Nervous-immune cross-talking in lesions of the oral mucosa: The example of Oral Lichen Planus.

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Oral Lichen Planus (OLP) is a disease of the soft oral mucosa that is characterized by lesions whose etiology is still unknown. Research has provided strong evidence that the immune system sends messages to the central nervous system (CNS) and vice-versa. Aim of this study was to test the evidence of interactions and connections between immune cells (e.g. T cells) and nerve endings in OLP lesions. We modified established techniques for dual-staining immunoistochemistry in order to visualize proximity and organization of T cells with sympathetic and para-sympathetic nerve endings that are recognized respectively by cathecholamine-loaded vesicles and acetylcholine-loaded vesicles. Formalin-fixed paraffin-embedded serial sections of OLP lesions from patients treated at the UCLA School of Dentistry were used in this study. We showed a significant invasion of OLP lesions by activated lymphocytes, and we were able to show interactions between both the nervous and the immune system for the first time. In conclusion, the study of the severity of junction alterations between the immune and the nervous system at different ages and genders might add more pieces to this unsolved puzzle of the etiology of lesions of the oral mucosa. Hope remains high in that this field of research may one-day help finding a cure for OLP.

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