

An Adult Man with Refractory Constipation that is Diagnosed as ‘Adult-type Hypoganglionosis’

Ming-Chieh Tsai¹, Ming-Jong Bair², Huan-Lin Chen², Li-Rung Shyung³, and Tzu-Chi Hsu⁴

¹Department of Endocrinology, ³Division of Gastroenterology, Department of Internal Medicine, ⁴Division of Colon & Rectal, Department of Surgery, Mackay Memorial Hospital, Taipei Branch;

²Division of Gastroenterology, Department of Internal Medicine, Mackay Memorial Hospital, Taitung Branch

Abstract

The Hypoganglionosis is a rare and resembles Hirschsprung's disease in the male-to-female ratio, etiology and clinical presentation. Although chronic constipation is a common complaint in general population, the patients with constipation can accompany with fatal complication if the patient with megacolon which is related with hypoganglionosis. Up to 90.5% of patients with Hirschsprung's disease are diagnosed in the newborn period and the median age at diagnosis of the patient with hypoganglionosis was 4.85 years old. We report a healthy 43 year-old male with severe constipation who is diagnosed as adult type hypoganglionosis. A 43-year-old man presented with chronic constipation, abdominal discomfort, and flatulence, and had been passing intestinal gas with unusual odors for 18 months. Computed tomography showed a severely dilated feces-filled proximal segment of the descending colon and transverse colon. The patient underwent subtotal colectomy with ileocolic anastomosis for a clinical impression of intractable megacolon. Histopathology confirmed a diagnosis of hypoganglionosis of the colon. The hypoganglionosis is rare disease in population, especially in adult group. However, the early and accurate diagnosis of adult hypoganglionosis is important for the physician to avoid fatal complication. We hope that adult intestinal innervation disorders will be considered readily in the differential diagnoses of chronic constipation. (J Intern Med Taiwan 2016; 27: 44-48)

Key Words: Constipation, Megacolon, Hypoganglionosis

Introduction

Chronic constipation is a common problem in general population no matter younger or elder people. Some patients could be treated with medication but others are ineffective and surgical intervention should be considered. When size of cecum more than 12 cm, ascending colon more than 8cm or rectosigmoid more than 6.5 cm are seen on a plain

film, in the presence of acute colitis or signs of systemic toxicity, toxic megacolon should be considered because it is a potentially fatal complication. Aside from toxic megacolon, functional constipation with bowel distention can be divided into 2 groups based on the site of dilatation – megarectum or megacolon. Mega-bowel might occur secondary to Hirschsprung's disease, anorectal obstruction, or disorders of the endocrine and central nervous

systems.

The Hypoganglionosis is a rare and resembled Hirschsprung's disease characterized with disturbed intestinal motor function caused by disruptions to two cellular system, the ENS (the ganglion cells) and the interstitial cells of Cajal (ICC).^{1,2} Only 5% of neuronal intestinal malformations are caused by the hypoganglionosis.³ Besides above, the Hypoganglionosis is similar with Hirschsprung's disease in the male-to-female ratio, epidemiology and clinical presentation.² The patients with hypoganglionosis clinically present symptoms of severe constipation or even pseudo-obstruction which all need surgical intervention. Up to 90.5% of patients with Hirschsprung's disease are diagnosed in the newborn period.⁴ A study revealed the median age at diagnosis of the patient with hypoganglionosis was 4.85 years old.² We report a healthy 43 year-old male with severe constipation for 18 months and finally diagnosed as adult type hypoganglionosis.

Case Report

A 43-year-old man had visited our outpatient clinic in May 2010 with chronic constipation of 18 months' duration. Initially, he suffered severe abdominal cramping pain and tarry stool for few days. And then, he had no bowel movement for 7 days. His constipation got worse and worse, with body weight loss of 15 kilograms in later 6 months. He felt malaise, abdominal discomfort, abdominal flatulence, and passed intestinal gas with unusual odors. His stools had become smaller and more difficult to expel. The patient requested more and more enemas and new laxatives, complaining that his current laxative was no longer effective. Sometimes, after treatment with laxatives, he had diarrhea with massive stools, but constipation recurred later.

Physical examination was unremarkable except for abdominal distension and tympany to percussion of the abdomen. Laboratory data were unremarkable. Plain film of the abdomen showed

marked dilatation of the stomach (Figure 1). Barium enema study revealed marked dilatation of the transverse and ascending colon (Figure 2,3). The patient also underwent abdominal computed tomography, which showed a severely dilated feces-filled proximal segment of the descending colon and transverse colon (Figure 4). Colonoscopy revealed a severely dilated ascending, transverse, and proximal descending colon (Figure 5-7). Segments of luminal narrowing with much stool impaction were found in the descending and sigmoid colon, but no mucosal lesion or tumor obstruction were noted. For a clinical impression of intractable megacolon, the patient underwent subtotal colectomy with ileocolic anastomosis. Histopathology revealed no ganglion cells in the inner circular layer and no ganglion cells in the outer longitudinal smooth muscle layer of the segmental colon (Fig. 8), which confirmed a diagnosis of hypoganglionosis of the colon. No further laxative agents were required, and no abdominal pain

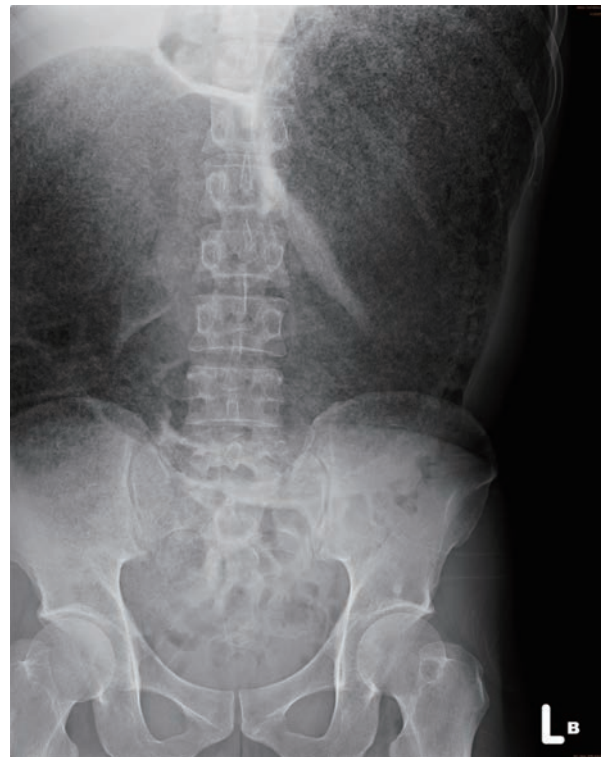


Figure 1. Plain film of the abdomen showed marked dilatation of the stomach.

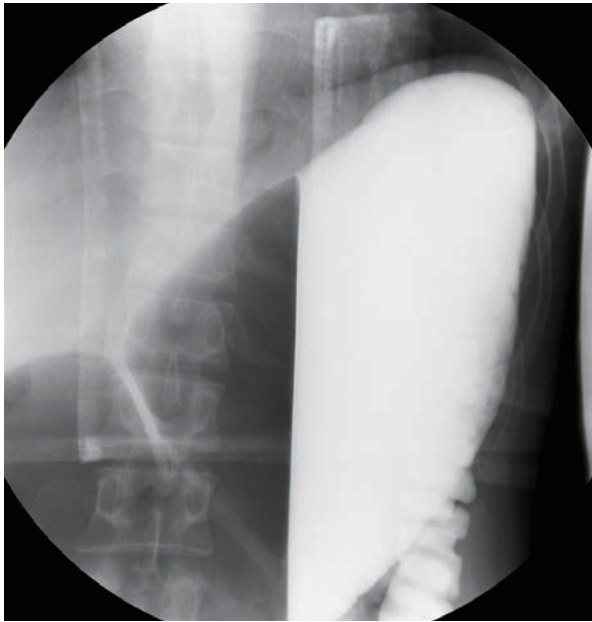


Figure 2,3. Double colon contrast of a severely dilated feces-filled colon.

colonic distension (intestinal pseudo-obstruction), and any drugs that slow colonic motility.^{5,6} Chronic intestinal pseudo-obstruction (CIP) is a rare disease with high mortality and characterized by symptoms of mechanical obstruction but no organic occupying lesion in the gut.¹ The pathologic abnormalities of CIP included neuropathies, mesenchymopathies and myopathies. The CIP can be either congenital or acquired.

Aside from toxic megacolon, functional constipation with bowel distention can be divided into 2 groups based on the site of dilatation – megarectum or megacolon. Mega-bowel might occur secondary to intestinal dysganglionoses, anorectal obstruction, or disorders of the endocrine and central nervous systems. The gold standard of diagnosis remains a full-thickness biopsy of the bowel.

The intestinal dysganglionoses is one of adult intestinal innervations disorders, represent a heterogeneous group of enteric nervous system anomalies, such as adult Hirschsprung's disease, intestinal neuronal dysplasia, internal anal sphincter neurogenic achalasia and hypoganglionosis.^{1,7} Total absence of



Figure 4. Abdominal computed tomography of a severely dilated feces-filled proximal segment of descending colon and transverse colon with hypoganglionosis.

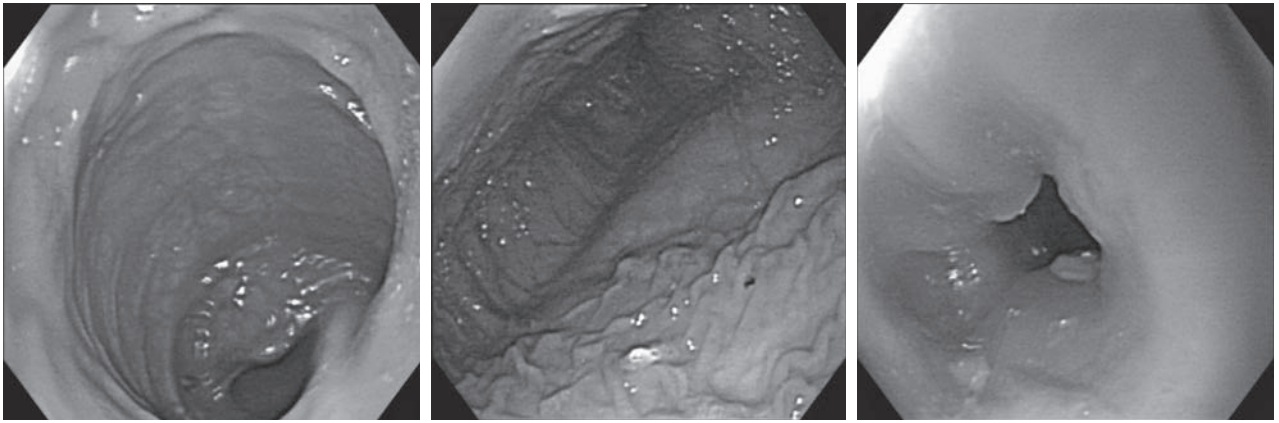


Figure 5-7. Colonoscopy showed a severely dilated ascending, transverse, and proximal descending colon with luminal narrowing segments at descending and sigmoid colon.

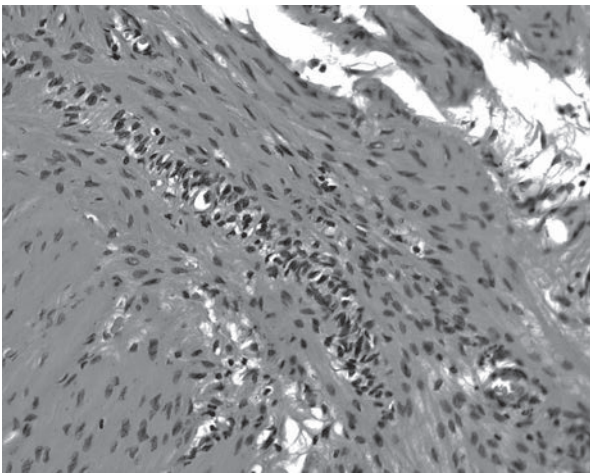


Figure 8. Absence of intramural ganglion cells of the myenteric plexus (Auerbach) and submucosal plexus (Meissner) (hematoxylin and eosin stain 200X).

glionosis includes infectious disease, intramural inflammation, circulatory disturbance, and gastro-intestinal bleeding.⁷ Diagnostic tests for adult hypoganglionosis include contrast enema, anorectal manometry, and rectal suction biopsy with hematoxylin and eosin and acetylcholinesterase stain. There is no significant difference between Hirschsprung's disease and hypoganglionosis as observed on barium enema.⁴ Both present with a narrow distal segment and dilated proximal segment, and some are found to have classic funnel-shaped dilation at the level of the transition zone.

Surgical treatment may effect a cure.⁸ This condition may be treated with any of several surgical procedures, including the Swenson abdominoperineal pull-through, Duhamel retrorectal pull-through, Soave endorectal pull-through, Lynn myectomy, and low anterior resection. Some investigators have reported that the Duhamel procedure results in a lower postoperative morbidity rate, has better results in treating adult hypoganglionosis, and is more widely accepted.

In our case, we tried to distict the etiology of his adult-onset hypoganglionosis as either a congenital immaturity of the ganglia or a mixture of congenital and acquired hypoganglionosis⁹. Because of the history of tarry stool and progressive constipation symptom, the causes of the patient's problem included aging, prolonged laxative used, GI bleeding and local inflammation, but genetic factor still could not rule out.

Conclusion

The hypoganglionosis is rare disease in population, especially in adult group. However, the early and accurate diagnosis of adult hypoganglionosis is important for the physician to avoid fatal complication. We report adult hypoganglionosis disease in a patient with chronic constipation, showing megacolon in a double colon series and treated by subtotal

colectomy with ileocolic anastomosis. We hope that adult intestinal innervation disorders will be considered readily in the differential diagnoses of chronic constipation.

References

1. Do MY, Myung SJ, Park HJ, et al. Novel classification and pathogenetic analysis of hypoganglionosis and adult-onset Hirschsprung's disease. *Dig Dis Sci*; 56(6): 1818-27.
2. Dingemann J, Puri P. Isolated hypoganglionosis: systematic review of a rare intestinal innervation defect. *Pediatr Surg Int*; 26(11): 1111-5.
3. Holschneider AM, Meier-Ruge W, Ure BM. Hirschsprung's disease and allied disorders--a review. *Eur J Pediatr Surg*. 1994; 4(5): 260-6.
4. Zhang HY, Feng JX, Huang L, et al. Diagnosis and surgical treatment of isolated hypoganglionosis. *World J Pediatr*. 2008; 4(4): 295-300.
5. Gan SI, Beck PL. A new look at toxic megacolon: an update and review of incidence, etiology, pathogenesis, and management. *Am J Gastroenterol*. 2003; 98(11): 2363-71.
6. Choe EK, Park SH, Park KJ. Colonic pseudo-obstruction with distinct transitional zone in adult constipation patients: pathological analysis and results of surgical treatment. *Am Surg*; 77(6): 736-42.
7. Kim HJ, Kim AY, Lee CW, et al. Hirschsprung disease and hypoganglionosis in adults: radiologic findings and differentiation. *Radiology*. 2008; 247(2): 428-34.
8. Miyamoto M, Egami K, Maeda S, et al. Hirschsprung's disease in adults: report of a case and review of the literature. *J Nihon Med Sch*. 2005; 72(2): 113-20.
9. Do MY, Myung SJ, Park HJ, et al. Novel classification and pathogenetic analysis of hypoganglionosis and adult-onset Hirschsprung's disease. *Dig Dis Sci*. 2011; 56(6): 1818-27.

便秘的其他可能 -- 成人型結腸神經節減少症

蔡明潔¹ 白明忠² 陳煥霖² 熊立榕³ 許自齊⁴

¹馬偕紀念醫院 內分泌新陳代謝科

²馬偕紀念醫院台東分院 腸胃科

³馬偕紀念醫院 胃腸內科

⁴馬偕紀念醫院 大腸直腸外科

摘要

結腸神經節減少症是個類似 Hirschsprung's disease 為先天性巨結腸症的一種。九成的病人都在新生兒的時候診斷，平均診斷年齡為 4.85 歲。但我們要報告一個案在 43 歲時，因為嚴重便秘一年合併有巨結腸症，開刀切除腫脹的結腸後診斷為結腸神經節減少症。