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The prevalence of Barrett's esophagus and erosive esophagitis in a tertiary referral center in Turkey

Üçüncül referans merkezinde Barrett özofagus ve eroziv özofajit s›kl›¤›

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Background/aims: *In recent years, changes in the definition of Barrett's esophagus have resulted in some difficulties in its diagnosis. Very few epidemiological data on Barrett's esophagus and erosive esophagitis in Turkey are available in the literature. The aim of this study was to determine the prevalence of Barrett's esophagus and erosive esophagitis in a tertiary referral center in Turkey.* ***Methods:*** *18,766 endoscopic examinations done in Ege University between October 1996 and June 2001 were included in this retrospective study. The histologic identification of goblet cells confirming the presence of intestinal metaplasia within the esophagus was considered as Barrett's esophagus.* ***Results:*** *280/18,766 (1.5%) cases were suspected as Barrett's esophagus by endoscopy. 84/18,766 (0.4%) cases were confirmed pathologically. Thirty-six cases were women and 48 men; mean age was 55.6 years. Pathology did not confirm the diagnosis in 46% of the long-segment Barrett's esophagus and in 72% of the short-segment Barrett's esophagus cases (p<0.01). Erosive esophagitis was diagnosed in 12.8% of overall patients by endoscopy and was significantly higher in patients with Barrett's esophagus (27%, p=0.0001). Hiatal hernia was found in 5% of Barrett's esophagus cases and in 11.2% of the endoscopically suspected Barrett's esophagus cases (p>0.05).* ***Conclusion:*** *The prevalence of Barrett's esophagus and erosive esophagitis are much lower than in developed countries. In the endoscopic examination, overdiagnosis of Barrett's esophagus is still a problem, especially in the presence of short-segment Barrett's esophagus. The presence of hiatal hernia did not affect the diagnosis.*

Key words: Barrett's esophagus, erosive esophagitis, hiatal hernia, prevalence, Turkey

Amaç: *Son yıllarda Barrett özofagus tanımlamasındaki değişiklik Barrett özofagus tanısını koymada bazı zorlukları da beraberinde getirmiştir. Literatürde Türkiye'deki Barrett özofagus ve eroziv özofajit sıklığı ili ilgili epidemiyolojik veri azdır. Çalışmada Türkiye'de üçüncül bir referans merkezdeki Barrett özofagus ve eroziv özofajit sıklığının belirlenmesi amaçlanmıştır.* ***Yöntem:*** *Bu retrospektif çalışmaya 1996-Haziran 2001 yılları arasında Ege Universitesi'nde yapılan 18766 endoskopik inceleme dahil edilmiştir. Özofagusda goblet hücrelerinin intestinal metaplazi varlığında histolojik olarak tanınması Barrett özofagus olarak adlandırılmıştır.* ***Bulgular:*** *280/18766 (%1.5) vakada endoskopik olarak Barrett özofagus düşünülmüştür. 84/18766 (%0.4) vaka histopatolojik olarak doğrulanmıştır. Vakaların 36'sı kadın, 48'i erkek, yaş ortalaması 55,6'dır. Kısa segment Barrett özofagus olgularının %72'si, uzun segment Barrett özofagus olgularının ise %46` nın tanısı patoloji tarafından doğrulanmamıştır (p<0.01). Eroziv özofajit endoskopik olarak tüm vakaların %12,8 de teşhis edilmiş ve Barrett özofagus olgularında anlamlı olarak yüksek bulunmuştur (%27, p=0.001). Hiatus hernisi Barrett özofagus olgularında %5, endoskopik olarak Barrett özofagus düşünülen olgularda ise %11,2 oranında saptanmıştır (p>0.05).* ***Sonuç:*** *Barrett özofagus ve eroziv özofajit sıklığı gelişmiş ülkelerden daha azdır. Endoskopik incelemede özellikle kısa segment özofagus varlığında fazla Barrett özofagus tanısı hala sorundur. Hiatus herni varlığı tanıyı etkilememektedir.*

Anahtar kelimeler: Barrett özofagus, eroziv özofajit, hiatus hernisi, prevalans, Turkey

INTRODUCTION

Erosive esophagitis and Barrett's esophagus (BE) are important complications of gastroesophageal reflux disease (GERD) (1). It is a clinical belief that erosive esophagitis and BE are less common in Turkey than in western counterparts (2, 3). BE is defined as replacement of the normal stratified squamous epithelium within the lower esophagus with metaplastic columnar epithelium containing goblet cells, regardless of its extent, as a result of chronic GER (4-7). This epithelium is particularly

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important because of its predisposing to adenocarcinoma (4-10). The prevalence of BE should be evaluated carefully because its definition has changed extensively both in histopathology and on upper gastrointestinal endoscopy (7). Currently, only the presence of intestinal metaplasia and goblet cells are defined as BE (4-7). Estimates of the frequency of BE have varied widely. While less cases (1.6%) of BE were observed in a study that included 306 patients without symptoms of GERD (11), it was diagnosed in 25% in another study (12). The reported frequency of BE was 1-3% of unselected patient populations undergoing endoscopy in the West (6, 7). Unfortunately, changes in the definition of BE have not been accepted extensively between endoscopists and pathologists in Turkey, and over- and underdiagnosis are both important problems. The true prevalence rate of BE is not known. The prevalence of GERD in Turkey is similar with that of developed countries, namely 20% (13). However, more studies are needed related with the prevalence of BE because of the belief between gastroenterologists that BE is not common in daily practice. However, a recent publication showed an unexpectedly high rate of BE (14).

The incidence of adenocarcinoma of the esophagus in white men has been rising rapidly, both in the United States and Europe, and has been linked to BE (15-18). Turkey, a developing country with high *H. pylori* prevalence, represents a different profile than the developed countries, as manifested by the dominance of distal adenocarcinomas (19). Contrary to the state in developed countries, the ratio of distal vs. proximal gastric adenocarcinomas did not change within the last 11 years (19). This data might be an indirect evidence about the low prevalence of BE. The aims of this retrospective study were to determine the prevalence of BE and esophagitis. We also evaluated the concordance of endoscopic and pathologic diagnosis of BE in our center.

MATERIALS AND METHODS

Records of 18,766 computerized upper endoscopy cases were retrospectively evaluated between October 1996 and June 2001 at Ege University School of Medicine, Division of Gastroenterology. All endoscopies were performed either directly by faculties or gastroenterology fellows under supervision using conventional or video endoscopes (Olympus, Japan). Objective findings were evaluated, including the presence of BE, erosive esophagitis, peptic ulcer disease, *H. pylori* and hiatal hernia. Barrett cases were divided according to the length of the columnar-like mucosa segment as long- (LSBE) or short-segment BE (SSBE). If the length of the columnar-like mucosa is as far as 3 cm above the proximal margin of the gastric folds, this defines long segment; less than 3 cm is defined as short-segment BE (5, 6). Circumferential extent of metaplasia, true position of gastroesophageal junction and total extent of metaplasia were all noted in reports. Biopsies were taken from four quadrants of columnar epithelium 2 cm apart within the tubular esophagus in case of the suspicion of BE. In addition to the hematoxylin and eosin staining, all biopsies were also stained with Alcian-blue for the detection of goblet cells. Endoscopic classification of esophagitis was performed according to Los Angeles classification (20). Rapid urease test was performed in all cases.

Chi-square, Yates' correction for continuity and Fisher's exact test were used for statistical analysis.

RESULTS

BE was suspected endoscopically in 280 cases (1.5% of overall 18,766 upper endoscopy cases). Of the 280 cases, 84 (30%) cases were confirmed by pathology as BE (0.4% of overall upper endoscopy cases). Thirty-six cases were women and 48 men, and their mean age was 55.6±16 years. This group consisted of 71 cases (85%) with short-segment BE and 13 cases with (15%) long-segment BE. Pathology did not confirm the diagnosis in 45% of LSBE and in 72% of SSBE ($p<0.01$). Only one case had high- and two cases low-grade dysplasia among patients with BE. The prevalence of dysplasia was 3.6%.

Hiatal hernia was detected in 26 cases among endoscopically suspected BE cases and four of them were accompanied by BE. 11.2% of the patients with endoscopically suspected BE without the confirmation by pathology had hiatus hernia, and the ratio was not different with pathology-confirmed BE cases ($p>0.05$). Also, the prevalence of hiatus hernia was found as 1,155 (6.1%) within overall upper endoscopy cases (Table 1).

Of overall upper endoscopy cases, 2,394 (12.8%) had endoscopic esophagitis. Of these, 23 (27%) were from among BE cases; the percentage was significantly higher than in cases without BE ($p=0.0001$).

Table 1. Endoscopic findings according to the confirmation of Barrett's esophagus by pathology

	n	SSBE	LSBE	Hiatus Hernia
Specialized intestinal metaplasia (+)	84	71	13	4
Specialized intestinal metaplasia (-)	196	185	11	22
Total	280	256	24	26

SSBE: Short-segment Barrett's esophagus. LSBE: Long-segment Barrett's esophagus

Endoscopic esophagitis was graded according to Los Angeles system and it was found that 5% had grade A, 1.9% grade B, 0.7% grade C and 0.4% grade D among overall upper endoscopies.

Histopathologic gastritis (chronic active antral gastritis and chronic gastritis) was detected in 57 (68%) of cases with BE and in 113 (58%) endoscopically suspected BE cases. The presence of gastritis was not found statistically different between the groups ($p>0.05$). Rapid urease test was positive in 534 patients with 1,522 normal endoscopies and in 27 cases with BE (35% and 32%, respectively, $p>0.05$).

DISCUSSION

This study aimed to evaluate the prevalence of BE and erosive esophagitis in a general upper gastrointestinal endoscopy population. Our results revealed low prevalences of BE and erosive esophagitis (endoscopic diagnosis), 0.4% and 12.8%, respectively, in a general upper gastrointestinal endoscopy population. BE was correctly diagnosed in 54% of LSBE cases, but in only 28% of SSBE cases.

The prevalence of GERD, which is about 20% in Turkey, is very similar with that reported from developed countries (13, 21). Conflicting results have been proposed about the prevalence of BE and erosive esophagitis. A recent study defined high prevalence of BE (14). Despite this observation, no increase in the prevalence of proximal cancers was found from 1990 to 2000, and this data raised the question about a high prevalence of BE in Turkey (19).

In many western countries, an increase in incidence of adenocarcinoma of the esophagus and/or gastric cardia has been reported within the last 30 years. This increase was accompanied by a decrease in incidence of both adenocarcinomas and non-adenocarcinomas of the non-cardia part of the stomach (15-17, 18, 22). This pattern might be related with the increase in the prevalence of GERD.

Approximately 5-15% of subjects who undergo endoscopy for GERD will be found to have BE according to the western literature (23, 24). Interestingly, in a group of patients under colorectal cancer surveillance without upper gastrointestinal symptoms who were screened for BE, 7% of them had LS- and 17% had SSBE (12). A prospective study involving 742 patients with GERD symptoms revealed that 55.9% had esophagitis and 6.3% had BE (25). A similar study from Finland included 760 patients referred for endoscopy because of GERD symptoms; 33.4% had erosive esophagitis and 1.4% had BE (26). A study from Japan revealed 14.9% of erosive esophagitis cases among 8,031 patients (27).

Some studies have shown that patients with BE have more and larger hiatus hernia than patients with uncomplicated reflux disease (28). However, our results were different; namely, we determined a lower prevalence of hiatus hernia in patients with BE (4.8% vs. 11.2%).

Interestingly, reports from non-developed countries present different results. Countries from the Far East in particular have shown a very low prevalence of GERD, erosive esophagitis and BE (29,30). A total of 22,628 upper gastrointestinal endoscopies were performed in Hong Kong and erosive esophagitis cases were found in 3.8%. Prevalence of BE was much lower (0.06%) (30). The investigators found that the endoscopic prevalence of esophagitis, hiatus hernia, benign esophageal stricture and BE was lower than in western countries and that most patients had a mild form of erosive esophagitis. In another large endoscopic study of 11,943 patients from Singapore, the prevalence of endoscopic esophagitis in the Chinese population was 3.3% (31). Two endoscopic studies from Taiwan, using the Savary–Miller grading system, reported prevalences of 14.5% and 5%, respectively (32, 33). The reason for the discrepancy between the two Taiwanese studies is unknown. However, results from Japan differ from those reported from other Asian countries, with figures close to those of western countries, between 14-16% (34).

Our study represents characteristics of both sides in that the prevalence of GERD is equal to that seen in developed countries, but the prevalences of erosive esophagitis and BE are much lower, similar instead to that seen in Asian countries.

Some factors, such as high prevalence of *H. pylori*, refrigeration of food, body mass index, dietary factors (fat content), tobacco consumption, and under/over diagnosis might be responsible for these differences. The role of the *H. pylori* in BE remains unclear. Frequency of *H. pylori* is about 25% to 50% in BE cases (35-37). The present study showed that *H. pylori* was not more common in the BE cases, but was similar to the developed countries.

In conclusion, our results need to be evaluated by a country-wide, large-scale study which also addresses differences between eastern-western studies. Furthermore, overdiagnosis remains a problem, especially in the presence of short-segment BE. The presence of hiatal hernia may not affect the diagnosis.

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