

A large pterosaur femur from the Kimmeridgian, Upper Jurassic of Lusitanian Basin, Portugal

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The pterosaur fossil record in Portugal is scarce, comprising mainly isolated teeth and rare postcranial material. Here, we describe a well-preserved right proximal femur of a pterodactyloid pterosaur from the Kimmeridgian, Upper Jurassic Praia da Amoreira–Porto Novo Formation of Peniche, Portugal. It is noteworthy for its relatively large size, compared to other Jurassic pterosaurs. It shows affinities with dsungaripteroids based on a combination of features including the bowing of the shaft, the mushroom-like cap of the femoral head, and the distinctly elevated greater trochanter. The femur has a relatively thinner bone wall compared to dsungaripterids, and is more similar to basal dsungaripteroids. A histological analysis of the bone cortex shows it had reached skeletal maturity. The preserved last growth period indicates fast, uninterrupted growth continued until the final asymptotic size was reached, a growth pattern which could best be compared to pterodactyloid femora from the Early Cretaceous. The specimen is the second confirmed report of a dsungaripteroid from the Jurassic, and it is the first record of this group from the Iberian Peninsula.

Key words: Pterosauria, Dsungaripteroidea, histology, Late Jurassic, Kimmeridgian, Portugal.

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