

Femoral histology and growth patterns of the ceratopsian dinosaur *Psittacosaurus sibiricus* from the Early Cretaceous of Western Siberia


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The early ceratopsian dinosaur *Psittacosaurus sibiricus* from the Early Cretaceous of Western Siberia, Russia, is one of the most advanced and largest (up to 2.5 m) members of the genus. Here we present a description of ontogenetic changes in the long-bone histology of this species. Analysis of a growth series of femora demonstrates significant histological maturation during ontogeny, expressed by the progressive appearance of signs of bone remodeling (erosion bays, secondary bone formation), decreasing of vascularity, changing of the orientation of vascular canals from reticular to longitudinal, and appearance of parallel-fibred bone in the outer part cortex. These ontogenetic changes in the longbone histology of *P. sibiricus* are generally similar to those of another relatively advanced species, *P. lujiatunensis* from China. The basal *P. mongoliensis* from Mongolia shows less mature long-bone histology during late ontogeny (e.g., the late appearance of signs of remodeling and the predominance of reticular vascularization at later stages). We suggest that the earlier achievement of histological maturity is an evolutionary trend of the genus *Psittacosaurus*.

Key words: Dinosauria, Ceratopsia, *Psittacosaurus*, bone histology, Cretaceous, Siberia, Russia.

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