µCT-scanning station EasyTom 150 / Rx Solutions (Montpellier RIO Imaging, ISE-M, Montpellier, France). AVIZO 2020.2 (Visualization Sciences Group) software was used for visualization, segmentation, and three-dimensional (3D) rendering. The isolated teeth were prepared within a "labelfield" module of AVIZO, using the segmentation threshold selection tool. The crown and roots of each tooth were virtually delimited by manual segmentation. The 3D models are provided in ".ply" format, and thus can be opened with a wide range of software programs (e.g., MorphoDig 1.6.7, an open-source 3D freeware (Lebrun, 2018; https://morphomuseum.com/Pages/morphodig).

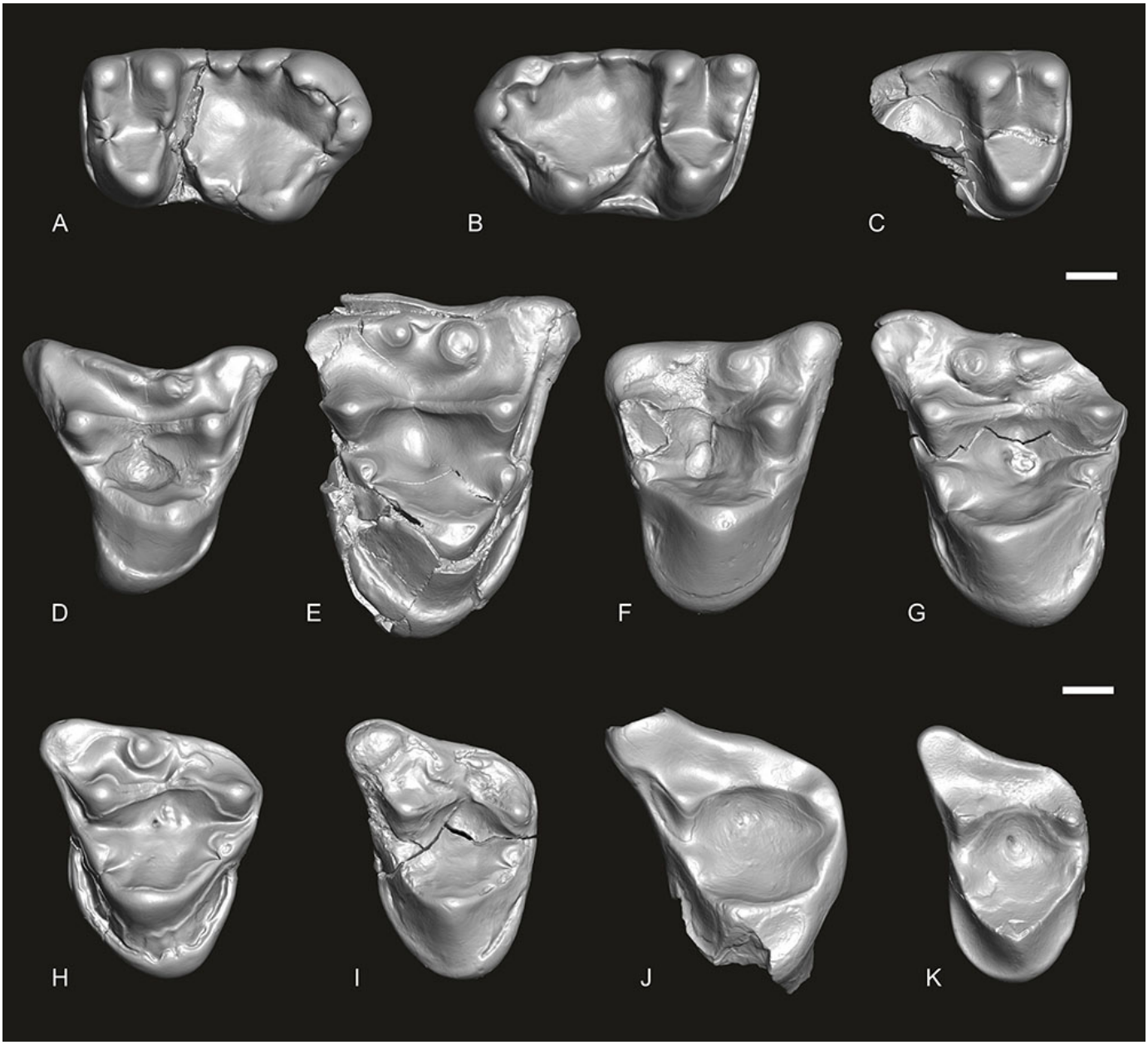

Figure 1. Fossil dental specimens of *Welcommoides gurki* Solé et al. 2024, from the early Oligocene of the Bugti Hills DBC2 (Balochistan, Pakistan). A) UM-DBC 2225, left lower m3; B) UM-DBC 2226 (Holotype), right lower m3; C) UM-DBC 2227, trigonid of a right lower molar; D) UM-DBC 2230, right deciduous fourth upper premolar (DP4); E) UM-DBC 2228, right upper M1; F) UM-DBC 2229, right upper M2; G) UM-DBC 2236, left upper M2; H) UM-DBC 2231, left upper M3; I) UM-DBC 2232, left upper M3; J) UM-DBC 2234, left upper M3; K) UM-DBC 2233, left upper M3. Images are renderings of 3D digital models of the fossil specimens, obtained by X-ray micro-computed (µCT) surface reconstructions (renderings of segmented surfaces). Scale bars: 1 mm.

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