

Gastric Polyps: Retrospective Analysis of a 10-Years Endoscopic Procedure

Gastrik Polipler: 10 Yıllık Endoskopik İşlemlerin Retrospektif Analizi

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Özet

Amaç: Mide polipleri genellikle asemptomatik olan ve üst gastrointestinal sistem endoskopisi sırasında tesadüfen saptanan gastrik mukozal çıkıntılardır. Bu çalışmada gastrik poliplerin görülme sıklığı, yerleşim yerleri ve genel özellikleri değerlendirildi.

Gereç ve Yöntemler: Üçüncü basamak bir hastanede on yıllık bir süre boyunca gerçekleştirilen üst gastrointestinal sistem endoskopileri retrospektif olarak değerlendirildi. Hastaların demografik özellikleri, gastroskopi endikasyonları, poliplerin morfolojik ve histolojik özellikleri kayıt edildi.

Bulgular: Toplam 25230 gastroskopi hastasının 347'sinde (%1.4) mide polipleri bulundu. Hastaların yaş ortalaması 61.04±15.05 olup, 124'ü (%35.7) erkek ve 223'ü (%64.3) kadındı. Polip tespit edilen hastaların en sık endoskopi endikasyonu (%74.1) dispepsiydi. Poliplerin çoğu (%55.3) 5mm'den küçüktü ve en sık yerleşim yeri antrumdu. En sık hiperplastik polip (%44.4) saptandı. Polip saptanan hastaların %42.9'unda Helicobakter Pylori pozitifliği. Ayrıca adenomatöz poliplerin %58'ine displazi eşlik ediyordu.

Sonuç: Hiperplastik polipler popülasyonumuzdaki en sık görülen polip tipi idi. 5 mm'nin üzerindeki poliplerin (özellikle adenomatöz polipler) displazi odakları içerebileceğinden biyopsi almak yerine tam eksizeyonu önerilir. Ayrıca 5 mm'den küçük poliplerin eksize edilmeden endoskopik takibe alınmasının maliyet açısından daha etkin olduğu düşünüldü.

Anahtar kelimeler: Endoskopi, Helicobakter Pylori, Mide, Polip

Abstract

Objective: Gastric polyps are gastric mucosal protrusions that are usually asymptomatic and detected incidentally during upper gastrointestinal system endoscopy. In this study, the incidence, location and general characteristics of gastric polyps were evaluated.

Material and Methods: Upper gastrointestinal system endoscopies performed in a tertiary hospital for a period of ten years were evaluated retrospectively. Demographic characteristics of the patients, gastroscopy indications, morphological and histological characteristics of polyps were recorded.

Results: Gastric polyps were found in 347 (1.4%) of a total of 25230 gastroscopy patients. The mean age of the patients was 61.04±15.05. One hundred and twenty four (35.7%) of the patients were male and 223 (64.3%) were female. The most common endoscopic indication (74.1%) of the patients with polyps was dyspepsia. Most of the polyps (55.3%) were smaller than 5 mm and the most common site was the antrum. Hyperplastic polyp (44.4%) was detected the most. 42.9% of the patients with polyps were positive for Helicobacter Pylori. In addition, 58% of adenomatous polyps were accompanied by dysplasia.

Conclusion: Hyperplastic polyps were the most common polyp type in our population. Full excision of polyps over 5 mm (especially adenomatous polyps) is recommended instead of biopsy, as they may contain dysplasia foci. In addition, it was thought that taking polyps smaller than 5 mm into endoscopic follow-up without excision was more cost-effective.

Keywords: Endoscopy, Helicobacter Pylori, Polyp, Stomach

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INTRODUCTION

Gastric polyps are generally abnormal gastric mucosal protrusions and are usually asymptomatic. However, they can sometimes manifest with bleeding, anemia or gastric outlet obstruction (1). Especially in recent years, there has been a significant increase in the prevalence of gastric polyps which are detected incidentally in parallel with the more widespread use of upper gastrointestinal (GI) endoscopy (2).

The prevalence in the general population is estimated to be 0.8-2.4%. Epithelial gastric polyps consist of hyperplastic polyps (HPs), fundic gland polyps (FGPs), and adenomatous polyps (APs), and their incidence varies depending on the use of proton pump inhibitors (PPI) and the presence of *Helicobacter Pylori* (*H.Pylori*) (3). Additionally, polypoid protruding lesions such as gastrointestinal stromal tumor, leiomyoma, inflammatory fibroid polyps (IFPs), lipoma and neuroendocrine tumors are manifested in the gastric mucosa (4).

While the most common gastric epithelial polyp type is HPs, recent studies have reported significant increases in the incidence of FGPs (4,5). In particular, chronic PPI use and *H.Pylori* eradication have been considered as possible causes of this (6). Most gastric polyps are benign (>85% of cases). The risk of malignancy or malignant transformation of gastric polyps depends on their histological structure (7). Due to the increased incidence of gastric neoplasia, encountering a polyp in the stomach during endoscopy causes concern in regard to malignant potential.

In this study, we aimed to examine the incidence, location, endoscopic and histological characteristics of gastric polyps detected during gastroscopy examination in our region.

MATERIALS AND METHODS

Patients

Endoscopy results and pathology reports of 25230 patients who underwent upper GI endoscopy at Kahramanmaraş Sutcu Imam University, Faculty of Medicine Gastroenterology Endoscopy Unit between July 2011 and July 2021 were retrospectively screened from hospital automation system and endoscopy book records. Polyp was detected in a total of 404 patients. Repeated endoscopic procedures, duodenal polyps, patients with a history of previous operations, gastric polyps without pathological diagnosis and with unspecified size were

excluded from the study. A total of 347 patients with pathological diagnosis were included in the study. The demographic characteristics of the patients, endoscopy indications and the diameters, locations, histopathologies and *H.Pylori* presence of the detected polyps were analyzed. The study was approved by the local ethics committee of Kahramanmaraş Sutcu Imam University Faculty of Medicine in its session dated 25/01/2022 and numbered 2022/04 and the study was conducted in accordance with the principles of the Declaration of Helsinki.

Endoscopy methods

All gastroscopy procedures were performed under topical pharyngeal anesthesia using 10% lidocaine spray (Xylocain 10% spray; Astra Zeneca, Sweden). Written informed consent was obtained from all patients before the gastroscopy procedure. Polypectomy was performed on all polyps below 20 mm with forceps and snair for small ones and large ones, respectively. No major complications were observed in patients who underwent polypectomy. A biopsy was performed on polyps over 20 mm on which polypectomy could not be performed and according to the biopsy result, they were referred to surgery or a center where endoscopic submucosal dissection was performed.

Statistical analysis

Statistical calculations were made with SPSS 22.0 package software. In the evaluation of the data, Kolmogorov-Smirnov test was used to determine whether the variables were normally distributed. The t-test method was used in independent samples to compare two independent groups for normally distributed variables. Categorical variables were examined by Chi-Square test. Descriptive statistics were expressed as mean±standard deviation in continuous variables and as number (n) and percentage (%) in categorical variables. A p value of <0.05 was considered statistically significant.

RESULTS

Gastric polyps were detected in 347 (1.4%) of 25230 patients who underwent gastroscopic examination. The mean age of the patients with gastric polyps was 61.04±15.05 (20-98) years and 124 (35.7%) were male and 223 (64.3%) were female (**Table 1**). The most common endoscopic indication of the patients with polyps was dyspepsia with a rate of 257 (74.1%) patients (**Table 2**). Most polyps were smaller than 5mm (**Table 3**).

Table 1. Age and gender distribution of according to histopathological features of gastric polyps

Gastric polyp type	n(%)	Age (mean±SD)	Gender	
			Female n(%)	Male n(%)
Hyperplastic	154(44.4)	63.2±14.04	99(64.3)	55(35.7)
Fundic gland	14(4)	54.8±19.3	7(50)	7(50)
Adenomatous	12(3.5)	72.8±11.2	9(75)	3(25)
Neuroendocrine tumor	61(1.7)	44.83±14.3	3(50)	3(50)
Inflammatory fibroid polyp	13(3.7)	64.1±11.87	8(62)	5(38)
Foveolar hyperplasia	2(0.6)	56.5±24.74	1(50)	1(50)
Stromal tumor	2(0.6)	63±16.97	1(50)	1(50)
Lymphoma	2(0.6)	65.5±2.12	0	2(100)
Adenocancer	3(0.9)	66.7±13.1	2(67)	1(33)
Gatritis/Gastric mucosa	139(40.1)	61.04±15.1	89(64)	50(36)

Table 2. Endoscopy indications in patients with gastric polyps

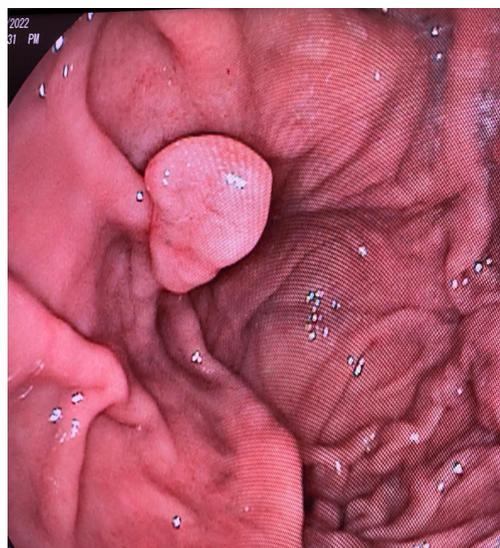
Indication	n(%)
Dyspepsia	257(74.1)
Anemia	26(7.5)
Malignant screening	25(7.2)
Cirrhosis	11(3.2)
Bleeding	9(2.6)
Weight loss	8(2.3)
Dysphagia	7(2)
Other	4(1)

Table 3. General features of polypoid lesions endoscopically detected in stomach

	n (%)
Gender	
Female	223(64.3)
Male	124(35.7)
Localization of polyps	
Antrum	126 (36.3)
Corpus	117 (33.7)
Fundus	43 (12.4)
Cardia	61 (17.6)
Size of polyps	
<5 mm	190 (54.8)
5-9 mm	102 (29.4)
10-19 mm	43 (12.1)
>20 mm	12 (3.7)
HP status	
Positive	149(43)
Negative	147(42)
Unstudied	51(15)

HP: Helicobacter pylori

One hundred and twenty six (36.3%) of the polyps were located in the antrum, 117 (33.7%) in the corpus, 61 (17.6%) in the cardia, and 43 (12.4%) in the fundus (**Table 3**). Pathology reports of lesions which were endoscopically considered to be polyps (average size 4 mm) were reported as chronic gastritis or normal gastric mucosa in 139 (40.1%) patients. When the histopathological characteristics of the polyps were evaluated, the most common polyp was hyperplastic polyp with a rate of 154 (44.4%). FGP (**Figure 1**) was the second most common polyp. The histopathological distribution of polyps is shown in **Table 1**. H.pylori was positive in 149 (42.9%) patients with polyps and H.pylori was negative in 147 (42.4%) patients, and H.pylori was not studied in 51 (14.7%) patients (**Table 3**). H.pylori positivity was highest in patients with hyperplastic polyps, although this was not statistically significant ($p>0.05$).

**Figure 1.** Endoscopic appearance of a fundic gland polyp

The ages of the patients with neuroendocrine tumors were younger (mean age; 44.8 ± 14.3 years, $p=0.03$). Patients with AP were older patients (mean age; 72.8 ± 11.23 years, $p=0.006$). In addition, the development of low-grade dysplasia was observed in 7 (58.7/12%) of the APs detected in the study. There was no statistically significant difference in terms of age, gender and lesion types in other polyps. APs, HPs and IFPs were mostly observed in the antrum and corpus, while all neuroendocrine tumors were observed in the corpus. Adenocarcinoma was seen in cardia and fundus polyps.

DISCUSSION

Gastric polyps are rare asymptomatic lesions that are usually detected incidentally during upper GI endoscopy (8). The frequency of gastric polyps increases depending on the presence of *H.pylori*, prolonged PPI use, and further treatment with extended endoscopy indications (9).

The estimated prevalence of gastric polyps in patients undergoing upper endoscopy for any reason varies between 0.5% and 23%. The prevalence in the general population is estimated to be 0.8-2.4% (3). Wang et al (10) found the prevalence of asymptomatic gastric polyps as 29.8%, while Morais et al (11) found it to be 0.6% in their study. In our study, gastric polyps were observed in 347 patients and the prevalence was 1.4%, which was consistent with the general population prevalence. Pathologically, 180 (51.9%) of these polyps were classical stomach polyps. However, as in our study, it has been stated in conducted studies that there was no clearly defined pathological diagnosis in approximately 20% of biopsies taken from lesions defined as polyps during endoscopy (4). In our study as well, the pathological result of the lesions which were endoscopically identified as polyps in 139 (40.1%) patients turned out to be chronic gastritis and/or normal gastric mucosa. The high rate in this study was attributed to the fact that most of the polyps [192 (55.3%)] were less than 5 mm. Therefore, it was thought that endoscopic follow-up of very small polyps without excision would be more cost-effective.

Gastric polyps are generally asymptomatic and their associated clinical findings vary depending on the size and location of the polyp. They may manifest with findings such as obstruction, anemia, gastrointestinal bleeding, and abdominal discomfort (3). The majority of the patients in this study (74.1%) presented with dyspeptic complaints. Gastric polyps can reside in different locati-

ons in the gastric mucosa. In most of the studies, it has been stated that the most common site was the antrum, followed by the corpus mucosa (11-13). Similarly, in our study, the most common site was the antrum (36.3%), while the second most common was the corpus mucosa (33.7%). However, there are studies reporting that their locations have changed in the last 10 years and the incidence of polyps has increased in the gastric corpus (19% versus 32%) and decreased in the antrum (46% versus 24%) (5). Most gastric polyps have similar endoscopic appearances and are classified as epithelial, hamartomatous or mesenchymal-derived polyps or polypoid lesions according to the tissues from which they originate (14). Although gastric polyps rarely cause symptoms (<10%), appropriate characterization of gastric polyps is important because some of them have malignant potential and are precursors of gastric cancer. Polyps originating from the gastric epithelium mostly include FGPs, HPs and APs. In addition, neuroendocrine tumors originating from endocrine cells, IFPs originating from mesenchymal cells, and stromal tumors are other polyp or polypoid lesions of the stomach (3,4).

HPs are usually flat-surfaced, small, stemless lesions whose 70% is <1 cm. They represent 30-93% of all gastric epithelial polyps (1). The incidence increases with age and usually affects people between the ages of 65-75. In our study, the mean age was 63.1 years consistently. However, in a study evaluating pediatric age groups, it has been stated that the most common polyp type was HPs (15). Although there are studies stating that the incidence of HPs is similar in both genders, there are studies stating that it is more common in women, as in our study (9,16,17). In recent years, it has been stated that there is a two-fold decrease in the incidence of gastric HPs. However, in many studies, as in this study, HP has been reported to be the most common type of polyp manifested in the stomach (8,9,11). HPs are strongly correlated with chronic gastritis, especially *H.pylori* gastritis, and hardly ever occur in the normal gastric mucosa. In addition, HPs rarely undergo neoplastic progression. Malignant transformation in the polyp itself is rare, and the rate of reported adenocarcinoma in patients with HPs varies between 0% and 13.5% (9). The risk of neoplasia increases in these polyps, especially when they are larger than 10 mm (1). In their study, Orłowska et al. detected focal carcinoma in 2.1% of HPs and stated that HPs were sensitive to malignant transformation (18). Therefore, eradication therapy should be provided to patients with a diagnosis of *H.pylori* gastritis (4). In

our study as well, HPs developed mostly as chronic gastritis and although *H. pylori* positivity was not statistically significant, it was the most common polyp ($p>0.05$). Malignant transformation was not found in any hyperplastic polyps, including large polyps.

FGPs represent 16-51% of all gastric epithelial polyps. They are usually small, transparent and stemless, often located in the stomach fundus and corpus. Although the female/male ratio was equal in this study, it has been stated in conducted studies that it is more common in women than in men (1). While the frequency of FGPs is inversely proportional to *H. pylori* infection, it was directly proportional to the use of proton pump inhibitors (19).

The incidence in *H. pylori* positive patients is significantly lower than in *H. pylori* negative patients. In addition, FGPs begin to occur within 2 years after starting treatment with PPIs. Studies have shown that there is an increase in terms of size in existing polyps with the use of PPI and that polyps shrink with the discontinuation of PPI (20). On the contrary, none of the patients in this study had a history of long-term PPI use and there was no significant difference in terms of frequency between *H. pylori* positive and negative patients ($p>0.05$). This was also consistent with the study by Borch et al (21).

Gastric adenomatous polyps account for 3-26% of all gastric epithelial polyps and have a strong association with gastric atrophy and intestinal metaplasia. Its incidence increases with age and is reported to be between 9% and 20%, especially in countries with high risk of gastric cancer. They are often manifested in the antrum and are precursors of gastric cancer and APs have malignant transformation rates ranging from 6% to 47% (1,22). The risk of malignant transformation in APs has been shown to be associated with the size of the lesions, the presence of high-grade dysplasia and villus structure (22,23). Vatansever et al. in their study found malignant transformation in 23.1% of patients with AP (9). Again, Kamiya et al. reported that 11% of APs progressed to carcinoma in situ within 4 years after the detection of polyps (24). Similarly, in this study, most APs were located in the antrum and 58% had low-grade dysplasia. However, no malignant transformation development was observed in the follow-ups. This may be an indication that the polyps were completely removed.

Gastric neuroendocrine tumors occur in enterochromaffin-like cells and their incidence is gradually increasing. They constitute 0.6-2% of all gastric polyps

(25-27). It is typically more common in women and the average age of diagnosis is 50-70 years and it is most common in the stomach corpus and fundus. In our study, the incidence (1.7%) and the location site were consistent with previous studies, but unlike the studies, the female/male ratio was equal and the mean age of diagnosis was younger (44.8 ± 14.3).

IFPs are rare lesions that occur in the submucosa as gastric granulomas with eosinophilic infiltration and no malignant potential. They usually reside in the prepyloric antrum and are more common in middle-aged women (1). In this study, the mean age of incidence was 63 years and there was a dominance of female gender (75%).

Gastric polyps include a wide range of lesions with different histology and neoplastic potential. Despite their typical endoscopic appearance, all gastric polyps should be sampled for histological evaluation at least at the first endoscopy. In the case of gastric polyps, it is always recommended to perform biopsy on the antrum and corpus at least, and on the mucosa even if it appears normal (1). There is no consensus on the number of biopsies required for diagnosis. However, if the polyp cannot be removed completely, it is recommended to take two biopsies from the most appropriate part of the polyp (1). In this study, at least two biopsies were taken from all patients who could not undergo polypectomy.

This study had some limitations. The limitations were that a biopsy was not taken from the normal mucosa around the polyp in each patient, that it was single-centered, and that the study was retrospective.

CONCLUSION

In this study, which included ten years of data, the most common endoscopic indication in patients with polyps was dyspepsia (74%), most of the polyps were smaller than 1 cm, and as in other studies conducted in Turkey, the most common polyp detected in this study was hyperplastic polyp. 58% of adenomatous polyps were accompanied by dysplasia. For this reason, complete excision of adenomatous polyps is important in terms of preventing future malignancy. Endoscopy, especially in elderly patients presenting with dyspepsia, will provide early detection of polyps at risk of malignancy. Full excision of polyps over 5 mm (especially adenomatous polyps) is recommended instead of biopsy, as they may contain dysplasia foci. In addition, it was thought that taking polyps smaller than 5 mm into endoscopic follow-up without excision was more cost-effective.

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Ethical Approval: The study was approved by the local ethics committee of Kahramanmaraş Sutcu Imam University Faculty of Medicine in its session dated 25/01/2022 and numbered 2022/04.

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