

From the point of view of a gastroenterologist: Is the ulcer malign, or benign?

 Serkan Cerrah¹,  Ahmed Ramiz Baykan¹,  Sedat Ciftel¹,  Emre Gerceker²

¹Department of Gastroenterology, Erzurum Regional Training And Research Hospital, Erzurum, Turkey

²Clinic of Gastroenterology, Izmir Gazi Hospital, Izmir, Turkey

Copyright © 2020 by authors and Annals of Medical Research Publishing Inc.

Abstract

Aim: To evaluate the opinion of the physician and the necessity of repeat endoscopy to be performed in the prediction of malignancy in patients with endoscopic detection of gastric ulcer.

Materials and Methods: Patients who underwent endoscopy for any reason between 01.01.2019-01.10.2019 and who had gastric ulcer were included in the study. The physician who performed the endoscopy was asked to report their opinion about the ulcer endoscopically. By comparing the biopsy results taken from the ulcer and the opinion of the physician who performed the endoscopy, the accuracy of the doctor's prediction about the ulcer was evaluated.

Results: A total of 411 patients, 186 women (45.3%), 225 men (54.7%), were included in the study. In 126 (30.7%) of the 411 patients who participated in the study, ulcers were malignant. 106 (84.1%) of these patients were also considered to have definitive malignancy by the physician as a result of endoscopy. physician opinion was suspicious in 17 (13.5%) of them. Although only 3 (2.4%) patients were considered to have benign ulcers, the pathology result was malignant ulcer. Considering all patients, sensitivity was calculated as 84.1%; specificity 98.5%; positive predictive value 96.3%; negative predictive value 93.3%; AUC 0.914; and p <0.05 for the prediction of the physician.

Conclusion: The prediction of the physician performing the endoscopy in the gastric ulcer followed with endoscopy is very valuable. In the end, we think that the control endoscopy should be individualized.

Keywords: Endoscopy; gastric cancer; gastric ulcer

INTRODUCTION

Although the discovery of helicobacter pylori is a turning point in peptic ulcer disease, peptic ulcer disease is still one of the most common reasons for admittance to gastroenterology clinics today(1). Detected gastric ulcers have a 5-11% risk of malignancy (2). Endoscopically, there are some findings suggesting malignancy such as irregularly limited ulcer, size, and combination with abnormal mucosal fold (3,4). Samples taken from a malignant ulcer have a 2-5% chance of false negativity (5-7). Therefore, the opinion of the physician about the ulcer is important in terms of repeat endoscopy and follow-up.

There is no consensus on how and how often follow-up should be after gastric ulcer detected by endoscopy. Therefore, in our study, we aimed to evaluate the accuracy of the doctor's prediction about ulcer in order to evaluate the necessity of control endoscopy.

MATERIALS and METHODS

The study was carried out between 01/01/2019-01/10/2019 (ethical committee report number 2019/16-

151) Patients who underwent endoscopy for any reason and having gastric ulcers detected in endoscopy and with biopsy taken during this period were included in the study. Patients who did not have a biopsy or who had a non-diagnostic biopsy result and patients with known gastric cancer were excluded from the study. In patients with multiple ulcers, diameter in benign ulcers and biopsy localization in malignant ulcers were considered. Endoscopy procedure was performed with Fujinon EPX-3500.

The study was carried out with 3 gastroenterologists. The gastroenterologist performing the endoscopy was asked to evaluate the ulcer as benign, suspicious malignant or definitive malignant and report their opinion. By comparing the biopsy results taken from the ulcer and the opinion of the doctor who performed the endoscopy, the accuracy of the doctor's prediction about the ulcer was evaluated. In addition, the existing endoscopy reports were retrospectively reviewed to assess whether the ulcer localization and size, and gender and age of the patient had an impact on the physician's prediction. Statistical

Received: 30.03.2020 **Accepted:** 02.10.2020 **Available online:** 18.11.2020

Corresponding Author: Ahmed Ramiz Baykan, Department of Gastroenterology, Erzurum Regional Training And Research Hospital, Erzurum, Turkey **E-mail:** ahmedbaykan@hotmail.com

analysis was done using SPSS version 17.0. Numerical variables with normal distribution were shown as mean \pm SD, whereas those without normal distribution were shown as mean (minimum - maximum). Categorical variables were shown as numbers and percentages. Mann-Whitney U and Kruskal-Wallis H tests were used for intergroup comparison of the numerical variables without normal distribution. Categorical variables were compared with χ^2 and Fisher's exact χ^2 tests. For the relationship between numerical variables, Pearson and Spearman correlation analysis was used. Sensitivity, specificity, positive and negative predictive values were calculated according to the pathology and endoscopy results. The receiver operating characteristics (ROC) curve was used for the accuracy of the physician's prediction about the ulcer.

RESULTS

A total of 411 patients, 186 women (45.3%), 225 men (54.7%), were included in the study. There was no significant difference between the groups of patients with malignant and non-malignant ulcers in terms of age and sex (p : 0.24; 0.28, respectively). The median age was 60.3 ± 15.4 in women and 60.7 ± 15.6 in men (Table 1). In 126 (30.7%) of the 411 patients who participated in the study, ulcers were malignant. 106 (84.1%) of these patients were also considered to have definitive malignancy by the physician as a result of endoscopy. Physician opinion was suspicious in 17 (13.5%) of them. Although only 3 (2.4%) patients were considered to have benign ulcers, the pathology result was malignant ulcer (Table 2).

Table 1. Demographic and clinical characteristics of patients

	Malignant	Non-malignant	p	
Sex				
Female	52	134	0.28	
Male	74	151		
Age	64 \pm 12.3	58 \pm 16.3	0.24	
Ulcer diameter (mm) \pmSD	8.2 \pm 2.1	7.6 \pm 2.4	0.04*	
Physician 1		Suspicious malignant	Benign	
Number of patients (n)	17/22	15/51	41/51	<0.05*
Ulcer diameter (mm) \pm SD	9.3 \pm 1.7	8 \pm 2.8		0.03*
Age \pm SD	68 \pm 13.7	56 \pm 15.4		0.16
Sex (male)%	59.1	51		0.52
Physician 2		Suspicious malignant	Benign	
Number of patients (n)	27/31	21/125	108/125	<0.05*
Ulcer diameter (mm) \pm SD	6.1 \pm 2.1	7.5 \pm 2.5		0.04*
Age \pm SD	63.9 \pm 12.6	60.1 \pm 14.5		0.31
Sex (male)%	77.4	46.4		0.02*
Physician 3		Suspicious malignant	Benign	
Number of patients (n)	66/73	27/109	89/109	<0.05*
Ulcer diameter (mm) \pm SD	8.7 \pm 1.7	7.5 \pm 2.2		<0.05*
Age \pm SD	64 \pm 11.8	57 \pm 18.5		0.67
Sex (male)%	50.7	61.5		0.15

Considering all patients, sensitivity was calculated as 84.1%; specificity 98.5%; positive predictive value 96.3%; negative predictive value 93.3%; AUC 0.914; and $p < 0.05$ (Figure 1).

Table 2. pathologic and endoscopic results of patients

Pathologic Result	Endoscopic Result			Total
	Benign	Suspicious	Malignant	
Malignant	3 (2.4%)	17 (13.5%)	106 (84.1%)	126
Non-malignant	235 (82.5%)	46 (16.1%)	4 (1.4%)	285
Total	238	63	110	411

The mean ulcer diameter was found to be 8.2 ± 2.1 mm in malignant ulcers and 7.6 ± 2.4 mm in non-malignant ulcers. There was a significant correlation between ulcer sizes and malignancy. (p : 0.032 r : 0.113)

Considering the ulcer localizations, 60 (47.6%) patients with malignant ulcers were located in the cardia. The ulcer was localized in the corpus in 46 (36.5%) patients, antrum in 19 (15.1%), and fundus in 1 (0.8%). When the benign ulcer localizations were evaluated, ulcer was localized in antrum in 133 (46.7%) patients, corpus in 76 (26.7%) patients and cardia in 76 (26.7%) patients. When we classified stomach ulcers as proximal (cardia) and distal (non-cardiac), the risk of malignancy in a proximal region was significantly higher than that of distal ulcers (< 0.05)

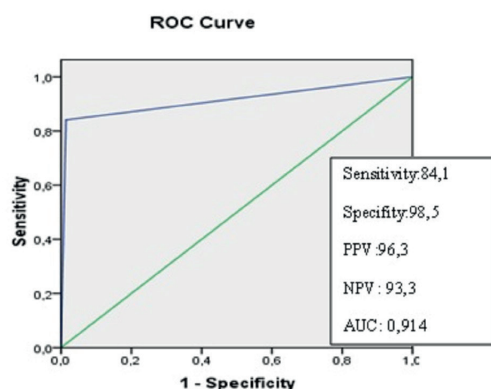


Figure 1. ROC curve of doctor's prediction about malign ulcer

In the study, there were 63 patients who were considered suspicious for malignancy by the physicians. Malignancy was detected in 17 (13.5%) of these patients. When the patients were divided into two groups as young (under 60) and old (over 60), the physician was less indecisive when evaluating the ulcer in the young patient group (10.9% in the young patient group and 18.6% in the elderly group; $p: 0.03$). When a similar comparison was made with the size of the ulcer, the result was not statistically significant, although the physician was more suspicious of ulcers ≥ 1 cm ($p: 0.51$).

DISCUSSION

Gastric ulcers carry a risk of malignancy. The necessity of control endoscopy after gastric ulcer is detected is a matter of debate. In order to understand whether a control endoscopy is required, we aimed to evaluate how physician's predictions about gastric ulcer reflect the truth. As a result, we found that the prediction of the physician was largely correct (sensitivity 84.1%; specificity 98.5%).

When studies in a similar direction are examined, it is seen that the sensitivity is between 82-87% and the specificity is between 90-100% (3,4,8-10). The necessity of follow-up endoscopies is discussed due to the fact that the first endoscopy has high diagnostic accuracy and subsequent follow-up endoscopies increase the cost. The British National Institute for Health and Care Excellence (NICE) mandates control endoscopy 6-8 weeks after gastric ulcer is detected (11), while American society for gastrointestinal endoscopy (ASGE) recommends follow-up endoscopies if gastric ulcer is suspected of malignancy, if the patient's symptoms persist or if a biopsy was not performed in the first endoscopy (12). Follow-up endoscopy is performed more frequently in elderly patients and those with ulcers larger than 1 cm (13). We found that, although the diameter of the ulcer was not significant, the elderly patients were more unsure about the ulcer compared to the younger ones. We think this indecisiveness is probably the cause of repeat of endoscopy in elderly patients.

The size of the ulcer and its localization in the stomach were associated with the risk of malignancy (10,14). Due to epidemiological reasons, gastric malignancy mostly

originates from the proximal segment (15). The majority of malignancies detected in our study were proximal and the risk of malignancy was correlated with ulcer diameter.

The limitations of our study were that the results of patients undergoing control endoscopy were not included in the study and the etiology of ulcers in patients with gastric ulcers was unknown.

CONCLUSION

In conclusion, considering the similar studies in this direction, if gastric ulcer is detected in endoscopy, we think that the control endoscopy to be performed should be personalized because the doctor who performed the endoscopy has a very high prediction about the ulcer.

Conflict of interest: The authors declare that they have no competing interest.

Financial Disclosure: There are no financial supports.

Ethical approval: Erzurum Regional Training and Research Hospital ethical committee report number 2019/16-151.

REFERENCES

1. Yeo SH, Yang CH. Peptic Ulcer Disease Associated with Helicobacter pylori Infection. Korean J Gastroenterol 2016;67:289-99.
2. Stolte M, Seitter V, Müller H. Improvement in the quality of the endoscopic/biopic diagnosis of gastric ulcers between 1990 and 1997 - An analysis of 1,658 patients. Z Gastroenterol 2001;39:349-55.
3. Maniatis AG, Eisen GM, Brazier SR. Endoscopic discrimination of gastric ulcers. J Clin Gastroenterol 1997;24:203-6.
4. Bustamante M, Devesa F, Borghol A, et al. Accuracy of the initial endoscopic diagnosis in the discrimination of gastric ulcers: is endoscopic follow-up study always needed? J Clin Gastroenterol 2002;35:25-8.
5. Pruitt RE, Truss CD. Endoscopy, gastric ulcer, and gastric cancer. Follow-up endoscopy for all gastric ulcers? Dig Dis Sci 1993;38:284-8.
6. Tatsuta M, Iishi H, Okuda S, et al. Prospective evaluation of diagnostic accuracy of gastrofiberscopic biopsy in diagnosis of gastric cancer. Cancer 1989;63:1415-20.
7. Llanos O, Guzman S, Duarte I. Accuracy of the first endoscopic procedure in the differential diagnosis of gastric lesions. Ann Surg. 1982;195:224-6.
8. Amorena ME, Borda CF, Martínez-Peñuela Virseda JM, et al. Analysis of the clinical benefits and cost-effectiveness of performing a systematic second-look gastroscopy in benign gastric ulcer. Gastroenterol Hepatol 2009;32:2-8.
9. Dover F, Ipek S. Malignancy risk of gastric ulcers: could it be higher than the expected values? Hepatogastroenterology. 2003;50:312-4.
10. Gielisse EAR, Kuyvenhoven JP. Follow-up endoscopy for benign-appearing gastric ulcers has no additive value in detecting malignancy: It is time to individualise surveillance endoscopy. Gastric Cancer 2015;18:803-9.

11. Griffin SM, Bowrey DJ, Allum WH. Uppergastrointestinal surgeons comment on NICE dyspepsia guidelines . Br Med J 2005;330:308-9.
12. Banerjee S, Cash BD, Dominitz JA, et al. The role of endoscopy in the management of patients with peptic ulcer disease. Gastrointest Endosc 2010;71:663-8.
13. Saini SD, Eisen G, Mattek N, et al. Utilization of upper endoscopy for surveillance of gastric ulcers in the United States. Am J Gastroenterol 2008;103:1920-5.
14. Xu CY, Shen JG, Shen JY, et al. Ulcer size as a novel indicator marker is correlated with prognosis of ulcerative gastric cancer. Dig Surg 2009;26:312-6.
15. Selcukbiricik F, Tural D, Bilici A, et al. Clinicopathological features and localization of gastric cancers and their effects on survival in Turkey. Asian Pac J Cancer Prev 2013;14:553-6.