

The comparison of nerve fibers, schwann cells and mast cells in acute appendicitis with normal and non inflamed appendix with clinical symptoms

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Abstract

Background & Objective: The pathogenesis of appendicitis remains poorly understood. However there is increasing evidence of involvement of the enteric nervous system in immune regulation and in inflammatory responses. This study was setup to characterize the status of the enteric nervous system and mast cells in acute appendicitis with normal and non inflamed appendix with clinical symptoms

Materials & Methods: In this descriptive study, staining in surgically resected appendixes from 15 patients with histologically proven acute appendicitis (Histologically appendicitis, HA), 15 histologically normal appendix (Histologically normal, HN) from patients with a clinical diagnosis of appendicitis and normal histology, and 15 normal appendixes from patients undergoing elective abdominal surgery were studied in Shaid Mostafa Khomeyni medical center, Iran during 2000-01. S100-Positive schwann cells and synaptophysin-positive nerve fibers were evaluated with immunohistochemical staining and mast cells were evaluated with histochemical staining with Toloiden –blue. The number of nerve fibres, schwann cells and mast cells in each tissue compartment was measured quantitatively with light microscope in 20 microscopic high power fields. Then the mean number of cells was calculated in each field ($\times 400$).

Results: Increased numbers of fibers and schwann cells widely distributed in the Muscularis and submucosa were seen in the all HA appendixes. Increased numbers of mast cells distributed in submucosa were seen in the all HA appendixes. A significantly increased number of individually stained nerve fibers, schwann cells and mast cells were present in HA appendixes compared with control appendixes ($P < 0.05$).

Conclusion: In this study showed that significant increase in neural components and mast cells in acute appendicitis indicates the interaction between the nervous system and mast cells in pathogenesis of acute appendicitis.

Key Words: Appendicitis, Pathogenesis, Schwann cells, Nerve fiber, Mast cell

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