**INVOLVEMENT OF DURA MATER TISSUE IN RODENT MODELS OF PNEUMOCOCCAL MENINGITIS**

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**Background:** Pneumococcal meningitis remains the most common cause of bacterial meningitis in children worldwide. However, the mechanisms underlying its pathogenesis remain poorly understood.
**Methods:** We investigated the spatial distribution of *S. pneumoniae* during meningitis in rodents and its interactions with vascular endothelium (CD31) and macrophages (CD169) in two distinct in vivo infection models. Using microscopy-based analyses, we quantified and localised bacteria within the brains of infected animals.
**Results:** Quantitative image analysis showed that, in our hematogenous meningitis model, a substantial proportion of bacteria in the dura mater were extravascular, consistent with early tissue invasion. At later time points, bacterial invasion was instead observed in the pia mater and the choroid plexus. In the intracranial meningitis model, dural macrophages displayed infection-associated morphological changes, and *S. pneumoniae* localized predominantly to macrophages at 18 hpi and to vessels at 42 hpi.
**Conclusions:** Our findings reveal that differences between the choroid plexus, the pia and dura mater reflect distinct tissue-specific dynamics. Overall, these results highlight the central role of perivascular macrophages in pneumococcal persistence and host–pathogen interactions during meningitis, providing new insights into disease pathogenesis and potential therapeutic targets.