Expression of monocyte chemoattractant protein-1 in the lesional skin of systemic sclerosis

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Systemic sclerosis (SSc) is a connective tissue disease with unknown etiology characterized by excessive deposition of collagen in the skin as well as various internal organs. One of the characteristic histological features is the presence of infiltrating mononuclear cells in the dermis in its early stage. As well as T cells, macrophages are implicated to play an important role in the initial pathologic changes associated with SSc by releasing fibrogenic cytokines, including transforming growth factor-beta or platelet-derived growth factor. However, the precise mechanism for increased monocyte/macrophage recruitment in the lesional skin of SSc is still not completely elucidated. Monocyte chemoattractant protein-1 (MCP-1) is a predominant monocyte chemoattractant secreted by various cells types including mononuclear cells, fibroblasts, smooth muscle cells, endothelial cells, or keratinocytes. In this study, we examined the expression of MCP-1 protein and mRNA in the lesional skin of seven patients with SSc by immunohistochemistry and in situ hybridization. Results of immunohistochemistry showed that MCP-1 was detected on infiltrating mononuclear cells and fibroblastic cells in scleroderma skin, whereas normal skin showed only minimal MCP-1 expression. We demonstrated the expression of MCP-1 mRNA in infiltrating mononuclear cells and keratinocytes in scleroderma and contact dermatitis skin. In addition, signals were also detected in fibroblasts in the lesional skin of scleroderma, whereas fibroblasts in normal skin and contact dermatitis skin did not express MCP-1 mRNA. These findings suggest that MCP-1 plays a role in recruiting monocyte/macrophages in the lesional skin of scleroderma and that activated fibroblasts in scleroderma are involved in this process.
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