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Evaluation of gastric polyps detected by endoscopy: A single-center study of a four-year experience in Turkey

STOMACH

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Original Article

ABSTRACT

Background/Aims: The aim of this study was to evaluate the gastric polyps detected by endoscopy in our institution with respect to their frequency, size, anatomic location, presence of dysplasia, and histopathologic features.

Materials and Methods: Records of a total of 14,240 patients who underwent endoscopy between January 2008 and January 2012 were reviewed retrospectively. Of the 14,240 patients, 174 determined to have at least 1 histopathologically proven polyp were included in the study.

Results: Three hundred eleven gastric polyps were found in 174/14,240 (1.2%) patients (1.79 polyps per patient). Gastric polyps were found most commonly in the antrum (41.5%). Of all gastric polyps, 189 (60.8%) were less than 1 cm. Histopathologically, the most common polyp type was hyperplastic (n: 261, 83.9%), followed by adenomatous (n: 23, 7.4%). Eight (34.8%) of the adenomatous polyps showed dysplasia, and in 4 (17.4%) of these cases, the dysplasia was high-grade. Nineteen (6.1%) of all gastric polyps were identified to be fundic gland polyps.

Conclusion: According to this study from Turkey, the majority of polyps detected by endoscopy was solitary, smaller than 1 cm, and found in the antrum; furthermore, the most common type was a hyperplastic polyp.

Keywords: Gastric polyp, hyperplastic polyp, adenomatous polyp

INTRODUCTION

Abnormal structures that grow from normal mucosa and project into the lumen in the gastrointestinal system (GIS) are called polypoid lesions (1). The majority of gastric polyps is asymptomatic are usually discovered incidentally during an endoscopy examination (2). Clinical findings relate to their size and location (3). Their discovery can be quite important, as some types may transform into cancer. This malignant potential is derived from the histological type of the polyp (4). Patients with gastric polyps often present with nonspecific symptoms, such as abdominal pain, discomfort, and bloating. Erosion or ulceration of the polyp surface may cause occult bleeding and anemia (5). Although rare, a large polyp localized to the antrum has the potential to obstruct the pyloric lumen (6).

Histologically, they are classified as inflammatory, hamartomatous, hyperplastic, adenomatous, and fundic gland polyps (7). In countries in which *Helicobacter pylori* infections are commonly seen, hyperplastic and adenomatous polyps are found to be more frequent than fundic gland polyps (8,9).

In western countries, where *H. pylori* infections are less common and proton pump inhibitor (PPI) drug use is more common, fundic gland polyps are seen more frequently (10,11). As modern examinations of the digestive system have increased in number, gastric polyps are now detected more frequently (6).

The aim of this study was to evaluate the gastric polyps detected by upper GIS endoscopy in our institution with respect to their frequency, size, anatomic location, presence of dysplasia, and histopathologic features.

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Table 1. Demographic characteristics of the patients and their distribution according to the number of polyps

Total patients	174/14240 (1.2%)
Age	58.4±12.6
Male/Female	57 (32.8%) / 117 (67.2%)
Total polyps	311
1 polyp	126 (72.4%)
2 polyps	20 (11.5%)
3 or more polyps	28 (16.1%)

Table 2. Distribution of the anatomic locations of the gastric polyps

Anatomic location	Total number of polyps (%)
Cardia	38 (12.2)
Fundus	25 (8.0)
Corpus	110 (35.4)
Antrum	129 (41.5)
Anastomotic site	9 (2.9)
Total	311 (100)

Table 3. Distribution of the gastric polyps according to size

Polyp size	Total number of polyps (%)
<1 cm	189 (60.8)
≥1 cm	122 (39.2)
Total	311 (100)

Table 4. Histopathologic features of the gastric polyps

Histopathology	Total number of polyps (%)
Hyperplastic	261 (83.9)
Adenomatous	23 (7.4)
Fundic gland	19 (6.1)
Inflammatory	6 (1.9)
Hamartomatous	2 (0.7)
Total	311 (100)

MATERIALS AND METHODS

The records of a total of 14,240 patients who underwent upper GIS endoscopy for various reasons between January 2008 and January 2012 were reviewed retrospectively. Upper GIS endoscopy was performed by a GIF type Q 160 forward-view Olympus videoscope (Olympus, Tokyo, Japan) in all patients. The study included a total of 174 patients with at least one polyp detected by endoscopy in the stomach (any localization) and removed by biopsy forceps or endoscopic snare and histopathologically proven as a gastric polyp. Data on the total number, size, anatomic location, and histopathologic features of the polyps were recorded for all patients. The polyps were evaluated according to their anatomic location in the stomach, such as cardia, fundus, corpus, antrum, and anastomotic sites. All patients had at least one gastric polyp verified by the histopathologic analysis. The gastric polyps were divided into two groups according to size: ≥1 cm and <1 cm. For those patients with multiple polyps of varying sizes, the largest polyp was considered as the determinant in this classification. Data analysis was performed by SPSS for Windows, version 11-5 (SPSS Inc., Chicago, IL, United States)

RESULTS

A total of 174 (1.2%) of 14,240 patients who underwent upper GIS endoscopy for various reasons were diagnosed as having gastric polyps. Of the 174 patients, 57 (32.8%) were male and 117 were female (67.2%). Mean age of the patients was 58.4±12.6 (range: 22-84) years. Of all patients, 5 (2.9%) had a history of subtotal gastrectomy and gastroenterostomy.

The majority of patients (72.4%) had a solitary gastric polyp, while 48 (27.6%) patients had multiple polyps. The total number of polyps detected in 174 patients was 311, and the total number of polyps per patient was 1.79. The demographic characteristics and distribution of the patients according to the number of polyps are shown in Table 1.

Gastric polyps were most commonly discovered in the antrum (41.5%), followed by the corpus (35.4%). The distribution of the anatomic locations of the gastric polyps is shown in Table 2.

Of all polyps, 189 (60.8%) were <1 cm, while 122 (39.2%) were ≥1 cm. The distribution of the gastric polyps according to size is shown in Table 3.

The histopathologic analysis revealed that the most common polyp type was hyperplastic (n: 261/311, 83.9%) followed by adenomatous (n: 23/311, 7.4%). Eight (34.8%) of the adenomatous polyps showed dysplasia. Dysplasia was low-grade in 4 (17.4%) of these cases and high-grade in the other 4. In addition, 1.3% of all gastric polyps and 17.4% of all adenomatous polyps showed high-grade dysplasia. Nineteen (6.1%) of all gastric polyps were fundic gland, 6 (1.9%) were inflammatory, and 2 (0.7%) were hamartomatous polyps. No dysplasia or malignancy was detected in any of the polyps except in adenomatous polyps. In patients with multiple polyps, all polyps were the same type histopathologically. The histopathologic features of the gastric polyps detected in this study are shown in Table 4, in numbers and percentages.

DISCUSSION

The frequency of gastric polyps discovered by upper GIS endoscopy ranges from 0.6%-6% (6,8-10,12). In our study, the frequency of polyps localized in the stomach was 1.2%.

Some studies report that gastric polyps are more common in males, while others cite a higher frequency in females. In one study, Gencosmanoglu et al. (6) reported that 58% of all polyps were found in females, while Morais et al. (8) stated that 58.8%

of all polyps were determined in males. In our study, 67.2% of all polyps were detected in females. This may be because there were more females in our study population (67.2%).

Gastric polyps may develop anywhere in the gastric mucosa (6). In a study carried out by Li et al. (13), it was reported that the most common location for gastric polyps was the antrum, accounting for 40.7% of all gastric polyps. Similarly, in our study, the antrum (41.5%) was the most common location for the gastric polyps, followed by the corpus (35.4%).

Archimandritis et al. (9) reported that the majority of polyps (61.9%) was smaller than 0.5 cm. Albayrak et al. (14) stated that 60.2% of all polyps were smaller than 1 cm. Similarly, the majority of polyps in our study (60.8%) was smaller than 1 cm.

Hyperplastic polyps account for approximately 75% of all gastric polyps (8,15,16). Likewise, the majority of polyps in our study (83.9%) was hyperplastic. Although hyperplastic polyps are considered to be benign lesions, the potential of these polyps to undergo dysplastic and malignant changes has been reported (17-19); 0.5%-8.6% of all hyperplastic polyps are reported to be malignant (17,19-26). Carmack et al. (10) reported that 5 (0.4%) of 1127 hyperplastic polyps showed low-grade dysplasia, while none of the polyps showed high-grade dysplasia. In our study, no dysplastic changes or malignancy was found in hyperplastic polyps.

It was also reported that 5.9%-21.5% of all gastric polyps were fundic gland polyps (27-29). In contrast to reports by Carmack et al. (10) and Stolte et al. (30), in which fundic gland polyps were reported as the most common gastric polyps, with a relative frequency of 77% and 47%, respectively, in our study, fundic gland polyps accounted for less than 6.1% of all polyps. Fundic gland polyps have almost no malignant potential when they are associated with the use of PPIs (11,31,32) or when they occur sporadically (33). Similarly, we found neither dysplasia nor malignancy in the fundic gland polyps in our study. In another study, Peretz et al. (34) reported that the annual polyp prevalence was increasing and that this increase stemmed from an increase in the frequency of fundic gland polyps. They also stated that the increase in the frequency of fundic gland polyps might be associated with the widespread use of PPIs (34). In a study conducted among 599 patients, of whom 322 used PPIs, Jalving et al. (11) reported that the use of PPIs in the long term was associated with an up to 4-fold increase in the risk of fundic gland polyps. On the other hand, Kekilli et al. (29) reported no increase in the frequency of fundic gland polyps despite the widespread use of PPIs. Similarly, no yearly increase was observed in the frequency of fundic gland polyps in our study, with the overall frequency of the fundic gland polyps being relatively low.

Stolte et al. (30) reported in their study that 3.1% of all gastric polyps were inflammatory. When gastric inflammatory polyps grow from inflammatory cells, fibrous tissues, or blood vessels, they characteristically have no capsule (35). In our study, 1.9% of all gastric polyps were inflammatory.

It was reported earlier that 6%-10% of all gastric polyps are adenomatous (9,35). We detected a total of 23 adenomatous polyps in our study, accounting for 7.4% of all gastric polyps. The World Health Organization defines adenomatous polyps of the stomach as noninvasive intramucosal neoplasia (36,37). Typically, adenomatous polyps grow from atrophic gastric mucosa, and high-grade dysplasia is identified in close association with a high proportion (40%-100%) of early gastric cancers (38). High-grade dysplasia is considered to be a direct precursor to invasive gastric cancer and is regarded as a malignancy by some pathologists (39). In a follow-up study among 16 patients with high-grade dysplasia, 11 (68%) patients were diagnosed with invasive carcinoma during a mean follow-up of 30 months (40). On the other hand, patients with low-grade dysplasia have a lower but still significant risk of developing cancer, which is estimated to be 0%-9% within 15 months (41).

The risk of malignancy in adenomatous polyps was reported to be 33% by Nakamura and Nakano (42). In our study, 8 (34.8%) adenomatous polyps showed dysplasia, and the dysplasia in 4 (17.4%) of these cases was high-grade. Experienced endoscopists recommend polypectomy, following a risk-benefit analysis, for polyps larger than 5 mm (26).

In conclusion, in our study, the majority of gastric polyps was located in the antrum, smaller than 1 cm, and hyperplastic. The frequency of adenomatous polyps was 7.6%, and 34.8% of these polyps showed dysplasia (17.4% with high-grade dysplasia). In reports from other countries, fundic gland polyps were found to be more common. In Turkey, previous publications have reported hyperplastic polyps as the most common type. Our study had the highest number of cases when compared to other studies conducted in our country to date, and similar to those reports, we also found hyperplastic polyps to be the most common polyp type.

Ethics Committee Approval: Ethics committee approval was received for this study.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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