

Ganglioneuromatous polyposis of the colon in a patient with multiple adenomatous polyps

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Ganglioneuroma of the gastrointestinal tract is an extremely rare neuroectodermal tumor that can be located in the colon. In clinical practice, it is usually associated with a systemic disease. Herein, we report a case presented with intermittent rectal bleeding and finally diagnosed with ganglioneuromatous polyposis and multiple adenomatous polyps in the colon. We also discuss the patients reported in the pertinent literature.

Key words: Ganglioneuromatous polyposis, colon, adenomatous polyps

Multipl adenomatöz polibi olan bir hastada kolonun ganglionöromatöz polipozisi

Ganglionöroma, gastrointestinal sistemde oldukça nadir olarak yerleşen bir tümördür. Genellikle sistemik hastalıklarla ilişkilidir. Biz burada rektal kanaması olan ve ganlionöromatöz polipozis ve multipl adenomatöz polip tanısı konulan bir hastayı sunmayı amaçladık. Aynı zamanda geçmiş literatür bilgilerini tartıştık.

Anahtar kelimeler: Ganglionöromatöz polipozis, kolon, adenomatöz polipler

INTRODUCTION

Ganglioneuromas (GNs) are fully differentiated rare tumors that do not contain immature elements. They are mostly located in the posterior mediastinum, followed by the retroperitoneum (1,2). Involvement of the gastrointestinal (GI) tract is an extremely rare phenomenon, although cases have been reported throughout the GI tract, mainly in the appendix vermiformis, terminal ileum, stomach, and intestines (3,4). GNs localized in the GI tract usually present with abdominal pain, obstruction, constipation, ileus, appendicitis, and chronic diarrhea. These tumors are composed of ganglion cells, nerve fibers, and supporting cells of varying amounts. Gastrointestinal GNs are divi-

ded into three groups, defined as polypoid GN, ganglioneuromatous polyposis (GP), and diffuse ganglioneuromatosis (DG) (2).

We herein present a case of ganglioneuromatous polyposis associated with an intestinal lipoma and multiple adenomatous polyps of the colon without any familial syndromes or diseases.

CASE REPORT

A 57-year-old male was admitted to the Department of Gastroenterology, Ankara University Medical Faculty, with the complaints of anemia and rectal bleeding for two years. Physical examination

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findings were as follows: blood pressure, 120/80 mmHg; pulse, 84/min; temperature, 36.9°C; and respiratory rate, 16/min. He had an erythematous skin lesion on his back, which was diagnosed as erythema annulare centrifugum by histopathologic examination. There were no cutaneous cafe-au-lait spots, pigmented hamartomas of the iris (Lisch nodules) or neurofibromas noted in the physical examination. Initial laboratory investigations included hematocrit of 33.1%, hemoglobin of 10.3 g/dl, and white blood cell count of 6890/mm³. Blood chemistry profile, liver and renal function and coagulation tests, chest X-ray, and small intestine radiography were all within normal range. Colonoscopic examination revealed multiple polypoid lesions of varying diameters in all parts of the colon, predominating in the descending colon and rectum (Figure 1). The largest polyp was localized in the descending colon and measured 7 mm in diameter. Additionally, a large-based lipoma-like lesion was seen in the descending colon and measured 15 mm in diameter. Histopathologic examination of the multiple polypoid lesions predominating in the ascending and descending colon revealed adenomatous polyps of varying maturity (i.e. flat adenoma, tubular adenoma). On the other hand, polypoid lesions of the cecum and rectum showed lamina propria containing large polygonal cells with eccentric nuclei and large nucleoli within a background of spindle cells forming bundles of neural tissue with ganglion cells. These findings were compatible with a diagnosis of GN (Figure 2). The main lesion had elevated the mucosa by expanding the lamina propria and formed a relatively smooth surface with easily definable margins within the mucosa, particularly after the immunohistochemical staining procedure. The immunohistochemical stains used for confirming the diagnosis of GN also provided supporting information about the mucosal and submucosal distribution of the lesion and highlighted the presence of ganglion cells, nerve fibers, and supportive cells in all plexuses. All lesions suggestive of a diagnosis of GN were stained immunohistochemically for synaptophysin (SYN) (Figure 3), chromogranin A (CHRA), and S-100 protein. The ganglioneuromatous nature of the proliferating spindle cells and supportive cells of the enteric system was confirmed by strong immunoreactivity for S-100 protein, whereas ganglion cells stayed nonreactive. In contrast, SYN was present in ganglion cells and nerve fibers. CHRA showed a weak cytoplasmic staining in ganglion cells. In addition to the ganglioneuromatous and adeno-



Figure 1. Irregular mucosal area in the rectum.

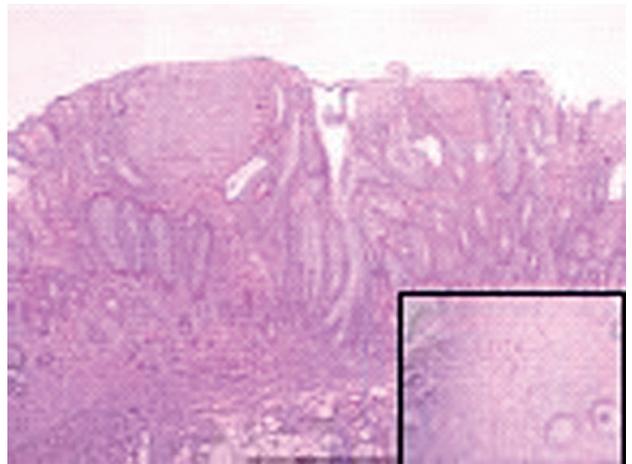


Figure 2. Rectal ganglioneuroma (H&E x40, inset x200).

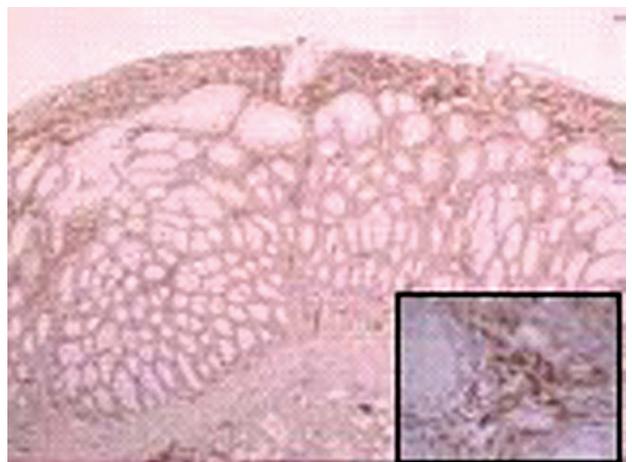


Figure 3. Ganglioneuroma (SYN x40, inset x400).

matous polypoid lesions, an intestinal submucosal lipoma was diagnosed following the histopathologic examination of a mucosectomy specimen obtained from the same patient. An upper GI endoscopic examination demonstrated an antral ulcer and

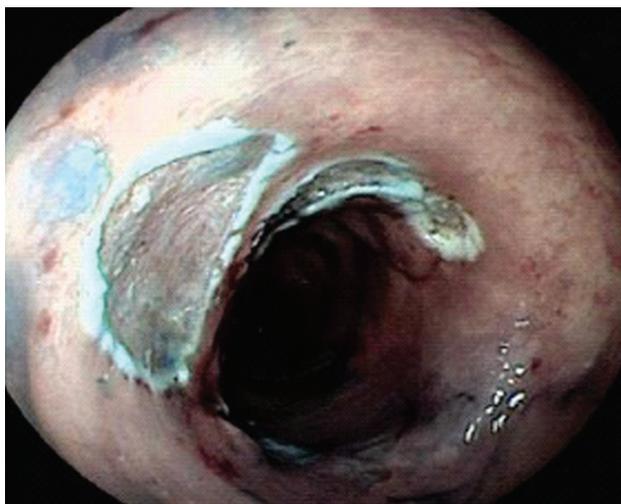


Figure 4. Irregular mucosal area in the rectum after mucosectomy.

pangastritis confirmed by histopathologic examination. After endoscopy, his serum hematocrit and hemoglobin levels continued to decrease and he received blood transfusions until his blood tests reached normal levels. Eight months later, the patient presented for follow-up with a one-month history of rectal bleeding after defecation. He underwent a second-look colonoscopy, and a piece-meal mucosectomy was performed for a slightly elevated irregular mucosal area in the rectum, 4 cm in diameter, like a flat-type adenoma, which was diagnosed as GN (Figure 4). At the two-month follow-up, the patient was free of symptoms.

DISCUSSION

Ganglioneuromas (GNs) of the GI tract are extremely rare tumors (4). Within the GI tract, mainly the colon, proliferation of nerves and their associated Schwann cells and ganglion cells may occur in any plexus. Although ganglion cells normally do not reside within the GI mucosa, such cellular proliferation may involve the GI mucosa on occasion. They are often secondary to the submucosal plexus lesions, but sometimes totally confined to the mucosa and produce polypoid masses.

In GP, many of the polyps are indistinguishable from the typical polypoid GN, while others show unusual filiform mucosal projections containing clusters of ganglion cells with little or no apparent neural component. GP affects patients with familial adenomatous polyposis, Cowden's disease, tuberous sclerosis, multiple endocrine neoplasia type 2b (MEN type 2b) syndrome, colorectal carci-

noma, and juvenile polyposis (2,4,5). In addition, multiple cutaneous lipomas can develop in patients with GP. Those patients may have a family history of multiple intestinal polyps, adrenal myolipomas, and nodular goiter (4).

Intestinal ganglioneuromatosis in adults is always a microscopic diagnosis. The diagnosis of GN, and thus of GP, can be made on routine hematoxylin and eosin (H&E) stains. Spindle cells show positive staining for S-100 protein, glial fibrillary acidic protein, SYN, and vimentin. Ganglion cells show positive staining for neuron specific enolase. Neuronal hyperplasia in all layers of the bowel wall and the mucosa was characterized as transmural GN, and as in our case, mucosal GN, respectively. A lower morbidity rate was suggested in the mucosal variant (6).

In the literature, 12 cases of GP were reported. Distributions of the polyps were variable; some polyps were limited to the sigmoid colon, whereas others involved the entire length of the colon. The GI tract ganglioneuromatous diseases without concomitant disease are rare and do not have specific features. The most frequent causes of lower intestinal bleeding in elderly individuals are diverticulosis, vascular ectasia, inflammatory bowel disease, polyps, hemorrhoids, and ischemic colitis. This case, reviewed here, presented with rectal bleeding unrelated to systemic diseases. In the literature, most of the patients presented mainly with chronic diarrhea or were asymptomatic. Besides chronic diarrhea, one patient described abdominal soreness, cramping and distension as well. Rectal bleeding was only encountered in a 19-year-old woman, who had a solitary polypoid rectal GN (2,3). Rectal bleeding in our patient may have been due to the adenomatous polyps or, alternatively, the GN. At this point, it seems more likely that the ganglioneuromatous polypoid lesion in the rectum was the main cause of the intermittent rectal bleeding, as the symptoms of the patient faded after the last mucosectomy including the GN.

In conclusion, the present case of mucosal ganglioneuromatous polyposis indicates an extremely rare condition that presented with intermittent rectal bleeding, and was not associated with any other systemic syndromes or familial diseases. The identification of GI GNs should necessitate further clinical, radiological, histological, and molecular examinations. Gastroenterologists should be aware of polypoid lesions, either adenomatous or ganglioneuromatous, in the differential diagnosis of rectal bleeding.

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