Hyperplastic Gastric Polyposis - Report of a Case and Review of Literature

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Gastric hyperplastic polyps (GHP) represent one of the common polypoid lesions of the stomach. These are usually asymptomatic and discovered incidentally. Dyspepsia, anaemia due to bleeding, abdominal pain and rarely gastric outlet obstruction may sometimes warrant evaluation of the patient by upper gastrointestinal (GI) endoscopy. When found, the main aim is the histological evaluation to rule out malignancy and management of the patient. Hyperplastic polyps of stomach arise in inflamed mucosa and almost never occur in normal gastric mucosa. Helicobacter pylori associated chronic gastritis is thought to be the commonest association. These polyps are single in majority of cases, located in the antrum, sessile or pedunculated and are usually less than 20 mm in diameter. Rarely more than fifty polyps are found when the term 'polyosis' is used. Here we present a case of hyperplastic gastric polyposis in a symptomatic 50 year-old female revealed by endoscopy. Distal gastrectomy was performed which confirmed the diagnosis.

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Key words: Stomach, Gastric polyp, Hyperplastic polyp

Introduction

Endoscopic examination has now become a common practice for evaluation of many gastrointestinal tract ailments. Widespread use of endoscope can now detect subtle to marked mucosal abnormality of stomach. Endoscopically gastric polyps appear from slightly raised plaques to soft lobulated lesions. Although vast majority are of mucosal origin, a mass lesion arising within any layer of the stomach wall can present as a polyp. They are usually found incidentally during endoscopy or routine imaging with barium contrast radiography, magnetic resonance imaging, or computed tomography. Because of different etiology, varying histology, neoplastic potential, and management, their correct diagnosis is important. Endoscopy alone cannot accurately distinguish different types of polyps. A representative biopsy, histopathological examination and in suspicious cases immunohistochemical studies are required.

Case Report

A 50 year-old female was referred from a private clinic in Jessore, Bangladesh to the Gastroenterology department of Bangabandhu Sheikh Mujib Medical University (BSMMU) hospital in 2013 upon initial endoscopic discovery of mucosal swelling and narrow gastric pyloric canal. Endoscopically non-Hodgkin lymphoma was suspected. She gave history of weakness, occasional early nausea, vomiting after meals and loss of appetite for four months. Physical examination revealed no pathological findings other than mild epigastric tenderness. Laboratory examinations of the patient showed normal blood values except mild anaemia.

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A repeat gastrointestinal endoscopic evaluation was done at BSMMU. The mucosal folds in cardia, fundus and body of the stomach were found normal. Infiltrating lesions were seen at the antrum with narrowed pylorus. The mucosa of the bulb revealed nodular swellings. Nodules were erythematous which was more marked at the tip (Fig. 1). Ultrasonographic study revealed multiple mildly enlarged lymph nodes at the bulbar and postbulbar regions. No ascites was noted. The clinical impression was non-Hodgkin lymphoma. The biopsy taken during endoscopy was inconclusive.

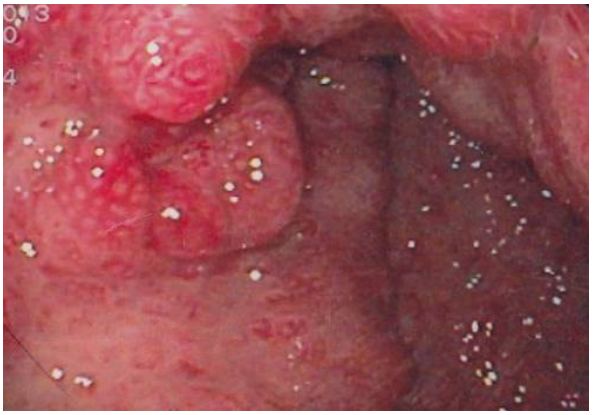

Fig. 1. Endoscopic appearance of stomach of the patient. Multiple large and small erythematous nodules are seen in the mucosa.

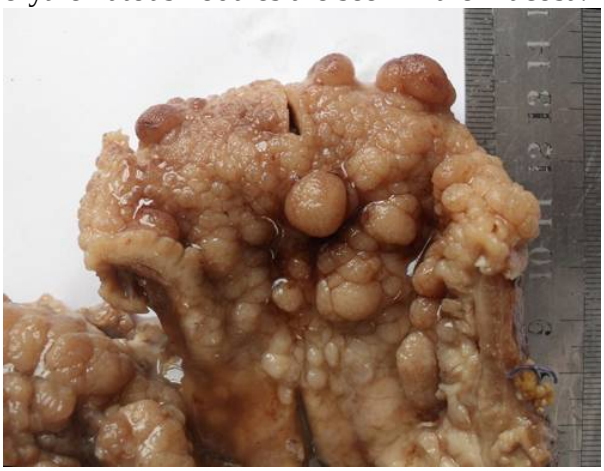

Fig. 2. Gross appearance of the resected antral part of the stomach. Polyps of various sizes are present, the largest measures about 1.2 cm.

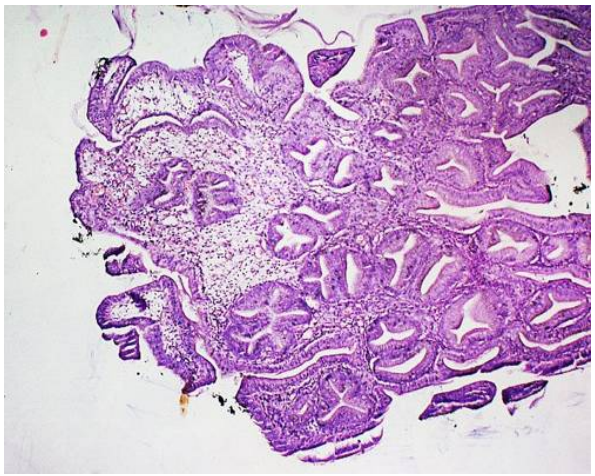

Fig. 3 Microscopic appearance of a polyp showing irregular, elongated tortuous pits lined by foveolar epithelium. Serrated appearance is seen in the cross-section (H&E, x120)

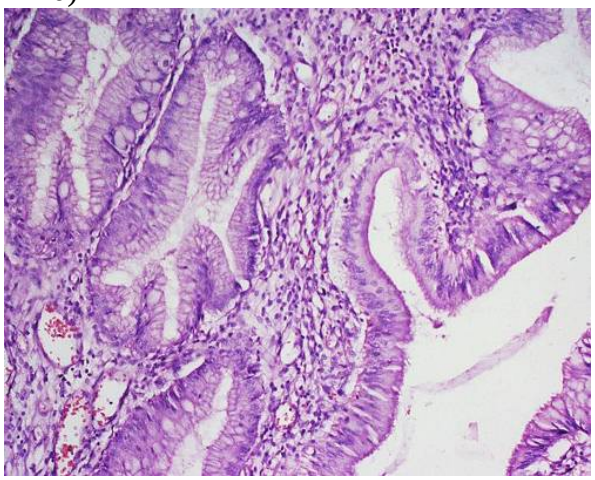

Fig. 4. Higher magnification of the polyp showing oedematous lamina propria and many chronic inflammatory cells. A few goblet sells are present in the lining epithelium (H&E, x440)

Considering the endoscopic features and the patients' complaints, distal gastrectomy was done. The submitted sample measured 18 cm along the greater curvature and 9 cm along the lesser curvature. Multiple polyps (>50) of various sizes were found in the pyloric mucosa and the body. The largest polyp measured 1.2 cm in maximum dimension (Fig. 2). A small 0.6 cm gastric lymph node was also received. Five of the larger polyps,

the resection margins of the stomach and the lymph node were submitted for routine processing, sectioning and staining. Histopathological examination of the polyps revealed irregular, elongated tortuous foveolar glands. The lamina propria was mildly oedematous and infiltrated with chronic inflammatory cells. Incomplete intestinal metaplasia was present. No adenomatous change, dysplasia or malignancy was detected (Fig. 3 and 4). The lymph node revealed reactive changes. The case was diagnosed as hyperplastic polypyposis of stomach. The patient had uneventful recovery and was discharged from the hospital after seven days with and advise for follow-up.

Discussion

The present case is a rare presentation of GHP because more than 50 polyps were found in the distal part of the stomach and suspicious look in endoscopeic examinatiom. Distal gastric resection was performed. Histological examination proved benign nature of the case and the patient fared an uneventful recovery.

With the increasing use of endoscopy, visually discernible abnormalities, such as polyps in the gastrointestinal tract, are encountered more often. Gastric polyps most frequently originate in the mucosa but encompass a broad spectrum of pathologic conditions. Gastric polyps are a heterogeneous group of epithelial and subepithelial lesions that can vary in histology, neoplastic potential, and management. Even though most are asymptomatic, larger polyps may present with bleeding, anaemia, obstruction, or abdominal pain. Most have no risk of cancer, but there are certain subsets of polyps with malignant potential, necessitating further endoscopic treatment and/or periodic surveillance.

Epidemiology of gastric polyps

Gastric polyps are relatively common endoscopic finding ranging from 2 to 6%. In Western countries where the prevalence of *H. pylori* infection is lower and use of proton pump inhibitor is common, fundic gland polyp is the most commonly encountered type.[1] However, lower prevalence has been reported in other countries. In contrast, hyperplastic polyps and adenomas are relatively more prevalent in regions where *H. pylori* infection is common.[2] During 2016, total 245 gastric tissue were examined at the Department of Pathology, BSMMU. Of these 12 (4.9%) were diagnosed as hyperplastic polyp, 77 as carcinoma and the rest other lesions. Fundic gland polyps were <1% of the total cases (Unpublished personal data).

The incidence of GHPs increases with age and although they can also be found in children, GHPs usually affects the population in 7th and 8th decades. Most studies proved higher incidence of all types of gastric polyps in women than in men.[3]

Types of gastric polyps

According to the macroscopic classification of Yamada and Ichikawaof 1974, gastric polyps can be divided into four categories: (a) flat polyps, i.e., slightly elevated and with indistinct margins, less than 2.5 mm in height (b) sessile polyps, i.e., elevated with a distinct border at the base, yet without a notch, height exceeds 2.5 mm and (c) semi-pedunculated polyps, i.e., elevated with distinct margins and clear notch at the base, but without peduncle and (d) pedunculated polyps.[4]

A good description and detailed classification of gastric polyps has been given by D Youn Park and Gregory Y. Lauwers in their review (2008). Epithelial polyps e.g. hyperplastic polyps, fundic gland polyps and adenomatous polyps are the common varieties.[5]

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Classification of Gastric Polyps
(Adapted from D Youn Park and Gregory Y. Lauwers, 2008) [5]

A. Nonneoplastic Polyps
1. Hyperplastic Polyps
    a. Usual (sporadic) type
    b. Gastroenterostomy stoma GE junction (reflux) polyps
2. Inflammatory fibroid polyp

Hamartomatous and developmental
    a. Peutz-Jegher Juvenile
    b. Cowden disease
    c. Miscellaneous lesions
        i. Myoepithelial hamartomas and
        ii. ectopic pancreas
    d. Heterotopic gastric gland polyp
3. Cronkhite-Canada syndrome

B. Neoplastic Polyps
    a. Adenoma
    b. Carcinoma (primary or secondary)
    c. Neuroendocrine tumors (Carcinoids)
    d. Fundic gland polyp

C. Miscellaneous Lesions With Polypoid Growth Pattern
    a. Xanthelasma
    b. Lymphoid hyperplasia/lymphoma
    c. Mesenchymal stromal tumors
        i. Gastrointestinal stromal tumors (benign/malignant)
        ii. Smooth muscle tumors (benign/malignant)
        iii. Glomus tumor
        iv. Schwannoma/neurom a
        v. Ganglioneuromas
        vi. Granular cell tumor
    d. Other rare tumors
        a. Lipoma/liposarcoma
        b. Rhabdomyosarcoma and fibrous histiocytoma
    e. Vascular tumors
        a. Hemangioma/lymphangio ma
        b. Hemangiosarcoma-Kaposi sarcoma

Polyposis conditions of stomach
Multiple polyps found in the stomach can be sporadic or associated with inherited polyposis syndromes such as juvenile polyposis, Gardner, Peutz-Jeghers, and Cronkhite-Canada syndromes which run in families.

Fundic gland polyps (FGP)
Sporadic FGPs account for 50–77% of all gastric polyps and are found in up to 1.9% of the general population are typically asymptomatic and discovered incidentally. These are usually found in middle-aged adults of both genders. FGPs occur singly or in groups in the acid-secreting mucosa of the gastric body and fundus. These are usually 1–5 mm in size, sessile, shiny, translucent, pale to pinkish in color. Histologically, FGPs are characterized by cystically dilated and irregularly budded fundic glands lined by normal parietal cells, chief cells, or mucous neck cells. The surrounding mucosa is typically normal, without any inflammatory changes.[6]

Cronkhite-Canada Syndrome
This rare noninherited condition of unknown pathogenesis was first described in 1955 by Leonard Wolsey Cronkhite Jr, and Wilma Jeanne Canada. It is characterized by gastrointestinal polyposis, onychotrophia, alopecia, and diarrhoea and skin hyperpigmentation. The gastric polyps show cystically dilated and distorted glands without dysplasia. The lamina propria is oedematous and contain inflammatory cells. The malignant potential of the polyps is controversial.[7]

Cowden's syndrome

This rare autosomal dominant condition is due to germline mutation in *PTEN* on chromosome 10q23.3. It is characterized by multiple hamartomatous neoplasms of the skin, oral mucosa, gastrointestinal (GI) tract, bones, central nervous system, eyes, and genitourinary tract. Cowden syndrome does not have increased risk of GI malignancy; however, it has an increased risk of breast, thyroid, and endometrial and renal cancer development. Morphologically the gastric polyp present as small (1 - 2 mm), sessile nodules with excess lamina propria splayed and dissected into lobules by disorganized fascicles of muscularis mucosa running upward from base of mucosa.[8]

Familial adenomatous polyposis (FAP)

Familial adenomatous polyposis (FAP) is an inherited autosomal-dominant disease primarily characterized by the development of colorectal adenomas and carcinomas. Patients with FAP may also secondarily develop duodenal, gastric, and thyroid neoplasia, as well as desmoid tumors. The prevalence of gastric adenomas in FAP was about 10% in a series from the United States and ranged from 36-50% in three studies from Asia.

The adenomas present as villous, tubular or tubulo-villous architecture lined by epithelium with dysplasia, pseudostratification, nuclear abnormalities, mitotic figures and cystically dilated glands without dysplastic changes. Cytologically majority are intestinal type with focal goblet cells or Paneth cells. This type is more likely to show high grade dysplasia or adenocarcinoma. The other cellular types are Gastric type and indeterminate type.[9] No significant increased risk was found for gastric or nonduodenal small intestinal cancer.[10]

*Hyperplastic polyp (GHP***)**

These are also called inflammatory polyp or regenerative polyp. GHPs are incidental finding during upper gastrointestinal tract endoscopy. Symptoms due to GHPs are nonspecific: dyspepsia, heartburn, bleeding, anaemia and sometimes gastric outlet obstruction. Endoscopy is the investigation of choice for detection and diagnosis of gastric polyps as it allows histopathological confirmation through biopsy. Imaging has only limited role in diagnosis due to high false-negative rates.[11]

Hyperplastic gastric polyposis

In vast majority of GHPs are single (68%-75%) and occur sporadically. Multiple GHPs (50 or more polyps) are seen as a component of a rare hyperplastic polyposis syndrome. Diffused gastric polyposis is a rare entity with only a few cases being reported.[12]

Sporadic GHPs are macroscopically and histologically indistinguishable from the syndromic GHPs and the latter are associated with a higher risk of malignant transformation and higher 5-year mortality rate.[12]

Etiopathogenesis hyperplastic gastric polyp

Excessive proliferation of foveolar cells (mucin-producing epithelial cells lining the gastric surface and the gastric pits) is believed to be responsible for GHP production. The gastric glands are usually not involved in the formation of polyps. The two main etiologic factors related to their development are: Chronic H. pylori-associated gastritis and autoimmune metaplastic atrophic gastritis. Various other inflammatory lesions less commonly implicated are inflamed mucosa in the vicinity of ulcers, erosions and surgical gastroenterostomy, secondary to prior endoscopic coagulation therapy, in gastric

mucosa with slight atrophy or metaplasia, and in cardia in patients with gastrointestinal reflux. GHPs almost never occur in normal gastric mucosa.[3]

Macroscopic and histopathological features

GHPs are usually small, flat or sessile dome-shaped lesions or protuberant lobular structure with smooth surface, distinct margin and red color.

Sometimes they may have surface erosions and they are often difficult to distinguish endoscopically from polypoid foveolar hyperplasia or gastric adenomatous polyps and well-differentiated adenocarcinoma. About half are less than 0.5 cm and 90% are 2.0 cm or less in diameter. The rest are more than 2 cm, sometimes may reach higher size and in these cases malignant transformation may be suspected.[3]

Contrary to hyperplastic polyps of the colon, GHPs show pronounced foveolar hyperplasia and infiltration of the lamina propria by inflammatory cells. A few smooth muscle fibers may be present derived from the muscle coat. Mucin-secreting cells from the foveolar layer of GHPs are enlarged and elongated. They form irregular tubules and cysts extending into the stroma. PAS/Alcian blue or mucicarmine stains highlight acidic mucin in goblet cells and can demonstrate the neutral mucin in foveolar epithelium.[3]

GHPs have typical microscopic features relating to the epithelial component and the stroma. The former consists of elongated, dilated, distorted and branched pits with increased mucus secretion. On horizontal section these have spiral appearance and serrated or star-like appearance on the cross-section. The foveolar cells have large amounts of cytoplasm, small nuclei and exhibit low mitotic activity. The stroma is oedematous and shows randomly arranged fine bundles of smooth muscles. The second typical microscopic feature is vascularized oedematous stroma and inflammatory reaction of varied intensity, either acute or chronic or both. The surface of GHPs can be ulcerated and inflamed, with regenerative atypia of epithelial and interstitial cells. Abnormal regenerative changes may be difficult to differentiate accurately from dysplastic atypia.[3]

Polypoid foveolar hyperplasia is regarded as a precursor of gastric hyperplastic polyps and differs slightly from those in the microscopic structure. Elongated pits of the mucosa without features of dilatation can also seen in PFH and at the same time the lamina propria is either normal or only slightly swollen. Differentiation between these two lesions is of crucial clinical significance since malignant transformation affects gastric hyperplastic polyps but not foveolar polypoid hyperplasia.[13]

Complications and the risk of malignant transformation

GHPs may remain stable, increase in size, or rarely regress. Some may cause bleeding and sometimes gastric outlet obstruction. Only a small percentage (0.6 to 4.5 %) of GHPs may show malignant transformation. In a large series, Daibo et. al. (1987) found focal carcinomas in 10 hyperplastic polyps, which corresponded to 2.1% of the total of 477 hyperplastic polyps. The location of cancer was at the head or at the surface of the polyp, or intramucosal. Dysplastic foci were also found in 19 hyperplastic polyps without cancerous foci, which corresponded to 4.0% of the total hyperplastic polyps. Regarding the histological type of malignancy, most reported cases were (well/ moderately) differentiated adenocarcinomas, while a few were poorly-differentiated adenocarcinomas or signet ring cell carcinomas.[14]

Management of GHP

The main concern after discovering GHP is to rule out malignancy. Larger polyps (> 1 cm) may show focal intraepithelial neoplasia or cancer. Therefore, these should be removed as a whole and subjected to histopathological evaluation. Smaller polyps can be biopsied and monitored annually. After confirmation of the diagnosis, biopsy of gastric mucosa outside the polyp and examination *for H. pylori* infection and its eradication are additionally recommended, Polyps causing bleeding or gastric outlet obstruction are treated by endoscopic excision.[15]

Conclusion

Multiple hyperplastic polyp of stomach is rare. Their endoscopic appearance may be alarming. As many gastric polyps have similar endoscopic appearances, and because GHPs have no reliable distinguishing endoscopic features, their classification and diagnosis depends on the histologic examination. Histopathology plays a vital role in ruling out malignancy and is integral part in their management.

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