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RESEARCH ARTICLE

Comparative study of Clinical Characteristics in Patients with Mild and Severe Reflux Esophagitis

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Objective: This study aims to determine the correlation between risk factors and erosive esophagitis development. **Methods**: We conducted a retrospective observational study on a consecutive series of 19.672 patients who underwent upper gastrointestinal endoscopy between 01.01.2011-31.12.2017. A total of 3005 patients, diagnosed with erosive esophagitis, were included in the present study and stratified according to Los Angeles classification. **Results**: During the studied period we found 3005 patients with erosive esophagitis, sex ratio male to female was 1.3/1, the most common forms of esophagitis being grade A and B: 74.54% patients with esophagitis grade A, 14.80% patients with grade B; 5.29% patients were with grade C and 5.35% patients with esophagitis grade D. In severe esophagitis the male predominance was more prevalent (249 males, 71 female), with a sex ratio 3.50/1. The correlation of male gender with severe esophagitis was highly statistically significant ($p < 0.0001$, OR 2.97; 95% CI 2.25-3.91). Hiatal hernia was diagnosed in 1171 patients, the presence of large hiatal hernias, being an important predictor, with statistical significance ($p < 0.0001$, OR 3.41; 95% CI 2.22-5.21), for severe esophagitis development. Incidence of Helicobacter pylori infection was 11.51%, in the entire study group, with no statistical significant difference between patients with mild or severe esophagitis (12.02% vs 7.18%). **Conclusion**: Erosive esophagitis is a frequent disease, the most common forms being grade A and B. Male gender and the presence of hiatal hernia are the most important risk factors for erosive esophagitis development, in our study group.

Keywords: esophagitis, endoscopy, hiatal hernia

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Introduction

Gastroesophageal reflux disease (GERD) is a frequent disease with a prevalence of 10-20% in western countries and with an increasing incidence in the rest of the world.[1-3] In addition to economic and medical resources involved in this chronic condition, it is accompanied by impaired quality of life and predispose the patients to develop Barrett's esophagus and esophageal adenocarcinoma. The choice of this topic was motivated by the increasing incidence of reflux pathology in our day to day work and, on the other hand, by the fact that the majority of epidemiological data are from western countries, where the prevalence of GERD and Barrett's esophagus is high and the prevalence of Helicobacter pylori infection in population is low.

The prevalence of erosive esophagitis and Barrett's esophagus is not known in central and eastern European countries, an area with high prevalence of Helicobacter pylori infection.

Many questions about the epidemiology and risk factors for erosive esophagitis remained unanswered. Therefore, this study aimed to determine the prevalence of erosive esophagitis and stratification of risk factors involved in their development.

Methods

We performed a retrospective observational study between 01.01.2011-31.12.2017, which included 3005 diagnosed patients, diagnosed with erosive esophagitis, in the Laboratory of Endoscopy of Clinical County Emergency Hospital Târgu Mureș.

Esophagitis lesions were classified according to Los Angeles classification in 4 degrees: A, B, C, D. Patients were stratified into two groups: mild esophagitis (grade A and B) or severe esophagitis (grade C and D).

In the study were included patients with erosive esophagitis and age above 18 years. Exclusion criteria were partial or total gastrectomy, prior diagnosis of gastric or esophageal malignancy, scleroderma, liver cirrhosis and esophageal varicose veins, inconclusive pathological results and lack of consent. The study was approved by the Ethics Committee of the Hospital and a written informed consent was obtained from each patient before endoscopy. Endoscopy was performed in a standardized manner by experienced endoscopists using an Olympus Exera II instrument. Biopsies were collected to highlight the presence of Helicobacter pylori infection in each patient, 2 biopsies from the gastric antrum, 1 from angulus and 2 from the gastric body. After fixation, inclusion in paraffin and sectioning hematoxylin eosin (HE) and Giemsa stains were performed.

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Hiatal hernia was diagnosed by upper digestive endoscopy when the esophageal gastric junction was displaced 2 cm or more from the diaphragmatic hiatus. Between 2-4 cm we considered as small hiatal hernia, respectively over 4 cm as large hiatal hernia.

Data were collected with Microsoft Excel program and analyzed with Graph Pad InStat program. Categorical data analysis was conducted with the Fisher exact test or Chi^2 test. The level of significance was set at $p<0.05$.

Results

Data showed that erosive esophagitis is a frequent disease (3005 patients), the most common forms of esophagitis being grade A and B: 2240 (74.54%) patients with esophagitis grade A (Los Angeles - LA), 445 (14.80%) patients with grade B esophagitis (LA), 159 (5.29%) patients with grade C esophagitis and 161 (5.35%) patients with esophagitis grade D (Figure 1).

The patients were divided into two subgroups: one group of mild esophagitis (grade A and B), 2685 patients and the group of severe esophagitis (grade C and D), 320 patients (Figure 2).

It was tracked the number of patients belonging to the two groups depending on the severity of the erosive esophagitis and observed the increased prevalence of the mild forms compared to the severe ones (Figure 3).

Analyzing the distribution of cases by gender, it was found a predominance of males 56.63% (1702), with only 43.36% (1303) females, with a sex ratio M/F-1.3/1.

Regarding the distribution of cases and severity of esophagitis, a predominance of males in mild esophagitis (1454 male, 1232 female) was observed, while in severe esophagitis the male predominance was more prevalent (249 males, 71 female) with a sex ratio 3.50/1. Association of male gender with severe esophagitis was statistically highly significant ($p < 0.0001$, OR 2.97; 95% CI 2.25-3.91).

The mean age was 56.29±14.19 years. In mild esophagitis the mean age was 55.78±14.05 years, lower that in the severe esophagitis group, 60.65±14.63 years.

As risk factor involved in the development of esophagitis, hiatal hernia was diagnosed in 1171 (38.96%) patients. Comparing the mild esophagitis (2685 patients) with severe esophagitis (320 patients) group, the incidence of hiatal hernia was 40.03% vs 30%, with no statistical significant difference ($p>0.05$), between the two groups. Small hiatal hernia was present in 839 (31.24%) patients with mild esophagitis and in 49 (15.31%) with severe esophagitis. The presence of small hiatal hernia was an important predictor for mild esophagitis development, with statistically significant ($p< 0.0001$) value. Also analyzing the correlation between the size of the hernia and esophagitis severity, large hiatal hernias association with severe esophagitis was highly statistically significant ($p < 0.0001$, OR 3.41; 95% CI 2.22-5.21).

Helicobacter pylori infection was detected in 11.51% (346 patients) cases from our study group, with a incidence of 12,02% (323 cases) in patients with mild esophagitis and reduced incidence of 7.18% (23 cases) in patients with severe esophageal lesions, with no statistical significant difference between the 2 groups.

We analyzed the presence of upper gastrointestinal bleeding in patients with reflux esophagitis. Upper gastrointestinal bleeding was present in 297 (9.88%) of cases with esophagitis, 185 cases in the group of mild esopha-

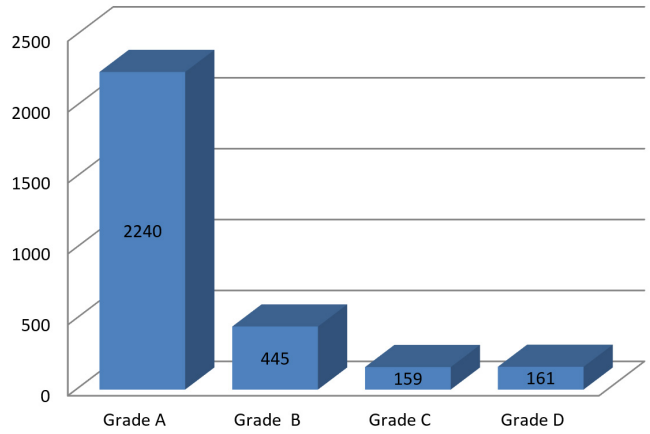

Fig. 1. Distribution of erosive esophagitis by severity

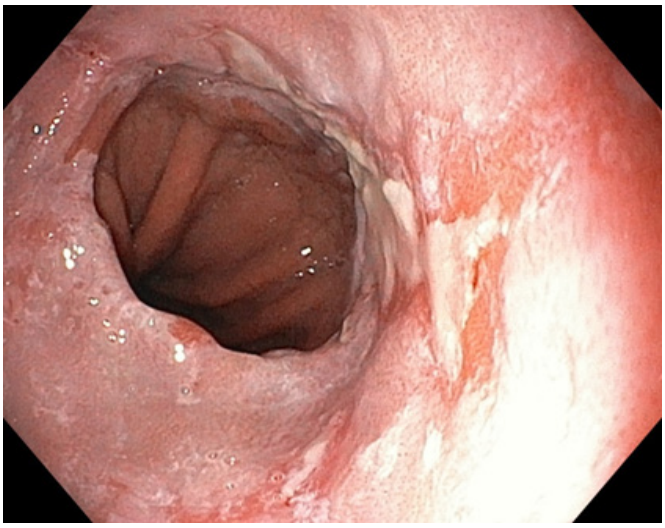

Fig. 2. Endoscopic image of severe erosive esophagitis

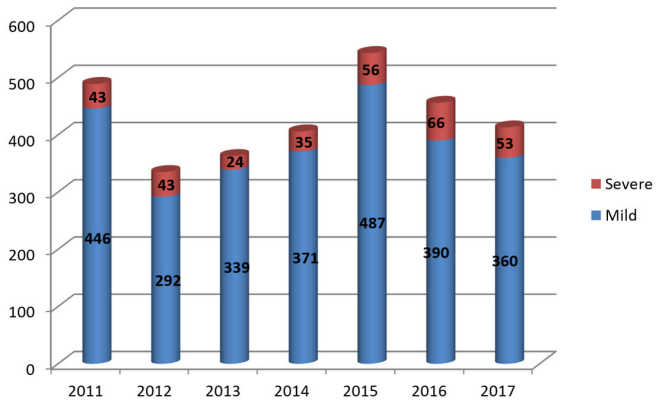

Fig. 3. Distribution of esophagitis by year

gitis and in 112 cases in the severe esophagitis group. The correlation between severe esophagitis and the presence of upper digestive hemorrhage was highly statistically significant (p <0.0001, OR 7.277; 95% CI 5.53-9.57). In patients with severe esophagitis, upper gastrointestinal bleeding was diagnosed in 96 (26.04%) male and 16 (3.12%) female patients. The upper gastrointestinal bleeding was more commonly found in male patients, with a predominance in the group of patients with severe forms p <0.0001 (OR: 2.50; 95% CI: 1.90-3.29).

Discussion

In recent years there has been an increase in the incidence of reflux disease worldwide and of the economic impact of the disease. Although mortality from erosive esophagitis is low, there is an increase in the mortality rate, too. The variation in incidence of GERD may be related to the prevalence of Helicobacter pylori infection. The risk factors are more and more studied around the word. This study emphasizes the importance of recognition of risk factors implicated in etiology of reflux esophagitis. The novelty of this study is that shows data on a large number of patients in an area of high incidence of Helicobacter pylori infection.

Between 01.01.2011 and 31.12.2017, 19.672 upper digestive endoscopies were performed in the endoscopy laboratory. The prevalence of reflux esophagitis in the studied group was 15.27%, similar to other studies in Europe. In Europe, the prevalence of reflux esophagitis is estimated to be 8.8% -25.9%, with a tendency to increase the prevalence from southern to northern Europe [1-3]. El-Serag et al. observed a higher prevalence of reflux esophagitis in North America, compared to our study: 18.1% -27.8% [4]. The most common forms of esophagitis were grade A and B, 2240 (74.54%) patients with esophagitis grade A, 445 (14.80%) patients with grade B esophagitis, 159 (5.29%) patients with grade C esophagitis and 161 (5.35%) patients with esophagitis grade D. Kim and co-workers showed an equal distribution regarding the prevalence of Class A (LA) esophagitis: 74%, but with a higher prevalence of Class B (LA) esophagitis - 23% and with a much lower ratio of severe esophagitis: 3% [5]. The ratio of severe esophagitis is higher compared to our study in Japan: 12% [6] and in Malaysia: 20% [7]. This study shows, in concordance with other data's published, a higher prevalence of mild forms of esophagitis, compared with the severe ones. This may be explained by the high consumption of drugs like of proton pump inhibitor drugs (PPIs) and antacids in symptomatic GERD patients, drugs that alleviate symptoms and in the same time reduce the severity of esophageal lesions.

When gender distribution was analyzed, the male predominance was observed. 1702 patients (56.63%) were men and 1303 patients (43.36%) were women. Thus, it was obtained a M/F ratio of 1.30/1. Increased male involvement was evident in the group of severe esophagitis, with a M/F ratio of 3.50/1. A recent study showed male prevalence in England, similar to our study, with a M/F ratio of 1.8 / 1 in erosive esophagitis [8].

The mean age was 56.29±14.19 years. In mild esophagitis the medium age was 55.78±14.05 years, lower that in the severe esophagitis group, 60.65± 14.63 years. The same study in England reported an average age of 54 years in reflux esophagitis [8].

Hiatal hernia was present in 1171 (38.96%) of cases and absent in 1834 (61.03%) of cases. A recent study has shown that patients with hiatal hernia develop significantly more frequent erosive esophagitis compared to those without hiatal hernia: 47.5% and 24.2% (p <0.001) [9]. Similarly, in our study, we found a statistically significant correlation between the presence of large hiatal hernia and the development of severe esophagitis (p <0.0001). The relationship between Helicobacter pylori infection and reflux esophagitis in the literature is controversial. Helicobacter pylori infection was present in 346 (11.51%) cases. We did not find a statistically significant correlation between the group with mild and severe esophagitis. Rubenstein and colleagues described a negative association regarding Helicobacter pylori infection and erosive esophagitis (OR 0.63; 95% CI 0.37–1.08), without showing a correlation between infection and the presence of specific symptomatology of reflux disease (OR 0.948; 95% CI, 0.54–1.64) [10]. Another study reported the abolition of reflux disease symptomatology after bacterial eradication [11]. A prospective study showed that there is no significant difference between patients in whom Helicobacter pylori eradication has been performed or not on BRGE symptoms or erosive esophagitis [12]. A study in Asia, where the prevalence of gastric atrophy caused by Helicobacter pylori is high, showed a decrease in gastric atrophy after 5 years, which correlates with an increased incidence of erosive esophagitis [13]. In one study, which included adolescents and adults with specific reflux symptoms and pathological acid exposure, no difference in motility abnormalities was observed between patients with Helicobacter pylori and patients without. Eradication had no impact on acid exposure or esophageal motility [14].

Another interesting association included in our study was the correlation between reflux esophagitis and upper digestive bleeding. Upper digestive bleeding was present in 297 (9.88%) of cases with esophagitis. The prevalence is very similar to a study in America, which describes a ratio of 7.85%, with a higher incidence in men [15].

Our study has several limitations, being an observational study, performed on an endoscopic population, to accurately reflect the risk factors associated with reflux esophagitis. The retrospective design made it difficult to have all history of the patients and other risk factors like obesity and concomitant medication. Additionally, this study was conducted at only one center, which may limit the generalization. Prospective studies are needed to better define a true association between the studied risk factors and reflux esophagitis.

Conclusion

Erosive esophagitis is a frequent disease, the most common forms being grade A and B. In our study, male gender and hiatal hernia are important risk factors for developing severe erosive esophagitis.

Conflicts of interest

The authors have no financial conflicts of interest.

Authors' contribution

MM (Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources; Validation; Visualization; Writing – original draft; Writing – review & editing)
SMB (Conceptualization; Formal analysis; Investigation; Methodology; Supervision; Writing – original draft; Writing – review & editing)
MP (Formal analysis; Investigation; Supervision; Visualization; Writing – review & editing)
RO (Data curation; Investigation; Project administration; Writing – original draft)
SM (Data curation; Investigation; Resources)
IM (Conceptualization; Data curation; Formal analysis; Investigation; Supervision; Visualization; Writing – review & editing)

References

1. Diaz-Rubio M, Moreno-Elola-Olaso C, Rey E, Locke GR, Rodriguez-Artalejo F – Symptoms of gastro-oesophageal reflux: prevalence, severity, duration and associated factors in a Spanish population. Aliment Pharmacol Ther. 2004;19:95–105.
2. Mohammed I, Cherkas LF, Riley SA, Spector TD, Trudgill NJ – Genetic influences in gastro-oesophageal reflux disease: a twin study. Gut. 2003;52:1085–1089.
3. Terry P, Lagergren J, Wolk A, Nyrén O – Reflux-inducing dietary factors and risk of adenocarcinoma of the esophagus and gastric cardia. Nutr Cancer. 2000;38:186–191.
4. El-Serag HB, Petersen NJ, Carter J et al – Gastroesophageal reflux among different racial groups in the United States. Gastroenterology. 2004;126:1692–1699.
5. Kim N, Lee SW,Cho SI et al – The prevalence of and risk factors for erosive oesophagitis and non-erosive reflux disease: a nationwide multicenter prospective study in Korea. Aliment Pharmacol Ther. 2008;27(2):173-185.
6. Okamoto K, Iwakiri R, Mori M et al – Clinical symptoms in endoscopic reflux esophagitis: Evaluation in 8031 adult subjects. Dig Dis Sci. 2003;48:2237–2241.
7. Rosaida MS, Goh KL – Gastro-oesophageal reflux disease, reflux oesophagitis and non-erosive reflux disease in a multiracial Asian population: a prospective, endoscopy based study. Eur J Gastroenterol Hepatol. 2004;16:495–501.
8. Royston C, Bardhan KD –Adam, Eve and the reflux enigma: age and sex differences across the gastro-oesophageal reflux spectrum. Eur J Gastroenterol Hepatol. 2017;29(6):634-639
9. Conrado LM, Gurski RR, da Rosa AR– Is there an association between hiatal hernia and ineffective esophageal motility in patients with gastroesophageal reflux disease? J Gastrointest Surg. 2011;15(10):1756-1761.
10. Rubenstein JH, Inadomi JM, Scheiman J et al – Association between Helicobacter pylori and Barrett's esophagus, erosive esophagitis, and gastroesophageal reflux symptoms, Clin Gastroenterol Hepatol. 2014;12(2):239-245.
11. Vaira D, Vakil N, Rugge M et al – Effect of Helicobacter pylori eradication on development of dyspeptic and reflux disease in healthy asymptomatic subjects. Gut. 2003;52:1543–1547.
12. Kim N, Lee SW, Kim JI et al – Effect of Helicobacter pylori eradication on the development of reflux esophagitis and gastroesophageal reflux symptoms: a nationwide multi-center prospective study. Gut Liver. 2011;5:437–446.
13. Lee YC, Chen TH, Chiu HM et al – The benefit of mass eradication of Helicobacter pylori infection: a community-based study of gastric cancer prevention. Gut. 2013;62:676–682.
14. Xinias I, Maris T, Mavroudi A, Panteliadis C, Vandenplas Y – Helicobacter pylori infection has no impact on manometric and pH-metric findings in adolescents and young adults with gastroesophageal reflux and antral gastritis: eradication results to no significant clinical improvement. Pediatr Rep. 2013;5:e3.
15. Guntipalli P, Chason R, Elliott A et al – Upper gastrointestinal bleeding caused by severe esophagitis: a unique clinical syndrome. Dig Dis Sci. 2014;59(12):2997-3003.