

Mast Cell Tryptase in Actinic Cheilitis, Oral Submucous Fibrosis and Oral Lichen Planus

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Human Mast cells (MCs) are classified by their content of specific serine proteases into either MCs tryptase (MCT), MCs Chymase (MCC), or both MCs tryptase and chymase (MCTC). Thus tryptase and chymase are the current "gold standard" for determining mast cell phenotypes in various tissue compartments. Several studies have shown that mast cells are significantly increased in several neoplasias, Furthermore, MCs density has been associated with bad prognosis and increased metastasis. Actinic cheilitis is a premalignant lesion that can transform into squamous cell carcinoma of the lip. Unfortunately, the clinical appearance of actinic cheilitis does not always correlate directly with the underlying histologic changes. Suspicious looking lesions may prove to be remarkably benign, while a small area of actinic cheilosis may in fact represent severe dysplasia or even SCC. WHO classifies OLP as a pre-malignant condition making mucosa more sensitive to exogenous carcinogens and thus to develop oral carcinoma. Mast cell derived chymase and tryptase are thought to play a role in the breakdown of basement membrane structural proteins in conditions such as oral lichen planus. Oral submucous fibrosis (OSF) is a slowly progressive chronic fibrotic disease of the oral cavity and oropharynx, OSF is regarded as a premalignant condition, and many cases of oral cancer have been found coexisting with submucous fibrosis. The present study was undertaken to characterize the significance of mast cell tryptase expression in Actinic Cheilitis, Oral Submucous Fibrosis, and Oral Lichen Planus. The present study was conducted on eighteen patients (Ten patients with Oral Lichen Planus, five patients with Actinic Cheilitis and three patients with Oral submucous fibrosis). Biopsies of the lesions were taken in all cases, histopathologic examination and subsequent immunohistochemical studies were performed. Mast cell tryptase immunoreactivity was assessed by the image analysis software. Computerized calculation of the total surface area of the immunoreactions was expressed as a fraction of the total surface area of the microscopic field (immunostained area fraction (IAF)). The results of the present study showed that actinic cheilitis expressed a significantly higher immunostained area fraction compared with lichen planus (P-value <0.001). A similar trend was also noted for oral submucous fibrosis, as the later showed a significantly higher immunoreaction compared with lichen planus (P-value =0.046). Although, actinic cheilitis showed a higher immunoreactive surface area in comparison to oral submucous fibrosis, the difference was not statistically significant. These findings might reflect the role played by mast cells in the etiologies of the malignant potentialities and in the inflammatory processes of these lesions.