《자유연제 I 08:00~08:40》

Role of vascular endothelial growth factor in the diabetic frozen shoulder

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Objective : Vascular endothelial growth factor (VEGF) is the most potent angiogenic factors. It has been demonstrated that hypoxia was the main inducer of VEGF expression which, in turn, stimulates local proliferation of capillaries to increase oxygen delivery. The aim of the present study was to investigate the role of VEGF in diabetic frozen shoulder.

Material and Methods : We examined the potential role of VEGF in mediating proliferation of endothelial cells in diabetic frozen shoulder using samples of synovial tissues from 9 patients with diabetic frozen shoulder, and 1 normal synovial tissues obtained fresh from autopsy. Samples were fixed in 10% buffered formalin, paraffin-embedded and sectioned at 4 m. Tissue sections were stained with hematoxylin-Eosin staining. Immunolabeling was performed using polyclonal antibodies against VEGF (a goat polyclonal IgG: sc-152-G and a rabbit polyclonal IgG: sc-507)(1:100)(Santa Cruz, CA). The cells exhibiting a moderate to intense signal for VEGF were considered as positive and counted.

Results : Synovial biopsies revealed hyperplastic, inflamed synovial tissue, characterized histologically by extensive infiltration of lymphocytes, macrophages and increased numbers of new blood vessels lined by hypertrophic endothelium. Synovial tissue biopsied from normal control revealed no significant inflammation. Immunostaining with antibodies to VEGF revealed a population of cells similar to the macrophage. Endothelial cells of small blood vessels in synovium of diabetic frozen shoulder also stained for VEGF.

Conclusion : We postulated that VEGF is synthesized and secreted by macrophages in synovium of diabetic frozen shoulder and that secreted VEGF binds to specific receptors on endothelial cells of small nearby blood vessels, and subsequent development of frozen shoulder in diabetic patients.