

Analysis on the clinical and endoscopic parameters in 1247 patients with reflux esophagitis

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ABSTRACT

Aim: To summarize and analyze the clinical and endoscopic parameters in patients with reflux esophagitis(RE). **Methods:** 1247 patients with RE were diagnosed in our hospital endoscopy center from September 2010 to August 2012. The general information of the patients and the relationship between endoscopic classification and concomitant diseases were analyzed. **Results:** According to the endoscopic findings, 1247 subjects (4.70%) were found to have RE: 932 (74.74%) males and 315 (25.26%) females, and the male to female ratio was 2.96:1. The peak age of prevalence was 50 to 59 (27.35%) which is followed by 40 to 49 (23.10%). In this study, most of the patients had a mild degree of esophagitis representing LA-A in 60.63% and LA-B in 34.24%. The antrum hyperemia was found in 291 patients with esophagitis (23.34%), followed by antrum erosion (20.13%) and hatal hernia (15.88%). There is no statistically significant relevance between *Helicobacter pylori* infection and RE ($P > 0.05$), but Barrett's esophagus, duodenal ulcer, gastroesophageal tumors, a history of gastroesophageal surgery and antrum hyperemia were found to be associated with RE ($P < 0.05$). **Conclusion:** The prevalence rate of endoscopic RE in our study was 4.70%, and most patients had a mild grade esophagitis. Male, advanced age, Barrett's esophagus, duodenal ulcer, gastroesophageal tumors and a history of gastroesophageal surgery are the risk factors of esophagitis. Antrum hyperemia may reduce the severity of RE.

KEYWORDS

Reflux Esophagitis; Endoscopy; Clinical Parameters;

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Antrum Hyperemia

1. INTRODUCTION

Gastroesophageal reflux disease (GERD) is defined as troublesome symptoms and/or complications due to abnormal reflux of gastrointestinal contents into the esophagus [1-5]. It is often combined with esophageal mucosal injury which is called reflux esophagitis (RE). Previously, GERD was considered as a very uncommon disease in Asia, but now the disease seemed to be increasing [2,3]. RE has been classified as a typical manifestation of GERD, which has a seriously impact on the quality of the patient's life by suffering boring symptoms and diverse complications. Consequently, to further enhance the awareness of the disease and to summarize the features of epidemiology and endoscopy of RE, we conducted a retrospective analysis of 1247 patients with RE, which was diagnosed endoscopically in our hospital.

2. MATERIALS AND METHODS

2.1. Patients

Between September 2010 and August 2012, A total of 26,508 patients underwent an upper gastrointestinal endoscopy in our hospital. Any patients who were endoscopically diagnosed as RE were included, whose demographic data, the Los Angeles (LA) classification [6,7], China (Yantai) classification [7] and complications such as Hiatal hernia, Barrett's esophagus (BE), *H. pylori* infection etc. were specifically recorded and statistically analyzed.

2.2. Methods

Endoscopic findings of RE in the lower esophagus were classified according to the Los Angeles (LA) classifica-

tion as grades A to D (LA-A to D), and were based on the longest length of a mucosal break, and the confluence of erosion (Table 1).

Chinese (Yantai) classification [National reflux esophageal disease (inflammation) Seminar, 1999, Yantai] [8]: 0: normal esophageal mucosa (histologic changes); 1) dot or strip redness, erosion, no fusion phenomenon; 2) strip redness, erosion, and fusion, but not the full circumference; 3) extensive lesions, redness, resistance to erosion fusion was a full circumference or ulcers. LA-A, B, and level I defined as mild grade, LA-C and level II defined as moderate grade, LA-D and level III defined as severe grade.

A hiatal hernia was defined as a distance more than 2 cm between the Z-line and the diaphragm. BE is a change in the distal esophageal epithelium of any length that can be recognized as columnar type mucosa at endoscopy and is confirmed to have intestinal metaplasia by biopsy of the tubular esophagus [8]. *H. pylori* infection was diagnosed by antral biopsy specimens for The rapid urease test.

2.3. Statistical Analysis

Data analysis was performed by using the t-test, chi-squared test, One-way ANOVA and Pearson correlation analysis. A P value below 0.05 was considered statistically significant.

3. RESULTS

3.1. The Epidemiological Features in 1247 Patients with RE

Among 26,508 patients from September 2010 to August 2012, 1247 patients were diagnosed as RE, and the overall prevalence was 4.70% (Chart 1). The esophagitis is more prevalent among male than female (74.74% in male and 25.26% in female), with the male: female ratio being 2.96:1. The age of the patients range from 15 to 92, The mean age is 51.61 ± 14.32 (Table 2).

3.2. The Relationship between Gender and Age

Among the 1247 cases of reflux esophagitis, the occur-

Table 1. The Los Angeles classification of oesophagitis.

Grade A	One (or more) mucosal break no longer than 5 mm, that does not extend between the tops of two mucosal folds
Grade B	One (or more) mucosal break more than 5 mm long that does not extend between the tops of two mucosal folds
Grade C	One (or more) mucosal break that is continuous between the tops of two or more mucosal folds but which involves less than 75% of the circumference
Grade D	One (or more) mucosal break which involves at least 75% of the oesophageal circumference

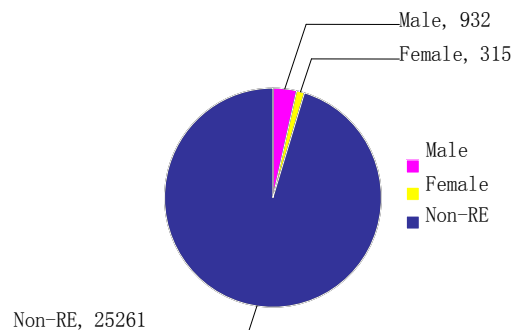


Chart 1. The relationship between the detection rate and gender of RE.

Table 2. The gender, age and the LA classification of RE.

	LA-A	LA-B	LA-C	LA-D	No.
No.	756	427	56	8	1247
Sex					
Male	534	347	44	7	932
Female	222	80	12	1	315
Male: Female	2.41	4.34	3.67	7	2.96
Mean age	50.16	52.66	61.98	58.00	51.61
	± 14.02	± 14.36	± 14.33	± 15.67	± 14.32
	Age group(year)				
<20	4	1	0	0	5
20 - 29	58	29	0	0	87
30 - 39	117	49	4	0	170
40 - 49	175	99	10	4	288
50 - 59	208	122	10	1	341
60 - 69	120	67	9	1	197
70 - 79	66	47	20	0	133
≥ 80	8	13	3	2	26

ring age of esophagitis peaked during the 50 and 60 (341 cases, 27.35%), followed by the 40 and 50 (288 cases, 23.10%) (Table 2). There were more male than female patients with esophagitis, the average age was significantly lower in male patients with esophagitis than in female (50.08 ± 14.00 vs 56.14 ± 14.31 , $P < 0.01$) (Table 2). The male to female ratio of the 30 and 40 was higher in patients with reflux esophagitis (147 cases in male and 23 cases in female, the male: female ratio was 6.39:1), followed by the 40 and 50 (236 cases in male and 52 cases in female, the male: female ratio was 4.54:1) ($P < 0.01$) (Table 3).

3.3. The Relationship between Age and Endoscopy Classification

According to either the (LA) classification or China

(Yantai) trial classification, most patients were classified as mild grade, accounting for 94.87% (60.63% in LA-A and 34.24% in LA-B). The moderate and severe grade merely made up 5.13% (4.49% in LA-C and 0.64% in LA-D) (**Figure 1**). The age distribution in patients with RE and the severity of esophagitis were positively correlated ($P < 0.01$) (**Table 4**). The average age in patients of LA-C group was 61.98 ± 14.33 years, which significantly higher than the other ($P < 0.01$) (**Table 4**).

3.4. The Relationship between Gender and Endoscopy Classification

According to the statistical results, the male to female ratio of the LA-D group was higher (seven cases in male and one case in female, the male: female ratio was 7:1), followed by the LA-B group (347 cases in male and 80

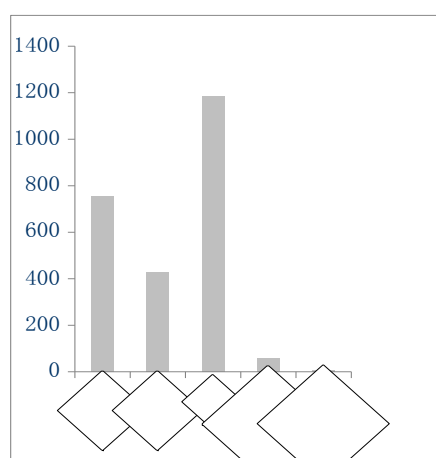


Figure 1. The LA classification and China (Yantai) trial classification.

Table 3. The relationship between gender and age.

	<20	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	≥80
Male	3	71	147	236	250	128	78	19
Female	2	16	23	52	91	69	55	7
Male: Female	1.5	4.44	6.39	4.54	2.75	1.86	1.42	2.71

Table 4. The relationship between the classification and age.

LA classification	No.	Mean age	P value
LA-A	756	50.16 ± 14.02	
LA-B	427	52.66 ± 14.36	0.009a
LA-C	56	61.98 ± 14.33	<0.01a
LA-D	8	58.00 ± 15.67	0.114

P^a < 0.01 versus other groups.

cases in female, the male: female ratio was 4.34:1) ($P < 0.01$) (**Table 2**). Moreover, male patients with esophagitis are more serious than that of female, especially male patients in the LA-D group.

3.5. Reflux Esophagitis and *H. pylori* Infection

Among the 1247 cases of reflux esophagitis patients, there were 332 cases underwent the endoscopic rapid urease test, and the positive rate of *H. pylori* infection is 61.14%. However, *H. pylori* infection has no correlation with RE ($P > 0.05$).

3.6. The Relationship between Esophagitis and Concomitant Disease

Among the 1247 patients with RE, 291 patients (23.34%) had an antrum hyperemia, followed by antrum erosion (20.13%) and hiatal hernia (15.88%). Additional endoscopic findings reported in the patients with RE were duodenitis (9.54%), bile reflux (9.30%) and duodenal ulcer (6.50%), etc. (**Table 5**). It is found that there is a positive correlation between the severity of esophagitis and the existence of Barrett's esophagus, duodenal ulcer, gastroesophageal tumors, and the history of gastroesophageal surgery ($P < 0.05$) (**Table 5**), while there is a negative correlation between the severity of esophagitis and the existence of the antrum hyperemia ($P < 0.01$) (**Table 5**).

Table 5. The relationship between the classification and complications.

	LA-A	LA-B	LA-C	LA-D	No.	P value
Hiatal hernia	113	68	14	3	198	0.141
BE	6	7	2	1	16	0.026a
Antrum hyperemia	201	84	6	0	291	<0.01b
Antrum erosion	150	92	8	1	251	0.941
Fundic hyperemia	34	24	2	0	60	0.628
Fundic erosion	10	10	0	0	20	0.464
Duodenitis	72	45	2	0	119	0.772
Bile reflux	72	36	7	1	116	0.878
Gastric ulcer	18	10	4	2	34	0.139
Duodenal ulcer	38	35	7	1	81	0.005a
Gastric tumor	5	11	2	0	18	0.004a
Gastrectomy	3	8	2	0	13	0.004a
Esophageal tumor	1	5	1	0	7	0.011a
Esophagectomy	7	10	7	0	24	<0.01a

P^a, P^b < 0.05 versus other complications.

4. DISCUSSION

RE, diagnosed mainly by endoscopy, has been classified as a typical manifestation of GERD, which seriously affects the quality of life of patients [9-11]. GERD is a common disease with reported incidence rate being 10% - 22% [12,13] in the United States and Western Europe [14], endoscopy-based studies also show a prevalence of erosive esophagitis from 9% to 23% in these countries [13,15]. Whereas, the incidence rate in Asian countries is relatively low [16]. The reason for this phenomenon may be related to the differences in ethnicity, geography, diet etc.

In recent years, reported prevalence of RE is 3.85% - 8.39% [17,18] in China, which is a significant increase compared with 10 years ago (2.0% - 6.3%) [18-21]. This increase has been attributed to changes in dietary preference, an increase in the aging population, and technical developments in endoscopic examination. This study shows that RE detection rate was 4.70% which is more often discovered in male than female, consistent with other studies reported [22]. The mean age of this disease was 51.61 ± 14.32 years and peak age 50 - 59. In the group from 30 to 39, the high prevalence in male is statistically significant. The reason to this phenomenon may be as follows: the higher mental pressure, the heavier working burden and more risk factor such as tobacco, alcohol, coffee, tea and other bad habits.

According to the result, most patients are endoscopically classified as mild grade, either according to the (LA) classification or Yantai classification, accounting for 94.87%, while the moderate and severe grade merely take up 5.13%, which shows that the China (Yantai) classification and LA classification are equally effective. According to other studies, in patients of LA-A and LA-B groups, changes in esophageal motility and response to PPI treatment are similar. So, we consider that LA-A and LA-B should be merged into the same level. Therefore, I believe China (Yantai) classification is more conducive to clinical practice. Meanwhile, There is a positive correlation trend between the age and the severity which is especially the case for the LA-C group with average age being 61.98 ± 14.33 years old, suggesting the aging may be a risk factor [23,24].

It has been confirmed that *H. pylori* infection has a very close relationship with such disease as chronic gastritis, peptic ulcer, gastric cancer, primary malignant lymphoma, while the relationship between *H. pylori* infection and reflux esophagitis is still controversial. In this study, a total of 203 patients (61.14%) among 332 patients have a positive result when receiving the rapid urease test, which, while is relatively higher compared with other studies [25], has no statistical significance. Some domestic study has shown similar result, but further large-scale clinical studies need to be done to give

the satisfactory conclusion.

Endoscopically, there are a lot of concurrent diseases with RE, in which antrum hyperemia account for the most (23.34%), followed by antrum erosion (20.13%) and hiatal hernia (15.88%). It is found that there is a positive correlation between the severity of RE and the existence of Barrett's esophagus, duodenal ulcer, gastroesophageal tumors, and the history of gastroesophageal surgery, while there is a negative correlation between the the severity of RE and the existence of the antrum hyperemia. However, the reason is not clear.

5. CONCLUSION

Reflux esophagitis is a common disease mostly suffered by middle-aged male between 40 and 59. Most patients are endoscopically classified as mild grade and it may get advanced because of aging. *H. pylori* infection is not statistically related with the disease, and patients concurrently with antrum hyperemia are less likely to have a severe RE, while further studies are needed for this.

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