OC - (23979) - THE MICROSCOPIC AND ULTRASTRUCTURAL VALIDATION OF AN INTERMEDIATE LEPTOMENINGEAL LAYER IN THE HUMAN CNS

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A recent study identified an additional leptomeningeal layer in mouse brains that divides the subarachnoid space (SAS) containing cerebrospinal fluid (CSF) into two distinct functional compartments, with limited supporting evidence from humans. The microscopic validation of this layer in the human central nervous system remains a gap in the current literature.

Human tissue samples were obtained from fresh postmortem/cadaveric brains and spinal cords. Routine and special histological staining, as well as immunohistochemistry/immunofluorescence using meningeal layer-specific markers, were performed. Slides were examined under light and fluorescence microscopes. Additionally, tissue samples were analyzed using Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM).
Immunohistological examination confirmed the presence of an intermediate leptomeningeal layer. This layer divided the subarachnoid space into two structural compartments. It extended into the sulci and appeared to form a perivascular sheath around the vessels in the inner compartment. SEM and TEM analyses revealed that the new meningeal layer had a nonporous, fibrocellular structure with tight and adherens intercellular junctions.
This study provides microscopic and ultrastructural evidence of an intermediate leptomeningeal layer in the human central nervous system that divides the subarachnoid space into two compartments.

Palavras-chave : Meninges, Human, Central Nervous System