DOI: 10.37990/medr.1406157 Med Records 2024;6(1):141-5

MEDICAL RECORDS-International Medical Journal

Research Article

The Evaluation of Gastric Polyps Detected During Upper Gastrointestinal Endoscopy

Ali Riza Caliskan, Huseyin Kacmaz

Adıyaman University, Faculty of Medicine, Department of Gastroenterology, Adıyaman, Türkiye

Abstract

Aim: Management of gastric polyps depends on the clinical condition of the patient and the malignant potential of the detected polyps. This study aimed to evaluate the frequency of polyps detected during the gastroscopy procedure, the demographic characteristics of patients diagnosed with gastric polyp, the endoscopic and histopathological characteristics of polyps, other endoscopic findings accompanying polyps, and treatment methods.

Material and Method: A total of 177 patients diagnosed with gastric polyp via endoscopy were enrolled in this retrospective analysis. Patients' age, gender, upper gastrointestinal endoscopy, and epicrisis reports were obtained from the hospital's electronic database. The histopathological characteristics of gastric polyps detected during endoscopy and polypectomy were evaluated.

Results: There was no statistically significant difference in the number of polyps and polyp size according to the gender of the patients. It was observed that there was no statistically significant relationship in terms of the anatomical localization of the polyp and the polyp pathology groups. No statistically significant difference was found in the number of polyps according to the age groups of the patients. Still, a statistically significant difference was observed in the size of the polyps ($p<0.05$). As a result of the Mann Whitney U test with Bonferroni correction, which was performed to determine which age group this difference originates from, it was determined that the difference arises from the 18-50 age group and the over 65 age group. It was observed that there was no statistically significant relationship between the anatomical localization of the polyp and the pathology of the polyp according to age groups.

Conclusion: Due to the prevalence of nonspecific findings, upper endoscopic examination should be performed in patients with these complaints, especially those over fifty. When detected, excision or follow-up with a biopsy of the polyp and surrounding tissue is required if this is not possible.

Keywords: Gastric polyps, endoscopy, gastroscopy, malignancy, polypectomy

INTRODUCTION

A gastric polyp (GP) is a sessile or stalked lesion from the mucosa or submucosa that protrudes into the lumen. GP is detected in 0.3%-6% of all upper gastrointestinal endoscopy patients. Nowadays, this rate is increasing with the widespread use of endoscopic examination. Although GPs are usually detected incidentally during an endoscopy performed for another reason, they may also present with gastric bleeding, pyloric stenosis, iron deficiency anemia, and abdominal pain (1).

GPs are most commonly located in the antrum and corpus and are generally divided into two groups: epithelial and non-mucosal intramural polyps. While the majority are hyperplastic (HP) and located in the fundus (FGP), a small portion consists of adenomatous polyps (AP) and other polyps. Although most GPs are non-neoplastic, the fact that some have the potential for malignant transformation increases the importance of diagnosing and treating GPs (2). GPs are usually detected incidentally, and their frequency and histopathological types may vary depending on the population examined. Gastric polyps were reported to be more common in women. However, this is a controversial issue (3).

Although most GPs are single in the literature, multiple GPs have been reported between 8.2% and 58.7%. Additionally, 64.1%-87% of GP sizes are below 10 mm in the literature. Studies defining the location of GPs elaborated on various locations. While some studies reported that GPs were

CITATION

Caliskan AR, Kacmaz H. The Evaluation of Gastric Polyps Detected During Upper Gastrointestinal Endoscopy. Med Records. 2024;6(1):141-5. DOI:1037990/medr.1404187

Received: 13.12.2023 **Accepted:** 19.01.2024 **Published:** 30.01.2024

Corresponding Author: Ali Riza Caliskan, Adıyaman University, Faculty of Medicine, Department of Gastroenterology, Adıyaman, Türkiye

E-mail: komamir308@gmail.com

most frequently localized in the antrum (40.7%-51%), others said the most common localization was in the corpus (36.4%-64%). FGP and HP are the most common gastric polyps. HPs have been reported between 36.2% and 88% and are thought to trigger chronic inflammation (2-4).

Management of gastric polyps depends on the clinical condition of the patient and the malignant potential of the detected polyps. If possible and safe, all detected polyps should be removed endoscopically (5). This study aimed to evaluate the frequency of polyps detected during the gastroscopy procedure, the demographic characteristics of patients diagnosed with GP, the endoscopic and histopathological characteristics of polyps, other endoscopic findings accompanying polyps, and treatment methods.

MATERIAL AND METHOD

Patients who underwent endoscopic polypectomy in our clinic between January 2016 and October 2023 were included in the study. A total of 177 patients diagnosed with gastric polyp via endoscopy were enrolled in this retrospective analysis. Patients whose all-stomach segments were evaluated and whose polypectomy material was evaluated by pathology were included in the study. Endoscopy procedures performed for emergencies and patients whose polypectomy material was not evaluated by pathology were excluded from the study. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Ethics committee approval has been granted from our institution with protocol number 2023/3-9, and informed consent has been obtained from all participants.

Patients' age, gender, upper gastrointestinal endoscopy, and epicrisis reports were obtained from the hospital's electronic database. The histopathological characteristics of gastric polyps detected during endoscopy and polypectomy were evaluated.

Statistical Analysis

Patient data collected within the scope of the study were analyzed with the IBM Statistical Package for the Social Sciences (SPSS) for Windows 26.0 (IBM Corp., Armonk, NY) package program. Frequency and percentage for categorical data and mean and standard deviation for continuous data were given as descriptive values. For comparisons between groups, the "Independent Sample T–test" was used for two groups, and the "Pearson Chi-Square Test" was used to compare categorical variables. The results were considered statistically significant when the p-value was less than 0.05.

RESULTS

Within the scope of the study, 177 patients aged between 18 and 99 were evaluated. Regarding gender, 36.2% (n=64) of the patients were male, and 63.8% (n=113) were female. The mean age of the patients was 59. The baseline demographic and clinical findings are denoted in Table 1.

Table 1. Distribution of demographic and clinical findings of the patients

Variable (N=177)	n (%)	Mean±SD	Median (Min-Max)
Age (years)		59±15.3	59 (18-99)
18-50 years old	48 (27.1)		
50-65 years old	66 (37.3)		
Over 65 years old	63 (35.6)		
Gender			
Male	64 (36.2)		
Woman	113 (63.8)		
Anatomical localization of the polyp			
Antrum	65 (36.7)		
Fundus	35 (19.8)		
Cardia	26 (14.7)		
Corpus	51 (28.8)		
Size of polyp (mm)		6.2±5.1	5 (1-30)
Number of polyps		1.5±1.1	1 (1-8)
Pathology of the polyp			
Fundic gland polyp	38 (21.5)		
Hyperplastic	129 (72.9)		
Neuroendocrine cell hyperplasia	7 (4.0)		
Neuroendocrine tumor	3 (1.7)		
HP status	n=141		
Negative	83 (58.9)		
Positive	58 (41.1)		

The number and size of polyps, anatomical localization, and their distribution in terms of pathology according to gender are elaborated in Table 2. When the table was examined, there was no statistically significant difference in the number of polyps and polyp size according to the gender of the patients. It was observed that there was no statistically significant relationship in terms of the anatomical localization of the polyp and the polyp pathology groups.

Table 2. The characteristics of gastric polyps with respect to gender

Variables (N=177)	Gender		
	Male (n=64)	Female (n=113)	p-value
Number of polyps			0.958
Mean SD	1.5±0.9	1.5±1.2	
Median (Min-Max)	1 (1-4)	1 (1-8)	
Polyp size (mm)			0.854
Mean SD	6.3±5.2	6.2±5.1	
Median (Min-Max)	5 (1-30)	5 (1-30)	
Anatomical localization of the polyp, n (%)			0.331
Antrum	29 (45.3)	36 (31.9)	
Fundus	10 (15.6)	25 (22.1)	
Cardia	9 (14.1)	17 (15)	
Corpus	16 (25)	35 (31)	
Pathology of the polyp, n (%)			0.066
Fundic gland polyp	7 (10.9)	31 (27.4)	
Hyperplastic	54 (84.4)	75 (66.4)	
Neuroendocrine cell hyperplasia	2 (3.1)	5 (4.4)	
Neuroendocrine tumor	1 (1.6)	2 (1.8)	

The number and size of polyps, anatomical localization, and their distribution in terms of pathology according to the age groups are shown in Table 3. When the table was examined, no statistically significant difference was found in the number of polyps according to the age groups of the patients. Still, a statistically significant difference was observed in the size of the polyps ($p<0.05$).

As a result of the Mann Whitney U test with Bonferroni correction, which was performed to determine which age group this difference originates from, it was determined that the difference arises from the 18-50 age group and the over 65 age group. It was observed that there was no statistically significant relationship between the anatomical localization of the polyp and the pathology of the polyp according to age groups.

Table 3. The characteristics of gastric polyps with respect to age groups

Variable (N=177)	Age group				
	18-50 age[1] (n=48)	50-65 age[2] (n=66)	65≤ age[3] (n=63)	p-value	Difference*
Number of polyps				0.663	
Mean SD	1.6±1.2	1.6±1.2	1.4±0.7		
Median (Min-Max)	1 (1-6)	1 (1-8)	1 (1-4)		
Polyp size (mm)				**<0.001**	**1-3**
Mean SD	**4.3±3.5**	**6±4.5**	**8±6.2**		
Median (Min-Max)	**3 (1-20)**	**5 (2-20)**	**6 (2-30)**		
Anatomical localization of the polyp, n (%)				0.533	
Antrum	15 (31.3)	23 (34.8)	27 (42.9)		
Fundus	11 (22.9)	14 (21.2)	10 (15.9)		
Cardia	5 (10.4)	9 (13.6)	12 (19)		
Corpus	17 (35.4)	20 (30.3)	14 (22.2)		
Pathology of the polyp, n (%)				0.567	
Fundic gland polyp	10 (20.8)	15 (22.7)	13 (20.6)		
Hyperplastic	33 (68.8)	47 (71.2)	49 (77.8)		
Neuroendocrine cell hyperplasia	3 (6.3)	3 (4.5)	1 (1.6)		
Neuroendocrine tumor	2 (4.2)	1 (1.5)	0 (0)		

*Mann Whitney U test with Bonferroni correction

DISCUSSION

The most important clinical features of polyps are that they show malignant transformation, ulcerated polyps cause anemia, and can cause intermittent obstruction at the gastric outlet. Therefore, diagnosis and treatment are essential. Histopathological evaluation is required to confirm the diagnosis of gastric polyp. WHO previously divided polypoid lesions into neoplastic and non-neoplastic lesions. However, some classifications are more practical today and cover all subtypes. Upper gastrointestinal tract polyps are usually detected incidentally. This is because there are no apparent symptoms of polypoid lesions (6,7).

There is no standard approach yet regarding the approach to polyps detected during upper endoscopy. In the algorithm of the British Association of Gastroenterology, it is recommended to take a biopsy from all polyps to prove the diagnosis and the presence of dysplasia (8). In addition, excision of the adenomatous polyp should be done after 6 months when the polyp cannot be removed entirely because it contains dysplastic changes. It has been reported that 1–5% of benign hyperplastic and adenomatous polyps show malignant transformation. For this reason, Vallot put forward a different opinion, stating that biopsy cannot detect malignant changes in hyperplastic and adenomatous polyps larger than 5 mm (9). On the other hand, Han et al. (10) found approximately 5.3 times more neoplastic transformation in hyperplastic polyps larger than 1 cm than in smaller polyps, despite some studies reporting that this risk is valid for polyps larger than 2 cm.

Previous studies have suggested that patients with hyperplastic and adenomatous polyps have a risk of synchronous neoplasia in the nonpolypoid gastric mucosa. Abraham et al. (11) stated that the risk of developing adenocarcinoma around the polyp was higher than the polyp (6% and 0.6%, respectively).

Archimandritis et al. (12) observed 258 gastric polyps in 157 patients in their retrospective study and found 67.5% of them to be 60 or older. 75.6% of these polyps are hyperplastic, and 43.8% are most frequently reported in the antrum location. Morais et al. (13) reported the most common hyperplastic polyp in a study including 26.000 cases. In our study, 14.7% of the polyps in the stomach were in the cardia, 19.8% in the fundus, 28.8% in the corpus, and 36.7% in the antrum. In our study, the mean age of the patients was 59 years. In parallel with other studies, lesions were most frequently observed in the antrum, and histopathologically, the most common hyperplastic polyp was reported. In our study, no statistically significant difference was observed in the number of polyps and polyp size according to the gender of the patients. There was no statistically significant relationship between the anatomical localization of the polyp and the polyp pathology groups. Additionally, no statistically significant difference was found in the number of polyps according to the age groups of the patients.

Fundic gland polyps differ from other polyps in terms of location and endoscopic appearance. It is common in patients who use proton pump inhibitors (PPIs) extensively and in conditions characterized by hypergastrinemia, such as Zollinger-Ellison syndrome. Although it is mainly considered benign, it should be kept in mind that it may accompany patients with familial adenomatous polyposis (FAP) syndrome. FAP screening should be performed in more than 20 fundic gland polyps located in the antrum and detected in patients under 40 years of age. The risk of fundic gland polyp increased 3.8 times in 5 years of PPI use (14). If these polyps are larger than 1 cm, the risk of malignancy is considered 1% on average (15). If they are localized in an ulcer or antrum, the risk of malignancy increases. In our study, no statistically significant difference was found in the number of polyps according to the age groups of the patients, but, a statistically significant difference was observed in the size of the polyps.

Adenomatous polyps constitute 6-10% of stomach polyps. Unlike the other two types of polyps, Adenomatous polyps carry the risk of malignancy. Serial endoscopy follow-up has shown that 11% progress to dysplasia or carcinoma in situ within four years (16). They usually develop in the mucosa, showing chronic gastritis and intestinal metaplasia. They are often single and large, and may be sessile or stalked. According to their histopathological features, they are called tubular, villous, and tubulovillous. Approximately 90% of adenomatous polyps are tubular adenomas, 5-10% are tubulovillous, and 1-2% are villous type. While the risk of malignancy development is lower in tubular adenomas, this risk is reported to be 33% in villous and tubulovillous adenomas (17).

Hyperplastic polyps constitute 75-90% of stomach polyps. These non-neoplastic polyps are common in the elderly and peak in the 6th and 7th decades. Their incidence does not change depending on gender. Hyperplastic polyps occur due to excessive epithelium regeneration due to chronic inflammatory stimulation. They are usually benign and rarely have the potential to become malignant. The risk of malignancy is related to whether the polyp histopathology focuses on intestinal metaplasia or dysplasia. Focal dysplastic foci are observed in 1-20% of patients (18,19).

FGP and HP are the most common gastric polyps. HPs have been reported between 36.2% and 88% and are thought to trigger chronic inflammation. HPs are the most common type in countries where H. pylori infection is common. It is generally solitary and localized in the antrum. Although neoplastic transformation in HPs is reported to be between 1.5% and 2.1%, since it can usually develop in polyps of 10 mm and above, polypectomy should be performed, and H. pylori eradication treatment should be given to these polyps (20). In some studies, the most common polyp type is FGP, and the incidence of FGP

has been reported to be between 16% and 51% (21).

CONCLUSION

As a result, gastric polyps are incidental formations with no prominent symptomatic features. They are essential because of their malignant transformation. The limiting features of our study are that it is single-center and retrospective. Due to the prevalence of nonspecific findings, upper endoscopic examination should be performed in patients with these complaints, especially those over fifty. When detected, excision or follow-up with a biopsy of the polyp and surrounding tissue is required if this is not possible.

Financial disclosures: *The authors declared that this study has received no financial support.*

Conflict of interest: *The authors have no conflicts of interest to declare.*

Ethical approval: *All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Ethics committee approval has been granted from our institution. As this was a retrospective research, no informed consent was obtained from participants.*

REFERENCES

1. Arteaga CD, Wadhwa R. Gastric polyp. In: StatPearls. Treasure Island (FL): StatPearls Publishing; July 10, 2023.
2. Erdoğan Ç, Arı D, Yeşil B, et al. Evaluation of non-gastric upper gastrointestinal system polyps: an epidemiological assessment. Sci Rep. 2023;13:6168.
3. Early D. Diagnosis and approach to gastric polyps. Gastrointest Endosc. 2023;98:618-20.
4. Chen H, Wu Y, Ma Y, Li R. Analysis of risk factors for postoperative bleeding and polyp recurrence in adolescents with gastric polyps treated with endoscopic mucosal resection: a retrospective cohort study. Transl Pediatr. 2023;12:375-86.
5. Salami AC, Stone JM, Greenberg RH, et al. Early prophylactic gastrectomy for the management of gastric adenomatous proximal polyposis syndrome (GAPPS). ACS Case Rev Surg. 2022;3:62-8.
6. Draganov PV, Wang AY, Othman MO, Fukami N. AGA institute clinical practice update: endoscopic submucosal dissection in the United States. Clin Gastroenterol Hepatol. 2019;17:16-25.e1.
7. Namasivayam V, Koh CJ, Tsao S, et al. Academy of Medicine, Singapore clinical guideline on endoscopic surveillance and management of gastric premalignant lesions. Ann Acad Med Singap. 2022;51:417-35.
8. Kelly PJ, Lauwers GY. Clinical guidelines: consensus for the management of patients with gastric polyps. Nat Rev Gastroenterol Hepatol. 2011;8:7-8.
9. Han AR, Sung CO, Kim KM, et al. The clinicopathological features of gastric hyperplastic polyps with neoplastic transformations: a suggestion of indication for endoscopic polypectomy. Gut Liver. 2009;3:271-5.
10. Vallot T. Gastric polyps. Presse Med. 2007;36:1412-7.
11. Abraham SC, Singh VK, Yardley JH, et al. Hyperplastic polyps of the stomach: associations with histologic patterns of gastritis and gastric atrophy. Am J Surg Pathol. 2001;25:500-7.
12. Archimandritis A, Spiliadis C, Tzivras M, et al. Gastric epithelial polyps: a retrospective endoscopic study of 12974 symptomatic patients. Ital J Gastroenterol. 1996;28:387-90.
13. Morais DJ, Yamanaka A, Zeitune JM, Andreollo NA. Gastric polyps: a retrospective analysis of 26,000 digestive endoscopies. Arq Gastroenterol. 2007;44:14-7.
14. Niu JC, Qin Y. Fundic gland polyps: Should my patient stop taking PPIs?. Cleve Clin J Med. 2023;90:157-60.
15. Sami AS, Sylvester FA, Attard T, Mir S. Fundic gland polyps: strategizing a surveillance framework for children and adolescents. J Pediatr Gastroenterol Nutr. 2023;77:439-41.
16. Carr S, Kasi A. Familial adenomatous polyposis. In: StatPearls. Treasure Island (FL): StatPearls Publishing; February 25, 2023.
17. DelSignore M, Jeong T, Denmark G, et al. Incidence and natural history of gastric high-grade dysplasia in patients with familial adenomatous polyposis syndrome. Gastrointest Endosc. 2023;97:25-34.e6.
18. Shibagaki K, Ishimura N, Kotani S, et al. Endoscopic differential diagnosis between foveolar-type gastric adenoma and gastric hyperplastic polyps in Helicobacter pylori-naïve patients. Gastric Cancer. 2023;26:1002-11.
19. Faujo Nintewoue GF, Kouitcheu Mabeku LB. Helicobacter pylori infection promotes gastric premalignancies and malignancies lesions and demotes hyperplastic polyps: a 5 year multicentric study among cameroonian dyspeptic patients. Asian Pac J Cancer Prev. 2023;24:171-83.
20. Chung WC. Helicobacter pylori eradication reduces risk for recurrence of gastric hyperplastic polyp after endoscopic resection. Korean J Intern Med. 2023;38:141-3.
21. Cho YS, Nam SY, Moon HS, et. al. Helicobacter pylori eradication reduces risk for recurrence of gastric hyperplastic polyp after endoscopic resection. Korean J Intern Med. 2023;38:167-75.