Carpal Tunnel Syndrome: The Pathogenesis and Role of Carpal Ligament and Chronic Imflammaton

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Abstract:

Introduction: Carpal tunnel syndrome is one of the most common compression neuropathies, with a tendecy to increase and, if left untreated can lead to reduction of working abilities because of pain and loss of sensation in the affected palm. Various treatment methods have been developed and their efficiacy is dependent on the pathological processes in the carpal tunnel.

Aim of the study: To differentiate and evaluate the ratio of carpal tunnel narrowing caused by thickening of the flexor tenosynovium and the cases caused by carpal ligament fibrosis.

Methods and materials: Reasearch case group included 57 patients who were admitted for scheduled surgical carpal tunnel decompression surgery and during the surgery a tissue sample was obtained from the palmar flexor thenosynovium (26 samples) and the carpal ligament (57 samples). Control group was composed of five patients undergoing urgent surgeries for trauma control in cases where the operating field included the structures of this study. The obtained samples were then sent for a pathohistological evaluation. The acquired data were then gathered using *Microsoft Excel* 2017 and analyzed using *IBM SPSS Statistics* version 25.0.

Results:

Conclusions: Women chose surgical method for carpal tunnel syndrome two times more often. The average age in case group was 61,3 (SD = 12,3) years. The most common findings in case group tenosynovium tissue were chronic synovitis, also oedema and fibrosis of the synovium was common. In case group in most of the cases no signs of inflammation were found, but the most common pathologic findings were ligament fibrosis, hyalinisation and oedema.

Keywords:

Carpal tunnel syndrome, transverse ligament fibrosis, chronic tenosynovitis.