Evaluation of gastric polyps detected by endoscopy: a single-center study conducted in Turkey's Southeast Anatolia Region

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Abstract

Background/Aims: Gastric polyps are often detected incidentally during endoscopic procedures performed for different reasons and may sometimes be manifested by gastric bleeding, pyloric stenosis, iron deficiency anemia and abdominal pain. In our study, we aimed to investigate the demographic data of the cases who were found to have gastric polyps at the gastroenterology endoscopy unit, histologic type of the polyps, their localization and size, and their relationship with Helicobacter Pylori. Materials and Methods: Between September 2016 - September 2019, gastric polyps were detected in 255 of 9771 cases who underwent upper gastrointestinal system endoscopy at the Gastroenterology Endoscopy Unit of ..... Training and Research Hospital. Demographic data, endoscopy reports and pathology results of these patients were retrospectively reviewed from the hospital registry system. Results: Of 255 cases included in the study, 160 (62.7%) were female and 95 (37.3%) were male, with a mean age of 56.9 (min: 19, max: 95). A total of 336 polyps were detected in 255 cases, with 1.3 polyps per case. 36 (10.7%) of gastric polyps were found to be fundic gland polyps, 32 (9.5%) were found to be foveolar hyperplasia, 137 (40.8%) were found to be hyperplastic polyps, 5 (1.5%) were found to be xanthomas, and 6 (1.8%) were found to be neuroendocrine tumors. Conclusion: According to this study, 90% of gastric polyps detected endoscopically in southeast Turkey are smaller than 5 mm and located most commonly in the corpus; the most common histologic subtype is hyperplastic polyps.

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Materials and Methods: Between September 2016 - September 2019, gastric polyps were detected in 255 of 9771 cases who underwent upper gastrointestinal system endoscopy at the Gastroenterology Endoscopy Unit of ..... Training and Research Hospital. Demographic data, endoscopy reports and pathology results of these patients were retrospectively reviewed from the hospital registry system.

Results: Of 255 cases included in the study, 160 (62.7%) were female and 95 (37.3%) were male, with a mean age of 56.9 (min: 19, max: 95). A total of 336 polyps were detected in 255 cases, with 1.3 polyps per case. 36 (10.7%) of gastric polyps were found to be fundic gland polyps, 32 (9.5%) were found to be foveolar hyperplasia, 137 (40.8%) were found to be hyperplastic polyps, 5 (1.5%) were found to be xanthomas, and 6 (1.8%) were found to be neuroendocrine tumors.

Conclusion: According to this study, 90% of gastric polyps detected endoscopically in southeast Turkey are smaller than 5 mm and located most commonly in the corpus; the most common histologic subtype is hyperplastic polyps.

Keywords: Polyp, stomach, endoscopy, hyperplastic, Helicobacter Pylori

What's known

- Most of the stomach polyps are detected incidentally during gastroscopy, and the prevalence in the community varies between 0.3-6%.
- Hyperplastic, fundic gland and adenomatous polyps constitute the majority of gastric polyps. Diagnosis and follow-up of polyps are important because of their malignancy potential, especially in adenomatous polyps.

What's new* According to this study, the most common histological type of gastric polyps are hyperplastic polyps. * Ninety percent of gastric polyps are smaller than 5 mm. We found no adenocarcinoma on any of the polyps. We believe this is due to the widespread use of gastroscopy. * Helicobacter Pylori is common in patients with hyperplastic polyp. However, this relationship was not statistically significant.

INTRODUCTION

Gastric polyps are usually asymptomatic mucosal protrusions originating from the gastric mucosa or submucosa and extending into the lumen. Gastric polyps are detected by chance during endoscopic procedures performed for different reasons. Sometimes they can cause gastric bleeding, pyloric stenosis, iron deficiency anemia and abdominal pain[1]. The frequency of gastric polyps in the general population varies between 0.3% and 6%. [2,3]. Hyperplastic polyps (HPs) and fundic gland polyps (FGPs) constitute the majority of polyps which are classified according to their histopathological features, and a small portion is constituted by adenomatous polyps [3]. Hyperplastic polyps are associated with Helicobacter Pylori (HP) infection, while FGPs are associated with proton pump inhibitor use [4]. While HPs decrease in the western society due to the decrease in the frequency of HP, there is an increase in FGPs. However, HPs are the most common polyps in Asian countries where HP infection is common[5]. Histopathological evaluation should be performed by biopsy especially for adenomatous polyps, as gastric polyps may be associated with familial polyposis syndromes and can potentially be premalignant or malignant lesions [6]. Due to the malignant potential of gastric polyps, their diagnosis and follow-up gain importance.

The aim of this study is to investigate the frequency of polyps detected during gastroscopy procedures in our hospital, demographic characteristics of the cases with polyps, histopathological features, localization, size and number of polyps and their relationship with HP infection.

MATERIALS AND METHODS

Between September 2016 and September 2019, gastric polyps were detected in 299 of 9771 patients who underwent upper gastrointestinal system endoscopy at the Gastroenterology Endoscopy Unit of ..... Training and Research Hospital. Demographic data, endoscopy reports and pathology results of these patients were retrospectively reviewed from the hospital registry system. It was observed that multiple procedures were performed, and polyps were detected in 44 of 299 examined patients. Only the first endoscopy and pathological findings of these 44 patients were evaluated, and the data of 255 patients were included in the study. The total number, size, anatomical localization, histopathological features of polyps and presence of HP were recorded in all patients. The polyps were divided into groups according to their localization including gastric cardia, fundus, corpus, antrum and multiple regions. The size of the largest polyp was considered the determinant in the patients with multiple polyps of different sizes. All gastroscopy procedures were performed under topical pharyngeal anesthesia with 10% lidocaine spray (Xylocaine 10% spray; Astra Zeneca, Sweden). Written informed consent was obtained from all patients prior to the procedure. Polypectomy was performed on all polyps except for the polyps that could not be removed because of anatomical localization or anticoagulant use. Small polyps (< 5 mm) were removed with forceps, while large polyps (> 5 mm) were removed with snare. The polyps were classified according to the modified classification of WHO. Patients

with a history of gastric operation, with gastric tumors and subepithelial lesions were excluded from the study.

Ethics committee approval: Since our study was retrospective, informed consent was not obtained from the patients. This study was approved by the ethics committee of our hospital.

Statistical Analysis : Statistical analysis was performed using SPSS 16.0 (Chicago, USA) program. While arithmetic mean ± SD, minimum and maximum values were used to define numerical data, categorical data were expressed as percentages (%). Independent T test was used for normally distributed numerical data, and chi-square test was used to test the differences between the patient subgroups. A p value of < 0.05 was considered statistically significant.

RESULTS

Gastric polyps were found in 299 of 9771 patients who underwent gastroscopy, and 44 of these patients underwent more than one endoscopy procedure. Only the first endoscopic findings of the cases, who underwent repeated procedures, were included in the study. In conclusion, a total of 255 cases with gastric polyps were included in the study. 160 (62.7%) of these cases were female, 95 (37.3%) were male, and the mean age was 56.9 (min: 19, max: 95). A total of 336 polyps were detected in 255 cases, with 1.3 polyps per case. Histopathological features, size, localization and number of polyps are given in Table 1. Single polyp was detected in 157 cases (61.5%), while more than one polyp was detected in 98 cases (38.5%). The mean age was 56.3 ± 17.4 years in the patients who had a single polyp and 57.7 ± 12.4 years in the patients who had more than one polyp; there was no statistically significant difference between the two groups. Considering the size of the largest polyp, it was smaller than 5 mm in 230 cases (90.2%), between 6-10 mm in 17 cases (6.7%) and 10 mm and above in 8 cases (3.1%). While polyps were detected in only one anatomical region in 206 cases, they were detected in more than one region in 49 cases. Polyps were detected only in the cardia in 58 (23%) cases, only in the fundus in 41 (16%) cases, only in the corpus in 66 (26%) cases, only in the antrum in 41 (16%) cases and in multiple anatomical regions in 49 (19%) cases. In total, polyps were detected in the cardia at a rate of 27%, in the fundus at a rate of 25.9%, in the corpus at a rate of 31.9% and in the antrum at a rate of 15.2%. Histopathological evaluation of the lesions which were endoscopically considered polyp in 102 (40%) cases revealed gastritis or normal gastric mucosa. 36 (10.7%) of gastric polyps were found to be fundic gland polyps, 32 (9.5%) were found to be foveolar hyperplasia, 137 (40.8%) were found to be hyperplastic polyps, 5 (1.5%) were found to be xanthomas, and 6 (1.8%) were found to be neuroendocrine tumors. More than one histologic type was detected in 18 cases. Since polypectomy could not be performed, five (1.5%) cases did not have pathological examination. Considering the frequency of polyps by age range, polyps were detected in a total of 38 cases in the age range of 19-40 years with more than one polyp in 7 of them, in a total of 109 cases in the age range of 41-60 years with more than one polyp in 51 of them and in a total of 108 cases aged above 60 years with more than one polyp in 40 of them (Figure 1). The relationship of polyps with age, gender and HP according to histopathological features is given in Table 2. HP was studied in 195 of the patients included in the study, and it was found to be negative in 54 cases (27.7%) and positive in 141 cases (72.3%). No statistical significance was found between the histopathology of gastric polyps and HP positivity.

DISCUSSION

Gastric polyps are generally asymptomatic and detected incidentally in endoscopic procedures performed for any reason. In our study, polyps were detected in a total of 255 patients among 9771 gastroscopy procedures performed at the gastroenterology endoscopy unit. In the literature, the frequency of gastric polyps has been reported to range between 0.3% and 6% [2,3]. This rate has been reported to be 1.2% [7], 2.2% [6] and 1.86%[8] in the studies conducted in different regions of Turkey. In this study conducted in our hospital which admits patients from Turkey's Southeastern Anatolia Region, the frequency of gastric polyps was found to be 2.6%. This rate is consistent with the world data, while it is slightly higher compared to studies conducted in Turkey.

In a study of 269 patients with polypoid lesions, the average age of the patients was 65 and the rate of

women was 61% [9]. In another study conducted by Atalay et al.[7], the average age of patients with polyps was 58.4 years and the rate of women was 67.2%. In our study, the average age of the patients was 56.8, and the rate in women was 62.7%.

Histopathological examination reveals gastritis or normal mucosa rather than polyp in approximately 16-37.5% of the lesions considered polyp endoscopically [9]. In our study, histopathological examination revealed gastritis or normal mucosa in 40% of the lesions that were endoscopically considered polyp. 95.7% of these lesions were polypoid lesions smaller than 5 mm.

Gastric polyps can develop anywhere on gastric mucosa. Li et al.[10] reported that the most common site for gastric polyps was the antrum, and it constituted 40.7% of all gastric polyps. In another study, it was stated that the most common localization of polyps was the antrum, and this was followed by the corpus[2]. In a study conducted in China, however, it was reported that the frequency of polyps in the antrum decreased and the frequency of polyps in the corpus increased [11]. Polyps were also found most commonly in the corpus with a rate of 31.9% in our study supporting this study. The corpus was followed by the cardia, fundus and antrum, respectively, in terms of polyp frequency. We think that the higher number of polyps in the cardia and fundus compared to the antrum, is associated with FGPs, which are seen in the proximal part of the stomach and tend to be multiple.

Archimandritis et al. [12] reported that most of the polyps (61.9%) were smaller than 5 mm in their study. In another study, 97.2% of all polyps were reported to be smaller than 10 mm[13]. The size of the largest polyp in our study was found to be smaller than 5 mm at a rate of 90.2%, between 6-10 mm at a rate of 6.7% and 10 mm and above at a rate of 3.1%; these findings are compatible with the literature.

HPs are the most common type of gastric polyps [6]. Focal inflammatory reactions and mucosal damage are blamed for the etiology of this type, and these polyps are associated with HP infection and atrophic gastritis [14]. HPs are more common in middle and advanced age individuals, and females and males are affected equally [15]. Their occurrence rates in the stomach differ among studies and vary between 18.2% and 76%.[13]. In our study, the mean age of occurrence of HPs was 59.2 years, the rate of occurrence was 67% in female patients, the rate of occurrence among all gastric polyps was 40.8%, and 81.3% of all gastric polyps were smaller than 5 mm. 8 of HPs (7.5%) were larger than 10 mm, and the polyp size was found to be larger than 10 mm only in hyperplastic polyps in the patients included in the study. In our study, HP was studied in 77 cases diagnosed with HPs, and positivity was detected in 57 cases (74%). However, the high HP positivity was not statistically significant.

Fundic gland polyps are the most common type of gastric polyps in developed countries, often seen in the proximal stomach[16]. They are typically smaller than 10 mm and frequently multiple, though they can be single [17]. They are known to be closely related to prolonged use of proton pump inhibitors [18]. They are mostly benign and have malignant potential in polyposis syndromes [19]. The frequency of FGPs varies between 6.1% and 77% in the literature[3,7]. In our study, we found this rate to be 10.7%. In our study, all FGPs were smaller than 10 mm and 95.8% were smaller than 5 mm. There was no significant relationship between FGPs, and gender and HP. Intestinal metaplasia was not detected in any cases with FGPs, and this was not statistically significant. More than one polyp was present in 70.8% of cases with FGPs, and it was statistically significant. According to our study, the rate of FGPs is close to the lower limit of the range observed in the literature. This may be explained with the high HP positivity in Turkey.

Neuroendocrine tumors of the stomach are extremely rare and originate from enterochromaphine-like cells in the gastric fundus and corpus mucosa [20]. They are common in females and at advanced age. In a retrospective study, the frequency of neuroendocrine tumor in patients with gastric polyps was found to be 3.5%, the mean age was 49.9 years, and the female / male ratio was 2.3/1 [6]. In our study, one of the neuroendocrine tumors was detected in the cardia and five were detected in the corpus; neuroendocrine tumors constituted 2.4% of the cases with gastric polyps. In addition, we found the mean age of occurrence to be 63 years, and the female / male ratio was found to be 5/1. More than one polyp was present in 83.3% of cases with neuroendocrine tumor and it was statistically significant. Our data supports the literature.

The facts that our patients could not be followed up as the study was a retrospective study, H.Pylori could not be tested in all patients who were found to have polyps, and the study was a single-center study, were all limiting factors.

In conclusion, we found that the most frequently detected polyps in the stomach were hyperplastic polyps, the majority of the cases had single polyps, most of the polyps were smaller than 5 mm, and polyps were found most commonly in the corpus and least commonly in the antrum. Our study is the study that included the highest number of cases with gastric polyps conducted in Turkey's eastern and southeastern regions, and it completed studies conducted previously on this issue in Turkey.

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Table 1: Number, size, localization and histopathological features of stomach polypoid lesions.

	Localization of polyps	Localization of polyps	Localization of polyps	Localization of polyps		Size of polyps n (%)	Size of polyps n (%)	Size of polyps n (%)	Number of cases n (%)	Number of cases n (%)
Histopathological type of polyps	Kgrcdla	Fundus	Corpus	Antrum	Total (%)	<5 mm n (%)	5-10 mm n (%)	[?]10 mm n (%)	With single polyp	With multiple polyps
Fundic gland polyp	7	17	11	1	36 (10.7)	21 (95.5)	1 (5.6)	0	7	17
Foveolar hyperplasia	12	11	5	4	32 (9.5)	18 (100)	0	0	7	15
Gastritis/stomach mucosa	32	24	38	21	115 (34.2)	90 (95.7)	4 (4.3)	0	66	36
Hyperplastic polyp	37	32	45	23	137 (40.8)	87 (81.3)	12 (11.2)	8 (7.5)	68	41
Xanthoma	1	1	1	2	5 (1.5)	5 (100)	0	0	4	1
Neuroendocrine tumor	1	0	5	0	6 (1.8)	5 (100)	0	0	1	5
Polyps with nobiopsy	1	2	2	0	5 (1.5)	5 (100)	0	0	4	1
Total	91	87	107	51	336	230 (90.2)	17 (6.7)	8 (3.1)		

Table 2: Relationship of polyps with age, gender, HP, intestinal metaplasia according to histopathological features.

	Age±SD (min-max)	Gender n (%)	Gender n (%)		Helicobacter Pylori n (%)	Helicobacter Pylori n (%)		Intestinal meta-plasian n (%)	Intestinal meta-plasian n (%)
Histopathological type of polyps		Famale	Male	p	Negative	Positive	P	Negative	Positive
Fundic gland polyp	58.95±11.261 (33-78)	15 (68.2)	7 (31.8)	0.523	6 (42.9)	8 (57.1)	0.533	22 (%100)	0 (%0)
Foveolar hyperplasia	59.94±13.383 (37-80)	8 (44.4)	10 (55.6)	0.127	5 (38.5)	8 (61.5)	0.309	16 (%88.9)	2 (%11.1)
Hyperplastic polyp	59.25±16.207 (21-95)	71 (67)	35 (33)	0.228	20 (26)	57 (74)	0.719	89 (%84)	17 (%16)
Xanthoma	59.25±14.385 (38-69)	3 (60)	2 (40)	0.616	2 (66.7)	1 (33.3)	0.658	4 (%80)	1 (%20)
Neuroendocrine tumor	63±16.529 (40-75)	5 (83.3)	1 (16.7)	0.530	1 (25)	3 (75)	1.000	3 (%50)	3 (%50)
Gastritis/stomach mucosa	52.83±16.219 (19-86)	56 (60.2)	37 (39.8)	1.000	20 (23.8)	64 (76.2)	0.111	77 (%82.8)	16 (%17.2)

Figure 1: Frequency of stomach polyps according to age ranges.