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First record of palaeopathologies in appendicular bones of the Triassic pseudosuchians Erpetosuchidae and Aetosauria based on microstructural approaches

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Pseudosuchians were the dominant group of archosaurs on continental ecosystems during the Triassic. However, studies that report palaeopathologies based on osteohistological evidence in this group are scarce. Here, two cases of palaeopathologies found in appendicular bones of two clades of pseudosuchians are presented: Aetosauria, a distal fragment of the fibula of *Aetosauroides scagliai* and Erpetosuchidae, the distal half of the tibia of *Tarjadia ruthae* from the Ischigualasto and Chañares formations, respectively (province of La Rioja, Argentina). The cortex in both specimens is composed of woven-fibred bone in the deepest part and by parallel-fibred bone in the subperiosteum. Towards the outermost portion of the cortex, a thin layer of periosteal bone with an irregular margin is recorded, mainly formed by a fibrolamellar bone vascularized with relatively wide and anastomosed radial canals. These features are compatible with a specific tissue recognized in pathological conditions, the radial fibrolamellar bone (RFB), generated by periosteal reactive bone. Additionally, a thin layer of parallel-fibred/lamellar bone crossed this structure in *A. scagliai* and surrounding the outermost portion in both specimens. The presence of RFB shows an abnormally accelerated bony overgrowth. However, due to the short thickness of this layer and the subsequent formation of parallel-fibred bone, it indicates a slowdown in its development and a possible recovery of the pathological condition. The configuration of the injury is compatible with periostitis and it constitutes the first record of this type of pathologies in non-crocodylomorph pseudosuchians. As the causes for this benign injury, it is inferred a non-traumatic stress followed by a pyogenic infection.

Key words: Aetosauria, Erpetosuchidae, bone histology, injury, Triassic, South America.

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