

Calretinin Immunohistochemistry: An Aid in the Diagnosis of Hirschsprung's Disease

Mehran Hiradfar¹, Nourieh Sharifi², Mohammad Khajedaluae³, Nona Zabolinejad*², Shirin Taraz Jamshidi²

Abstract

Objective(s)

Definite diagnosis of Hirschsprung's disease (HD) is based on histopathological study, but there are limitations associated with standard histology and histochemistry in this regard. The aim of this study was to investigate calretinin immunostaining patterns in both ganglionic and aganglionic HD intestinal specimens and to compare them with control specimens.

Materials and Methods

Specimens included 30 patients with histopathologic diagnosis of HD and 20 patients that underwent colectomy for other reasons (as control group). Eighty paraffin wax blocks of full thickness intestinal specimens (30 blocks of ganglionic segments, 30 blocks of aganglionic segments and 20 blocks of control group) were studied. Calretinin immunoreactivity and pattern of staining for ganglion cells (nuclear and cytoplasmic) and also nerve fibers in different layers of bowel were evaluated in IHC stained slides.

Results

There were positive immunostaining of nerve fibers in the lamina propria, submucosa and muscularis propria in control and patient group. There were also nuclear and cytoplasmic staining of ganglion cells in submucosa and muscularis propria in all specimens of both control group (100%) and ganglionic segments (100%). Calretinin immunoreactivity of nerve fibers in muscularis propria of the aganglionic segments was negative in all but two cases (6.7%). This method had sensitivity of 93.3% and specificity of 100% for diagnosis of HD in full thickness specimens of intestinal wall. The positive predictive value was 100% and negative predictive value was 93.8%.

Conclusion

Calretinin immunohistochemistry can be used on suction rectal biopsies as a reliable and adjunctive method to diagnose HD.

Keywords: Calretinin, Hirschsprung Disease, Immunohistochemistry

¹Department of Pediatric Surgery, Mashhad University of Medical Sciences, Mashhad, Iran

²Department of Pathology, Mashhad University of Medical Sciences, Mashhad, Iran

³Department of Community Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

*Corresponding author: Tel: +98-511-7269021; Fax: +98-511-7277470; email:zabolinejadn@mums.ac.ir

Introduction