Int J Clin Exp Med 2016;9(4):7339-7342
www.ijcem.com /ISSN:1940-5901/IJCEM0024703

Original Article

Polyps of the upper gastrointestinal tract: 10-year clinical experience and review of the literature

Aziz Ari, Kenan Buyukasik, Ozgur Segmen

Department of Surgery, Istanbul Training and Research Hospital, Istanbul, Turkey

Received January 22, 2016; Accepted April 14, 2016; Epub April 15, 2016; Published April 30, 2016

Abstract: Background: Gastric polyps are usually benign and asymptomatic lesions of the upper gastrointestinal tract observed in 1-8% of esophagogastroduodenoscopies (EGD). We had previously shared our endoscopy unit's experience of gastric polyps between 2006 and 2012. The aim of this current study is to extend our previous results up to 2015 and to investigate any potential differences and changing trends. Method: Data was collected through a retrospective analysis of the data from all the EGD performed between January 2006 and January 2015 in the endoscopy unit of the Istanbul Training and Research Hospital, Istanbul, Turkey. The demographic characteristics of the patients, anatomical location of the polyps, histological types and other pathological findigs were analyzed. Results: A total of 91,864 EGD were performed. Gastric polyps were detected in 123 patients and 148 polyps were resected. The most common localization for gastric polyps was the antrum, followed by the corpus and the cardia. Majority of the polyps were hyperplastic polyps (55.4%). Foveolar hyperplasia-precursor lesion of hyperplastic polyps-was the second (12.8%) and fundic gland polyps were the third most common type (8.7%). 4.5% of the specimens had neuroendocrine neoplasia. Conclusion: Hyperplastic polyps continue to be the most common type. Although they are mostly benign lesions with low neoplastic potential, gastric polyps might be malignant in more than 5% of the cases.

Keywords: Gastric polyp, fundic gland polyp, hyperplastic polyp, gastroscopy, H. pylori

Introduction

Gastric polyps are usually benign and asymptomatic lesions of the upper gastrointestinal tract observed in 1-8% of esophagogastroduodenoscopies (EGD) [1, 2]. The prevalence is even lower in the general population, estimated to be less than 1% [3]. Gastric polyps consist of a range of epithelial and subepithelial lesions: they can be asymptomatic or present with dyspepsia, bleeding, anemia, abdominal pain and gastric outlet obstruction [4]; they can be completely benign lesions with no need for follow up or pre-malignant lesions that have recurrence rates of up to 16% after excision [5]. They also differ in etiology. Of the most common types, fundic gland polyps are highly associated with proton pump inhibitor (PPI) use whereas hyperplastic polyps are associated with H. pylori and chronic gastritis [6]. Because of the differences in etiology, a change in the distribution of gastric polyps have also been suggested by various authors recently [1, 7]. We had previously shared our endoscopy unit's experience of gastric polyps between 2006 and 2012 [4]. The aim of this current study is to extend our previous results up to 2015 and to investigate any potential differences and changing trends. We then present a review of the literature and discuss our findings.

Materials and methods

Data was collected through a retrospective analysis of the data from all the EGD performed between January 2006 and January 2015 in the endoscopy unit of the Istanbul Training and Research Hospital, Istanbul, Turkey. All cases of gastric polyps were identified from endoscop reports. The demographic characteristics of the patients, anatomical location of the polyps, histological types and other pathological findigs were analyzed. The findings for the period between January 2006 and June 2012, as reported in our previous study [4] and the period between July 2012 and January 2015 are

Table 1. Demographic data of the patients with polyps

	2006-2015	2006-2012	2012-2015
# of EGD	91,864	55,987	35,877
# of patients with polyps	123	59	62
Female	82	37	45
Male	41	22	19
# of resected polyps	148	59	64
Mean age	64.64	66.79	62.65

Table 2. Regional distribution of the resected polyps

	2006-2015 (% of total)	2006-2012 (%)	2012-2015 (%)
Antrum	71 (47.9)	29 (43.9)	42 (51.2)
Corpus	36 (24.3)	15 (22.7)	21 (25.6)
Cardia	16 (10.8)	11 (16.7)	5 (6.0)
Fundus	8 (5.4)	3 (4.5)	5 (6.0)
Duodenum	5 (3.4)	3 (4.5)	2 (2.4)
Bulbus	3 (2.0)	2 (3.0)	1 (1.2)
Esophagus	5 (3.4)	3 (4.5)	2 (2.4)
Gastrojejun. line	4 (2.7)	-	4 (4.8)
Total	148 (100)	66 (100)	82 (100)

Table 3. Pathological diagnoses of polypectomy specimens

	2006-2015 (% of total)	2006-2012 (%)	2012-2015 (%)
Hyperplastic Polyp	82 (55.4)	41 (62.1)	41 (50.0)
Foveolar Hyperplasia	19 (12.8)	8 (12.1)	11 (13.4)
Fundic Gland Polyp	13 (8.7)	4 (6.1)	9 (10.9)
Hamartomatous Polyp	4 (2.7)	3 (4.5)	1 (1.2)
Pyloric Gland Adenoma	4 (2.7)	3 (4.5)	1 (1.2)
Neuroendocrine Neoplasia	6 (4.1)	3 (4.5)	3 (3.6)
Squamous Papilloma	6 (4.1)	4 (6.1)	2 (2.4)
Inflammatory Fibroid Polyp	4 (2.7)	-	4 (4.8)
Submucosal Lipoma	1 (0.7)	-	1 (1.2)
Gastritis Cystica Polyposa	1 (0.7)	-	1 (1.2)
Intramucosal Carcinoma	1 (0.7)	-	1 (1.2)
No True Polyp	5 (3.3)	-	5 (6.1)
Edema	2 (1.4)	-	2 (2.4)
Total	148 (100)	66 (100)	82 (100)

reported separately as well as for the whole study duration.

Results

Between January 2006 and January 2015, a total of 91,864 EGD were performed in our endoscopy unit. Gastric polyps were detected in 123 patients and 148 polyps were resected. Dyspepsia was the most common symptom, observed in 88 (59.4%) of the cases. The mean age of the patients were 64.64, with a 2:1 ratio of females to males. The demographic data is summarized in **Table 1**. The most common localization for gastric polyps was the antrum, followed by the corpus and the cardia. 71 (47.9%) of the polyps were resected from the antrum, 36 (24.3%) from the corpus and 16 (10.8%) from the cardia. The regional distribution of the polyps are listed in **Table 2**. The majority of the polyps were hyperplastic polyps by a large margin. 82 of the 148 Polypect my specimens (55.4%) had a pathological diagnosis of hyperplastic polyp. Foveolar hyperplasia-precursor lesion of hyperplastic polyps-was diagnosed in 19 (12.8%) specimens. Fundic gland polyps were the third most common type, with 13 (8.7%) polyps. 6 (4.5%) were diagnosed as neuroendocrine neoplasia. In 5 samples no polyp structure was observed. 2 samples had edema and were not actually polyps. The pathological diagnoses of the polypectomy specimens is summarized in **Table 3**. The prevalence of H. pylori and associated complications has decreased between the two data collection periods, as shown in **Table 4**.

Discussion

Gastric polyps can be categorized according to their histological origin as epithelial polyps, hamartomatous polyps and mesenchymal polyps. Epithelial polyps, including hyperplastic polyps, fundic gland polyps and adenomatous polyps have frequently been reported as the most common polyp type [1, 2, 8, 9]. Our results here are consistent with the literature. What does differ among studies in terms of histological type is the frequency of hyperplastic polyps and fundic gland polyps. While some studies report hyperplastic polyps as the most common polyp type in the stomach [4, 10-12], other have found fundic gland polyps to be much more common [2, 6, 8]. Furthermore, a change in frequency

Table 4. Prevalence of H. pylori and other mucosal pathologies

	2006-2015 (% of total)	2006-2012 (%)	2012-2015 (%)
H. Pylori Infection	56 (45.5)	33 (55.9)	23 (35.9)
Atrophic Gastritis	51 (41.5)	30 (50.8)	21 (32.8)
Intestinal Metaplasia	29 (23.6)	22 (37.3)	7 (10.9)
Total	123 (100)	59 (100)	64 (100)

and shift from hyperplastic to fundic gland polyps as the most common type have been demonstrated by studies in time intervals no more than 10 years [1, 7]. Geographical region might also be a factor in determining the frequency of each type of polyp, as our results are similar with various other studies from Turkey [10, 11]. Hyperplastic polyps are known to be associated with inflammatory disorders, such as chronic gastritis and H. pylori infection [6]. They are more common in regions where H. pylori prevalence is also high [13], and might disappear with H. pylori eradication [14, 15]. Fundic gland polyps, in contrast, rarely coexist with H. pylori infection [8]. H. pylori even seems to be protective against fundic gland polyps, as acquisition of the infection has been associated with polyp regression [16].

Many studies have demonstrated the relationship of fundic gland polyps with proton pump inhibitors [6, 8, 17]. This relationship helps explain the increase in the frequency of fundic gland polyps over time, as well as it being more common in regions with higher socioeconomical status [6, 7]. With the widespread use of proton pump inhibitors, fundic gland polyps have become the most common polypoid lesion in the United States [18], and in China [7]. Between 2006 and 2015, gastric polyps were detected in 123 patients among 91,864 EGD that were performed in our endoscopy unit, accounting for a prevalence of 0.13%. This is much lower than that reported in the literature, which is between 1 to 8% [1, 2]. Other studies from Turkey have reported 1.2 and 2.2% prevalence [10, 11], which is 10 times higher than our result. One of the reasons for this unusually low frequency might be the reluctance for polypectomy for benign looking polyps. Indeed, most of the gastric polyps have low or no neoplastic potential [6]. On the other hand, approximately 10% of adenomatous polyps contain malignant foci and 10% of the benign adenomatous polyps may display malignant transformation. Therefore, forceps biopsy or polypectomy and endoscopic monitoring for follow up is the recommended approach in most cases [6, 19]. The prevalance of H. pylori infection, as well as atrophic gastritis and intestinal metaplasia have all decreased between 2012 and 2015, compared to the period between 2006 and 2012. These pathologies are all associated with hyperplastic polyps. The parallel decrease in the frequency of hyperplastic polyps is likely a consequence and the trend might continue as H. pylori diagnosis and treatment for its eradication increases.

Conclusion

In conclusion, hyperplastic polyps continue to be the most common type of polyp in our study population, despite the worldwide shift towards fundic gland polyps. Eradication of H. pylori and increased use of proton pump inhibitors might change our histological spectrum in the future. The prevalance of gastric polyps in our series is much lower than reported in the literature, possibly because of conservative approach to endoscopically visible polyps. Although they are mostly benign lesions with low neoplastic potential, gastric polyps might be malignant in more than 5% of the cases.

Disclosure of conflict of interest

None.

Address correspondence to: Dr. Aziz Ari, Department of General Surgery, Istanbul Training and Research Hospital, Istanbul 34098, Turkey. E-mail: azizari02@hotmail.com

References

[1] Cao H, Wang B, Zhang Z, Zhang H and Qu R. Distribution trends of gastric polyps: An endoscopy database analysis of 24 121 northern Chinese patients. J Gastroenterol Hepatol 2012; 27: 1175-1180.

[2] Sonnenberg A, Genta RM. Prevalence of benign gastric polyps in a large pathology database. Dig Liver Dis 2014; 47: 164-169.

[3] Feldman M, Friedman LS, Brandt LJ. Sleisenger and Fordtran's Gastrointestinal and Liver Disease. 9th edition. 2010.

[4] Buyukasik K, Sevinc MM, Gunduz UR, Ari A, Gurbulak B, Toros AB, Bektas H. Upper Gastrointestinal Tract Polyps: What Do We Know

About Them? Asian Pac J Cancer Prev 2015; 16: 2999-3001.
[5] Hirota WK, Zuckerman MJ, Adler DG, Davila RE, Egan J, Leighton JA, Qureshi WA, Rajan E, Fanelli R, Wheeler-Harbaugh J, Baron TH, Faigel DO; Standards of Practice Committee, American Society for Gastrointestinal Endoscopy. ASGE guideline: the role of endoscopy in the surveillance of premalignant conditions of the upper GI tract. Gastrointest Endosc 2006; 63: 570-580.
[6] Islam RS, Patel NC, Lam-Himlin Dand Nguyen CC. Gastric Polyps: A Review of Clinical, Endoscopic, and Histopathologic Features and Management Decisions. Gastroenterol Hepatol 2013; 9: 640-651.
[7] Ahamed F, Chandrappa N, Abdallah EM. A comparative study of diagnosis methods for detection of Helicobacter pylori in gastro-duodenal diseases in Human. Ulutas Med J 2015; 1: 64-67.
[8] Carmack SW, Genta RM, Schuler CM, Soboorian MH. The Current Spectrum of Gastric Polyps: A 1-Year National Study of over 120,000 Patients. Am J Gastroenterol 2009; 104: 1524-1532.
[9] Carmack SW, Genta RM, Graham DY, Lauwers GY. Management of Gastric Polyps: a Pathology-Based Guide for Gastroenterologysts. Nat Rev Gastroenterol Hepatol 2009; 6: 331-341.
[10] Vatansever S, Akpınar Z, Alper E, İpek S, Yazıcıoğlu N, Ekinci N, Ünsal B. Gastric Polyps and Polypoid Lesions: Retrospective Analysis of 36650 Endoscopic Procedures in 29940 Patients. Turk J Gastroenterol 2015; 26: 117-122.
[11] Atalay R, Solakoğlu T, Ozer Sarı S, Köseoğlu H, Akın FE, Demirezer Bolat A, Selvi E, Büyükaşık NS, Ersoy O. Evaluation of Gastric Polyps Detected by Endoscopy: A Single-Center Study of a Four-Year Experience in Turkey. Turk J Gastroenterol 2014; 25: 370-373.
[12] Archimandritis A, Spiliadis C, Tzivras M, Vamvakousis B, Davaris P, Manika Z, Scandalis N. Gastric epithelial polyps: a retrospective endoscopic study of 12974 symptomatic patients. Ital J Gastroenterol 1996; 28: 387-390.
[13] Morais DJ, Yamanaka A, Zeitune JM, Andreollo NA. Gastric Polyps: a Retrospective Analysis of 26000 Digestive Endoscopies. Arg Gastroenterol 2007; 44: 14-17.
[14] Ljubicić N, Banić M, Kujundzić M, Antić Z, Vrkljan M, Kovacević I, Hrabar D, Doko M, Zovak M, Mihatov S. The effect of eradicating Helicobacter pylori infection on the course of adenomatous and hyperplastic gastric polyps. Eur J Gastroenterol Hepatol 1999; 11: 727-730.
[15] Ohkusa T, Takashimizu I, Fujiki K, Suzuki S, Shimoi K, Horiuchi T, Sakurazawa T, Ariake K, Ishii K, Kumagai J, Tanizawa T. Disappearance of Hyperplastic Polyps in the Stomach after Eradication of Helicobacter pylori: A Randomized, Controlled Trial. Ann Intern Med 1998; 129: 712-715.
[16] Watanabe N, Seno H, Nakajima T, Yazumi S, Miyamoto S, Matsumoto S, Itoh T, Kawanami C, Okazaki K, Chiba T. Regression of Fundic Gland Polyps Following Acquisition of Helicobacter pylori. Gut 2002; 51: 742-745.
[17] el-Zimaity HM, Jackson FW, Graham DY. Fundic Gland Polyps Developing During Omeprazole Therapy. Am J Gastroenterol 1997; 92: 1858-1860.
[18] Shaib YH, Rugge M, Graham DY, Genta RM. Management of Gastric Polyps: an Endoscopy-Based Approach. Clin Gastroenterol Hepatol 2013; 11: 1374-1384.
[19] Oberhuber G, Stolte M. Gastric Polyps: an Update of Their Pathology and Biological Significance. Virchows Arch 2000; 437: 581-90.