**CASE REPORTS**

**DIFFUSE GASTRIC POLYPOSIS: REPORT OF A CASE**

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**Abstract:** In diffuse gastric polyposis, all or a large part of the gastric mucosa is covered with polyps. Diffuse gastric polyposis was accidentally found in a 59-year-old female during study of her anemia. The diagnosis was confirmed by esophagogastroduodenoscopy, double-contrast barium upper gastrointestinal roentgenography, and colonoscopy. Treatment was total gastrectomy with Roux-en-Y esophagojejunostomy. Differential diagnosis of inherited gastrointestinal polyposis syndrome should be considered; malignant potential is the greatest concern.

**Key words:** diffuse gastric polyposis total gastrectomy

Gastric polyposis is characterized by multiple gastric polyps. The term diffuse polyposis is used when all or a large part of the gastric mucosa is covered with polyps. Diffuse gastric polyposis is rare. We report a 59-year-old female with diffuse gastric polyposis found accidentally during study of her anemia. Gastric polyposis is also found in patients with various inherited gastrointestinal polyposis syndromes. Stomach manifestations were reviewed and differential diagnosis was considered. However, our patient did not fit into any of these polyposis syndromes. This case was compared with other reports of gastric polyposis, none of which had exactly the same features. We also inspected all treatment modalities and evaluated the malignant potential. Finally, this patient underwent total gastrectomy.

**Case Report**

A 59-year-old female presented with symptoms of dizziness, dull lower abdominal pain not of gynecologic origin, and occasional abdominal bloating. Esophagogastroduodenoscopy was performed to evaluate anemia of 2-year duration and stool occult blood. No medication, including acid-inhibiting agents, had been taken. Bodyweight remained stable, and there was no known family history of gastrointestinal tumor. Physical examination on admission disclosed a well-developed woman with pale conjunctiva. The skin and mucosa had no pigmentation lesions, no lymph nodes were found on palpation, and other findings were also unremarkable. Laboratory examination was compatible with microcystic hypochromic anemia: hemoglobin, 7.3 g/dL and mean corpuscular volume, 62.4 fl. Complete blood cell count and serum chemistry were within normal values.

Repeated esophagogastroduodenoscopy showed more than 20 polyps of varying size and Yamada type (largest, 3.0 cm, Yamada type IV, in the lower body great curvature). The esophagus and duodenum were intact. Biopsy revealed hyperplastic changes. Double-contrast barium upper gastrointestinal roentgenogram showed multiple polyps throughout the stomach (Fig. 1). There were no lesions in the small bowel, and colonoscopy up to the terminal ileum revealed normal mucosa.

Under suspicion of diffuse gastric polyposis involving the whole stomach, total gastrectomy with Roux-en-Y esophagojejunostomy was performed. No lymph node enlargement was noted intraoperatively. Liver, spleen, omentum, duodenum and esophagus were grossly normal. Grossly, there were more than 30 polyps of varying size (0.3–3 cm) in the specimen (Fig. 2). The polyps were located throughout the stomach, but were most concentrated in the high body and cardia. Thorough histopathologic examination showed that all polyps were hyperplastic and composed of hyperplastic gland with no carcinoma. After surgery, the patient suffered from vitamin B₁₂ deficiency. With supplementation, her hemoglobin increased to 11.6 g/dL with a mean corpuscular volume of 77.6 fl at 6 months after surgery.

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Discussion

Brunn and Pearl define gastric polyposis as more than three polyps [1, 2]. In diffuse polyposis, which is rare, all or a large part of the gastric mucosa is covered with polyps. The rate of malignancy in these cases can be as high as 20%, but malignancy is less common when the lesions are hyperplastic [3–6]. When evaluating patients who present with multiple gastrointestinal polyposis, many inherited polyposis syndromes should be considered in the differential diagnosis, although in patients exhibiting most of these syndromes, there are few polyps in the stomach.

Upper gastrointestinal tract adenomas are well-recognized complications of familial adenomatous polyposis (FAP), with the frequency varying according to the diligence of the search. There is a peculiar predilection for adenomatous change in the duodenum and ampulla of Vater. The most common gastric lesion is fundic gland polyps or hamartoma, although hyperplastic polyps and adenomas have also been found. Several large surveys of FAP have shown that the frequency of polyps in these patients is between 30 and 40%. Invasive upper gastrointestinal carcinomas including the stomach are rare in patients with FAP [6]. In Gardner’s syndrome, a clinical variant of FAP, cases of polyps in the small intestine and the stomach have been reported. The polyps are adenomatous, but far fewer in the stomach than in the small and large bowel. There have been no reports of cancer of the stomach in association with this syndrome [7].

Peutz-Jeghers syndrome is characterized by gastrointestinal polyposis and pigmentation. The polyposis is generalized, with the jejunum or ileum involved in nearly all patients, and the rectum, colon, stomach and duodenum less often. The malignant potential of hamartoma lesions is low, with a 2 to 3% risk of gastrointestinal cancer [8]. Cases of stomach carcinoma have been reported [7]. Juvenile polyposis also involves the whole of the gastrointestinal tract and is hamartomatous in nature, but polyps in the stomach are exceedingly rare and are thought to have no malignant potential. However, there are some reports that the malignant potential is low but definite [9].

The diffuse gastric polyposis in our patient was limited to the stomach and did not seem to fit into any of these multiple polyposis syndromes. Carneiro et al described a large pedigree with psoriasis, gastric polyposis, and a high incidence of gastric cancer [10]. In this pedigree, the polyposis was exclusively confined to the stomach, with an autosomal dominant pattern of inheritance. All the polyps were hyperplastic and no adenomatous dysplasia was observed. The numbers of polyps and presence of chronic gastritis varied between members. Watanabe et al reported a 13-year-old girl with familial juvenile polyposis in the stomach [9]. Her 14-year-old brother underwent subtotal gastrectomy for gastric polyposis and her mother died of gastric cancer at 37 years of age. Pathohistologically, the polyps were typical of juvenile polyposis. No polyps were noted in the small and large intestine 2 years after gastrectomy. To the best of our knowledge, these two pedigrees are the only reported cases of familial polyposis of the stomach.

Most reports of gastric polyposis do not differentiate between multiple and diffuse gastric polyposis, and there are generally less than five polyps in reports of multiple gastric polyposis. Case reports of sporadic diffuse gastric polyposis are few. Bhatnagar and Borg-Grech reported a case of numerous gastric polyposis...
caused by multiple carcinoids with concurrent gastric carcinoma in a 70-year-old woman and suggested that carcinoid tumors may be important indicators of other unrelated high-risk malignancies [11]. Dutta and Costa reported a case of umbilicated gastric polyposis caused by amelanotic melanoma [12]. They suggested that multiple gastric polyps with central umbilication are strongly indicative of metastatic gastric tumor. Wada et al reported a case of diffuse gastric polyposis over the entire gastric wall in a 53-year-old Japanese woman [13]. Biopsy showed characteristic infiltration of Langherhans cells and multifocal histiocytosis X was diagnosed. Groisman et al also reported a case of gastric polyposis caused by Langherhans cell histiocytosis, but the number of polyps was not stated [14]. Because there is no highly similar case report, individualization of the treatment for our patient was indicated.

Hyperplastic polyps are rarely malignant, but the risk exists. In a survey of 477 endoscopically removed hyperplastic polyps, focal carcinoma was found in 10 (2.1%) [15]. Eighty percent of hyperplastic polyps with malignant foci are larger than 2 cm. Malignancy is also more likely in patients with multiple polyps. In current practice, endoscopic removal for complete histologic examination constitutes adequate treatment. Regular follow-up is also indicated. In a 14-year follow-up of 170 patients with gastric polyposis, later malignancy was found in three of 142 patients with hyperplastic polyps (2.1%) after endoscopic removal [16]. In our patient, the polyps covered a large area of the gastric mucosa and some were wide-based and sessile. This made total endoscopic removal impossible. Endoscopic follow-up carries the problem of inadequate histologic examination and an inability to declare the patient free of carcinomas. As previously mentioned, each polyp carries about a 2% risk of focal carcinoma. It is reasonable to assume that 20 or more polyps with a largest size of 3 cm carry a high risk of malignancy. Considering the current low mortality and morbidity of total gastrectomy, we decided to perform total gastrectomy in this patient.

Undoubtedly, there are still several unsettled issues. Currently, we think this patient has sporadic diffuse gastric polyposis, but it is unclear if other family members will develop gastrointestinal tumors or if she will develop further gastrointestinal tract tumors. Due to incomplete study of her preoperative anemia, its cause was undetermined, but since postoperative vitamin B₁₂ supplementation improved her anemia and she had described stool occult blood in a health examination, we thought it might have been caused by chronic blood loss from the diffuse polyposis.

References

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