

# **Histological and Immunohistochemical Study on the Colonic Myenteric Plexus in Experimentally Induced Rat Model of Crohn's Disease**

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## **Abstract**

**Introduction:** Increased prevalence of irritable bowel syndrome (IBS) has been noticed. IBS symptoms are more frequent in patients with Crohn's disease (CD) and ulcerative colitis (UC) than in the general population. These features could be due to abnormalities in the gastrointestinal neurotransmission.

**Aim of the work:** To study histological and immunohistochemical changes in number and/ or density of the myenteric plexus (myenteric ganglia and glial cells) and interstitial cells of Cajal (ICC) in normal colon specimens and in experimentally induced Crohn's disease in adult male albino rat.

**Materials and methods:** This study was performed on 20 adult male albino rats. Animals were randomly divided into two groups: Group I (Control group), which received a single enema of ethanol, Group II (experimental group) in which Crohn's disease was induced by single enema of trinitrobenzene sulphonic acid (TNBS) in ethanol. Histological (using H&E and Giemsa stains) and immunohistochemical (using anti c-kit, anti S 100 and anti neuron specific enolase) studies were performed. Moreover, morphometric study followed by statistical analysis were done for area % of c-kit, S-100 positive cells, and neuron specific enolase positive neurons in the colon.

**Results:** Interstitial cells of Cajal, myenteric plexus neurons and glial cells were significantly reduced in experimental group as compared with controls.

**Conclusion:** Alterations in ICC, myenteric ganglia and glial cells may be related to neurodegeneration and functional loss of colon in Crohn's disease.

**Keywords:** Crohn's disease, ICC, trinitrobenzene sulphonic acid (TNBS)

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