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Original Article

Incidence, Type and Anatomical Location of Gastric Polyp: Experience of a Tertiary Level Hospital in Bangladesh

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Abstract:

Background: *Gastric polyps are small gastric mucosal lesions, usually asymptomatic in most cases and are generally discovered incidentally during upper Gastro Intestinal (GI) tract endoscopy. But some polyps have malignant potential. We observed the characteristics and frequency of gastric polyps, derived from the gastric mucosal epithelium in a series of endoscopies.*

Method: *Fifty three patients were studied in a series of 2890 consecutive upper GI endoscopies done over one year period. Each patient had only one examination and were analyzed on the basis of their location, size, type and histo pathological findings. All patients had at least one gastric polyp, as confirmed by histological examination.*

Result: *Among 2890 endoscopies we found gastric polyps in 53 cases. So the incidence was 1.83 %. Mean age of the study population was 50.25±11.75. Polyp was more prevalent among female (64%). Most of the patients were presented with anemia, heartburn and abdominal pain, 57%, 42% and 36% respectively. Other less common clinical features are anorexia (13%), melaena (9.4%) and hematemesis (1.9%). 64% patients were diabetic and 76% patients used PPI with duration of 19.00±9.78 months.*

Most of the polyps were located at the body of stomach (47.1%), less common sites were antrum (15.1%), cardia (7.6%), fundus (7.6%), Gastro Esophageal (GE) junction (3.8%) and duodenum (1.9%). Majority of the polyps were small and medium sized (37.7%, 35.8%) and large (11.3%). Sessile polyp was found in 49.1% cases, other common type was pedunculated (39.5%). Only 28% patient had surface ulceration on polyp and commonest histological type was hyperplastic 75.4%, 18.9% patient had adenomatous polyp. Brunner's gland adenoma and carcinoid were rare, 3.8% and 1.9% respectively. Multiple polyps were found in 30% patient.

Conclusion: *Gastric epithelial polyps are infrequent and most of them measure less than 1 cm. The upper GI tract endoscopy is the safest and efficient method for the diagnosis of the gastric polyps, as in most of the patients does not show characteristic symptoms. The histopathological definition is necessary to classify the polyps as well as detection of dysplastic changes. Biopsy from different part of the stomach is necessary to find out the gastritis and dysplastic changes.*

Keywords: *Upper GIT endoscopy, Polyp, Stomach diseases.*

Introduction:

A polyp is a proliferative or neoplastic lesion of the mucous membrane, directed toward the gastrointestinal lumen, projecting from the surrounding mucosa with a head and sometimes without a stalk.[1] Gastric polyps are usually found incidentally on upper gastrointestinal endoscopy performed for an unrelated indication. Most of the polyps are asymptomatic (>90%), but larger polyps may present with bleeding, anemia, obstruction, or abdominal pain. The diagnosis and appropriate management of gastric polyps are important, as some polyps have malignant transformation to cancer and gastric cancer is the third most common cause of cancer-related death in the world and being still difficult to cure because of advanced disease at the moment of diagnosis.[2]

Gastric polyps are detected during 1%-6% of upper GI endoscopies and in 0.1%-0.8% of autopsies.[3-5] Polyps are typically identified histologically because they have no reliable distinguishing endoscopic features. Many gastric polyps have similar endoscopic appearances, so their classification depends on the histologic compartments from which they arise (i.e, epithelial, hamartomatous, or mesenchymal). Epithelial polyps are the most commonly encountered gastric polyps. They include hyperplastic polyps, adenomatous polyps and fundic gland polyps (FGPs), all of which are associated with distinctly different clinical contexts. Other less common epithelial lesions that may present as polyps include neuroendocrine tumors (formerly carcinoids), ectopic pancreatic tissue and pyloric gland adenomas.[3] Hyperplastic polyps are usually sessile or pedunculated, are less than 2 cm in diameter and typically occur in the antrum, although they can arise anywhere. The surface epithelium may also contain erosions or ulcerations leading to

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gastrointestinal bleeding.[6,7] They are strongly associated with inflammatory disorders such as chronic gastritis, H pylori gastritis, pernicious anemia and reactive or chemical gastritis.[8,9] These polyps themselves have little neoplastic potential but are associated with an increased risk of synchronous cancer elsewhere in the gastric mucosa, particularly if associated with chronic gastritis. Unfortunately, the prevalence of dysplasia arising in hyperplastic polyps varies greatly, ranging from 1.9% to 19%, and cases of adenocarcinoma range from 0.6% to 2.1%.[10] The optimum size required for resection is debatable as well, with some authors recommending a 2cm minimum for polypectomy,[2] while others recommend resection of all polyps greater than 0.5 cm.[11] Testing for H. pylori and eradication when present should be performed. Surveillance is recommended with a single repeat endoscopy at 1 year, but further surveillance subsequently is not recommended due to lack of evidence and should be an area for future research.[6]

Gastric adenomas or gastric polypoid dysplasia are true neoplasms and precursors to gastric cancer. Although commonly seen in countries with high gastric cancer rates (eg, Korea, Japan and China), they also account for 6% to 10% of all gastric polyps in Western populations.[7] Histologically, they are classified similarly to colon adenomas with tubular, villous and tubulovillous distinctions. Frequently solitary, they are most commonly found in the antrum but can be located anywhere in the stomach. Endoscopically, they are often fat or sessile rather than pedunculated and can range in size from a few millimeters to centimeters.[7] Atrophic gastritis and intestinal metaplasia are frequently associated with the development of these polyps but there is no proven association with H pylori infection. Polyps that are greater than 2 cm and have villous histology have a higher risk of neoplasia (28%-40%).[12-14] The presence of high-grade dysplasia is associated with an increased risk of invasive gastric cancer both within the polyp and in synchronous areas of the stomach.[15,16]

Due to the increased risk of malignancy associated with these polyps, recommendations include complete removal of the adenoma, with further examination of the entire gastric mucosa for abnormalities, all of which should be biopsied. Additionally, endoscopic follow-up is required after resection at 6 months (for incompletely resected polyps or high-grade dysplasia) or 1 year (for all other polyps). However, it should be noted that the most effective and optimal surveillance protocol for adenomatous polyps is yet to be established. Hyperplastic polyps and adenomas are relatively more prevalent as compared with fundic gland polyps in regions where Helicobacter pylori infection is common. In contrast, in Western countries, where the prevalence of H. pylori infection is lower and proton pump inhibitor (PPI) use is common, the most commonly encountered polyps are fundic gland polyps.[5,17,18]

Fundic gland polyps come in 3 distinct clinical contexts: sporadic polyps, polyps associated with proton pump inhibitor (PPI) use and syndromic polyps (ie, familial adenomatous polyposis [FAP] syndrome).The risk of dysplasia in these polyps is diminutive, with a less-than-1% chance of malignancy.[19,20] Since 1993, there have been multiple reports of the role of PPIs in the development of gastric polyps.[6,18] One study found fundic gland polyps (FGPs) in 23% of patients on PPIs, compared with a 12% incidence in patients not taking PPIs. Other large studies of patients who have been on long-term PPI therapy (defined as ≥5 years) had a 4-times higher prevalence for development of FGP. Furthermore, withdrawal of PPI therapy subsequently led to a reduction in FGPs.[18]

Most gastric neuroendocrine tumors are composed of Enterochromaffin-like cells (ECL cells), typically in the corpus and fundus (90%),[21] which stain with chromogranin A or synaptophysin by immunohistochemistry. There are 4 types of carcinoids in the stomach, each arising in different clinical contexts, and each with distinct prognoses and treatment protocols. This particular tumor underscores the importance of tandem biopsies of the background fat mucosa. Endoscopically, they appear as submucosal mass lesions, sometimes with ulcerations. In type I and II carcinoids, several polyps are seen in clusters arising nearly exclusively in the body-fundic type mucosa. Type III lesions are usually solitary and may occur throughout the stomach. Type IV carcinoids may arise anywhere in the stomach and have a significantly worse prognosis.[22]

Brunner's glands are submucosal mucin-secreting glands. They are predominantly localized in the duodenal bulb and proximal duodenum, progressively decrease in size and number in the distal portions. Brunner's glands secrete an alkaline fluid composed of viscous mucin to protect the duodenal epithelium from acid chyme of the stomach. The etiology of Brunner's gland adenoma remains obscure. It has been postulated that an increased gastric acid secretion could stimulate these structures to undergo hyperplasia.[23] Franzin et al. have reported an association between Brunner's gland adenoma and hyperchlorhydria in patients with chronic gastric erosions and duodenal ulcers.[24] At present, the most accredited pathogenetic hypothesis remains that Brunner's gland adenoma is a duodenal dysembryoplastic lesion or hamartoma.[25] Most patients with Brunner's gland adenoma are asymptomatic or have nonspecific complaints such as nausea, bloating or vague abdominal pain. The most common presentations in symptomatic patients are gastrointestinal bleeding and obstructive symptoms.[26, 27]

So far there is no study in Bangladesh regarding incidence, clinical presentation and character of polyps on upper GI endoscopy. This study is aimed to find out the variables which will help us for diagnosis, management and further follow up of patients with upper GI polyps.

Method:

This is a prospective, observational study. Here we analyzed 53 patients found to have gastric polyps in a series of 2890 consecutive patients who had endoscopies done during period of one year and each patient had only one endoscopy examination. All patients had at least one gastric polyp, as confirmed by histological examination. Endoscopy reports

were analyzed for polyp appearance, size, location, presence of surface ulceration and histo pathological analysis. The data were also analyzed for age and gender distribution, clinical findings (abdominal pain, anorexia, anemia, hematemesis, melena and heartburn) and presence of co-morbid conditions like diabetes mellitus, hypertension, ischemic heart disease, chronic liver disease and Gastor Esophageal Reflux Disease (GERD). History was also taken regarding the use of PPI and Ranitidine along with duration.

Location of the polyp was searched at different parts of the stomach like cardia, fundus, body, antrum and duodenum. Size of the polyp was measured by snare and defined as small (<1 cm), medium (1-2 cm) and large (>2 cm). The polyps were classified as Hyperplastic Polyp (HP), Adenomatous Polyp (AP) and Fundic Gland Polyp (FGP) as well as carcinoid and Brunner's gland adenoma based on the World Health Organization classification.[28]

After fixation in 10% formalin, the study specimens were sent for histo pathological examination.

All the study variables were expressed in number & percentage of the total except for age & duration of PPI use, which were expressed as Mean±SD.

Results:

Among 2890 endoscopies we found polyps in 53 cases. So the incidence was 1.83 %. Mean age of the study population was 50.25±11.75. Polyp was more prevalent among female (64%). Most of the patients were presented with anemia, heartburn and abdominal pain, 57%, 42% and 36% respectively. Other less common clinical features were anorexia (13%), melena (9.4%) and hematemesis (1.9%). 64% patients were diabetic and 76% patients used PPI with duration of 19.00±9.78 months (Table 1).

Most of the patients had polyp in single location, except in 09 patients, they were found in multiple locations (Table -2). Majority of the polyps were small and medium sized (37.7%, 35.8%) and large (11.3%). Sessile polyp was found in 49.1% cases, other common type was pedunculated (39.5%). Only 28% patient had surface ulceration on polyp and commonest histological type was hyperplastic 75.4%, 18.9% patient had adenomatous polyp. Brunner's gland adenoma and carcinoid were rare, 3.8% and 1.9% respectively. Multiple polyps were found in 30% patients (Table 2)

Table 1:

Variable	Freuency (N%)
Age of the patient	50.25±11.75
Gender Male	19 (36)
Female	34 (64)
Unexplained anemia	30 (57)
Abdominal Pain	19 (36)
Heartburn	22 (42)
Anorexia	07 (13)
Melaena	05 (9.4)
Haematemesis	01 (1.9)
Diabetes Mellitus	34 (64)
GERD	08 (15)
Ischemic heart disease	08 (15)
Chronic liver disease	10 (19)
Hypertension	14(26)
PPI use	40 (76)
Ranitidine Use	05 (09)
Duration of PPI use in month	19.00±9.78

Table 2:

Character and location of polyp		Frequency (N%)
Location of polyp	Cardia	04 (7.6)
	Fundus	04 (7.6)
	Body	25 (47.1)
	Antrum	08 (15.1)
	Multiple location	09 (16.9)
	GE Junction	02 (3.8)
	Duodenum	01 (1.9)
Polyp size	Small	20 (37.7)
	Medium	19 (35.8)
	Large	06 (11.3)
	Variable	08 (15.1)
Number of polyp	Single	37 (69.8)
	Multiple	16 (30.2)
Type of polyp	Pedunculated	21 (40)
	Sessile	26 (49)
	Mixed	06 (11)
Surface ulceration		15 (28.3)
Histologic type	Hyperplastic	40 (75.4)
	Adenomatous	10 (18.9)
	Brunner's gland adenoma	02 (3.8)
	Carcinoid	01 (1.9)

Discussion:

Gastric polyps encompass a spectrum of pathologic conditions that can vary in histology, neoplastic potential and management. The goal of this study is to summarize clinical, endoscopic and histo pathologic features of various polyps. Our incidence of polyp was 1.83% which was similar from the incidence of approximately 2% reported by Ming.[29] Gastric

polyps were found in approximately 6 percent of upper GI endoscopic procedures in the United States.[3] Gastric polyps were detected during 1%-6% of upper GI endoscopies and in 0.1%-0.8% of autopsies.[3-5]

Mean age of the patients having polyp was 50.26±12.057 and the detection rate of polyp was found more among female. A study done in China also showed similar findings.[30] The underlying cause of female preponderance was not established. Study with large and randomized sampling may help to find out the etiology. Most of the patients presented with abdominal pain, heartburn, anemia and anorexia which are also features of chronic gastritis. Gastric polyps specially hyperplastic polyps are strongly associated with inflammatory disorders such as chronic gastritis, H pylori gastritis, pernicious anemia and reactive or chemical gastritis.[8,9] In fact, when H pylori is the culprit, 80% of hyperplastic polyps will regress with H pylori eradication, prior to endoscopic removal.[31-33] Haematemesis and melaena are rare presenting complaints of polyp which may be due to surface ulceration, auto-amputation or malignant transformation of polyp. Few case reports are only available. We found only one patient with hematemesis who had end stage renal disease and on maintenance haemodialysis. This study showed three forth of the patient with polyp use PPI and the mean duration of its use was 19.00±9.78 months. In recent years, gastric fundic gland polyps have become increasingly detected in patients on long-term proton pump inhibitor therapy.[34- 36, 18] These fundic gland polyps are often multiple in this setting and localized in the gastric body and fundus. Recent studies have also defined a relationship between the length of drug use, especially after 12 months and increased polyp risk.[18] In this study most of the polyps were small to medium size sessile one, located at the body and hyperplastic in histological type. None of polyp showed any dysplastic changes. Gastric polyps rarely transform to be malignant.[2]

The limitation of our study was small sample size and single center study as well as we only took biopsy from the polyps and didn't detect Helicobacter Pylori.

Conclusion:

Gastric polyp is a common finding during routine endoscopy. The upper GI tract endoscopy is the safest and efficient method for the diagnosis of the gastric polyps, as most of the patients do not show characteristic symptoms. Despite the fact that, most of them are asymptomatic and do not have malignant potential, a subset of gastric polyps require further intervention and histologic evaluation is necessary to determine the type of polyp and the presence of dysplasia. The identification of such polyps require histologic evaluation and may involve additional diagnostic investigative techniques, such as tandem biopsies, immunohistochemistry staining, Endoscopic Ultrasound (EUS), and EUS-assisted tissue acquisition. Furthermore, it is essential for clinicians to provide full endoscopic and clinical information to the pathologist to reach a proper diagnosis, as many conditions have similar histologic characteristic.

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