

Endoscopic evaluation of patients with dyspepsia in a tertiary care hospital in Sri Lanka

R.T. Gamage, J.R. Wijesekera, A.L.A.M.C. Ambegoda, D.T. Wijesinghe, K.I. Panditharathne
Colombo South Teaching Hospital, Kalubowila, Sri Lanka

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Abstract

Introduction

Dyspepsia is a major cause of gastrointestinal (GI) system related morbidity in Sri Lanka. The aim of this study is to describe upper GI endoscopic findings and to explore the association between alarm features (AF) and upper GI malignancy in dyspeptic patients.

Methods

This is a cross-sectional study conducted on newly diagnosed dyspeptic patients in a general surgical unit of a tertiary care hospital from April 2014 to March 2015. Following the administration of a pre-tested interviewer-administered questionnaire, endoscopies were performed.

Results

A total of 111 endoscopies were performed. The male to female ratio was 1:1.05 and the mean age of the population was 50.7 years. Endoscopic findings consisted of normal gastric and duodenal mucosa (n=20, 18.0%), gastro-duodenal ulcers (n=04, 3.6%), erosive gastro-duodenitis (n=18, 16.2%), erythematous gastro-duodenitis (n=45, 40.5%), oesophagitis (n=06, 5.4%), hiatal hernia (n=09, 8.1%) and upper GI malignancy (n=09, 8.1%). The relationship between AF and malignancy was statistically significant ($p<0.001$). Sensitivity of AF was 89% and specificity was 88% in detecting malignancies.

Conclusion

Benign conditions of the upper GI tract accounts for dyspepsia in >90% of patients. AF seems to hold satisfactory validity as a screening tool for

malignancies. Dyspeptic patients with AF should undergo early endoscopic study to exclude malignancy.

Introduction

Dyspepsia refers to a group of upper gastrointestinal symptoms which is a common clinical presentation for seeking health care worldwide, and Sri Lanka is no exception [1]. Prevalence of dyspepsia is estimated to be between 12 - 41% of the general population [2]. According to the Ministry of Health - Indoor Morbidity Mortality data of Sri Lanka, peptic ulcer disease (PUD) and gastro-oesophageal reflux disease (GORD) are the second commonest causes of gastrointestinal (GI) related diseases after infectious diseases [3]. Out of these patients approximately 60% are among the 17 - 49 year age group. Time loss from work and interference with quality of life are also considerable problems even though difficult to assess.

The Rome III criteria defines dyspepsia as the presence of one or more of the following symptoms; bothersome post-prandial fullness, early satiation, epigastric pain or burning [1]. These symptoms are associated with a wide range of disease entities including peptic ulcer disease, gastro-oesophageal reflux disease, non-ulcer dyspepsia, oesophageal and gastric carcinoma [4].

Upper gastrointestinal endoscopy (UGIE) is the gold standard investigation for the diagnosis of underlying disease amongst dyspeptic patients. However, performing UGIE in all dyspeptic patients is neither safe nor cost effective. Therefore a number of criteria and guidelines have been made to decide which patient should undergo UGIE. Alarm features, also called alert features, red flags, or warning signs, are specific features thought to be associated with upper GI malignancy, warranting an UGIE. Alarm features include progressive dysphagia, anorexia, odynophagia, persistent vomiting, family history of upper GI malignancy, unintended weight loss, GI bleeding or iron deficiency anaemia, palpable mass or lymphadenopathy

Correspondence: R.T. Gamage
E-mail: r8rehan@gmail.com

and jaundice [4 - 6].

Current guidelines in the United Kingdom and USA recommend that in the initial evaluation of patients with dyspepsia, the decision to perform an endoscopy should be based on older ages and alarm features as it is generally believed that these factors indicate a higher probability of malignancy being present. In young patients without alarm features, the recommendation is initial treatment and endoscopy at later stage (treat and test method) [4, 7].

On the other hand in east-asian countries, where a high incidence of gastric carcinomas are recorded, the predictive value of alarm symptoms have been questioned as patients with carcinoma present without alarm symptoms [8 - 10]. In those countries, population based endoscopic screening is performed to detect early malignancies, but this would not be cost effective in Sri Lanka due to the low prevalence of upper GI malignancy [11].

Due to a lack of local guidelines with regard to the management of dyspepsia, clinicians were in doubt as to whether to 'Treat and Test' or vice versa. This lead to either unnecessary UGIE or missing an early stage of malignancy. Hence, a filtering mechanism would be beneficial in selecting high risk patients for UGIE. This study explores the potential role of the alarm features as a filtering mechanism, enabling cost-effective management of patients whilst also ensuring optimal management.

Objectives of the study were to describe the upper gastrointestinal endoscopic findings in dyspeptic patients who presented to a surgical unit at the Colombo North Teaching Hospital (CNTH), and to describe the association between alarm features and the presence of upper GI malignancies among dyspeptic patients.

Methods

A descriptive cross-sectional study was conducted at the general surgical unit of CNTH from April 2014 to March 2015.

Inclusion criteria:

- Newly diagnosed patients with dyspeptic symptoms who underwent UGIE as a management step
- Decision of UGIE was based on ASGE and NICE guidelines [8, 9]

- Patients above 18 years of age
- Proton pump inhibitors were withheld for 2 weeks prior to UGIE

Exclusion criteria:

- Patients who underwent an endoscopy with known ulcer disease
- Patients who undergo a second-look endoscopy for suspected malignancy
- Post-gastric surgery patients on follow up
- Patients who underwent endoscopy for other causes such as bleeding oesophageal varices

Patient recruitment was done by simple randomization. Minimal sample size for the analysis stage was calculated as per the formula of Lwanga and Lemeshow, and expected prevalence of upper GI malignancy in patients with dyspepsia was taken as 5.6% (a documented figure) [12].

Pre-tested interviewer administered questionnaires and a data extraction sheet was used for data collection. The questionnaire gathered data on socio-demographic variables, risk factors (smoking, alcohol consumption, betel chewing and the use of non-steroidal anti-inflammatory drugs - NSAID) and selected clinical details.

UGIE was performed by the principal investigator and the supervisor with the same set of instruments. Both investigators were present during the endoscopies to eliminate inter-observer variations. Endoscopic atlases were referred to whenever necessary [13, 14]. Biopsies of suspicious lesions were analysed and reported by the consultant histopathologist of the hospital. Histology reports were traced using patient identification number. These details were extracted by a data extraction sheet. Data was analysed using SPSS version 17 (SPSS Statistics for Windows 2008. Chicago: SPSS Inc). Socio-demographical and disease-related categorical variables were given in frequencies with their percentages. The associations between the upper GI malignancy and selected factors (alarm features and age) were analysed by Pearson chi-square test. A p-value of 0.05 was taken as the significance level. The sensitivity, specificity, positive predictive value and negative predictive values were calculated for the alarm features as the "screening method" and also for the endoscopy findings that confirmed presence of upper GI malignancy as the "diagnostic test result".

Written informed consent was taken from all the participants and data collection was done without hindrance of the clinical management of the patient.

Definitions of variables:

Alarm features included: progressive dysphagia, anorexia, odynophagia, persistent vomiting, family history of upper GI malignancy, unintended weight loss (>10% of body weight), GI bleeding or iron deficiency anaemia, palpable mass or lymphadenopathy and jaundice [4, 6, 15].

Oesophagitis was defined by the modified Savary-Miller classification [4, 16]. Biopsies were performed in the presence of irregular or deep ulceration, proximal distribution of oesophagitis and in irregular/malignant-appearing strictures to identify malignant lesions.

A hiatus hernia was diagnosed if the Z-line remains more than 2 cm above the hiatus of the diaphragm [17]. Lesions <5mm, shallow and with no scarring were considered to be erosive gastro-duodenitis [13, 14, 17].

Significant endoscopic findings in the upper GI tract were defined as presence of endoscopically visible tissue destruction or gross mucosal alterations. The presence of any of the following lesions was considered as significant endoscopic findings: gastric and duodenal ulcers, oesophagitis, hiatus hernia, erosive gastritis or duodenitis, neoplasm, masses and polyps. The presence of any of the following was considered as insignificant structural lesions: erythematous gastritis and duodenitis, atrophic gastritis, incidental miscellaneous abnormalities and absence of any mucosal changes [15, 18].

Results

A total of 111 patients with dyspeptic symptoms were studied during a period of 12 months. 54 (49%) were male and 57 (51%) were female with 1:1.05 male to female ratio. Mean age of the sample was 50.7±16 years. Fifty eight (52%) patients had one or more of the following risk factors; cigarette smoking, betel chewing, alcohol consumption and NSAID use.

As shown in Table 1, the significant endoscopic findings were gastro duodenal ulcers (n=04, 3.6%), erosive gastro-duodenitis (n=18, 16.2%), oesophagitis (n=06, 5.4%), hiatal hernia (n=09, 8.1%) and upper GI

malignancy (n=09, 8.1%). Out of those malignancies, 4 patients had gastro-oesophageal junctional, 3 patients had gastric and 2 patients had lower oesophageal malignancies. Normal gastric and duodenal mucosa without structural lesions was observed in 20 (18.0%) patients, and erythematous gastro-duodenitis was seen in 45 (40.5%) patients [Table 1].

Finding	No of patients	Percentage %
Gastric & duodenal ulcers	04	3.6
Erosive gastritis & duodenitis	18	16.2
Oesophagitis	06	5.4
Hiatal hernia	09	8.1
Upper GI malignancy	09	8.1
Erythematous gastritis & duodenitis	45	40.5
No mucosal abnormality	20	18.0

Table 1. Upper GI endoscopy findings

The relationship between alarm features and upper GI malignancy was statistically significant ($p<0.001$) [Table 2].

Groups	Endoscopic Outcome		Total	χ^2 test	p-value
	Malignant(%)	Benign(%)			
Dyspepsia with alarm features (%)	8 (7.2)	12 (10.8)	20	33.302	<0.001*
Dyspepsia without alarm features(%)	1 (0.9)	90 (81.1)	91		
Total	09	102	111		

Table 2. Relationship between alarm features and upper GI malignancy

* Exact significance considered

Age of the patient and the presence of malignancy also had a statistically significant relationship ($p<0.05$) when 50 years of age was taken as the cut-off age [Table 3].

Groups	Endoscopic Outcome		Total	x ² test	p-value
	Malignant (%)	Benign (%)			
Age >50 years (%)	08 (7.2)	46 (41.4)	54	6.348	<0.015
Age <50 years (%)	01 (0.9)	56 (50.5)	57		
Total	09	102	111		

Table 3. Relationship between age and upper GI malignancy

*Exact significance considered

Alarm features were found to have a sensitivity of 89% and specificity of 88% in detecting malignancies among dyspeptic patients. Positive and negative predictive values of alarm features in detecting malignancies were 40% and 98% respectively.

Discussion

Normal mucosa or insignificant structural lesions were detected in 58.5% of patients presenting with dyspepsia and 60% of them were younger than 40 years of age. These findings support the use of selective upper GI endoscopy in young patients with dyspepsia as important lesions are less prevalent amongst young persons. Further study is warranted to determine whether young patients with dyspepsia benefit from endoscopy. Unmeasured benefits of an endoscopy in these patients could include an improvement in quality of life, reduced anxiety and reduction in subsequent health care utilization.

The most common structural lesions were gastroduodenal ulcers and erosions. The relationship between the presence of the above lesions and risk factors were not significant. The impact of smoking and NSAID use depend on factors such as duration, frequency etc, which were not assessed in this study.

Upper GI malignancies were diagnosed among 8.1% of the dyspeptic patients in our study population. Alarm features and the older age group (>50yr) had a significant association with upper GI malignancies in dyspeptic patients. Sensitivity and specificity of alarm features in detecting malignancies were 85-90%. The high negative predictive value of alarm features reflects the low prevalence of malignancies in the population.

Conclusion

Alarm features and older age are significant factors to be considered when referring patients for specialist care whilst young patients without alarm features seem to

benefit less from early endoscopy. Therefore, the ASGE and NICE guidelines are applicable to our local population, until local guidelines are established. A multi-centre study with a large patient population would provide more comprehensive facts on this matter.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

References

1. Rome Foundation. Rome III Diagnostic Criteria for functional gastrointestinal disorders. 3rd Ed. *Rome Foundation*; 2006.
2. National Institute for Clinical Excellence. Dyspepsia and gastro-oesophageal reflux disease in adults: investigation and management. *NICE* July 2015 [Internet].
3. Ministry of Health Sri Lanka. Indoor Morbidity Mortality Records 2010. Sri Lanka.
4. Ikenberry SO, Harrison ME, Lichtenstein D. ASGE Guideline-The role of endoscopy in dyspepsia. *Gastrointestinal Endoscopy*. 2007;66 (6):1071-1075.
5. Talley NJ, Vakil N; Practice Parameters Committee of the American College of Gastroenterology. Guidelines for the management of dyspepsia. *Am J Gastroenterol*. 2005;100 (10):2324-37.
6. McMinn J, Steel C, Bowman A. Investigation and management of unintentional weight loss in older adults. *BMJ*. 2011; 29; 342: d1732.
7. National Institute for Clinical Excellence. Management of dyspepsia in adult patients in managed care: *Clinical Guideline* No 17 issued August 2004.
8. Vakil N, Moayyedi P, Fennerty MB, et al. Limited Value of Alarm Features in the Diagnosis of Upper Gastrointestinal Malignancy: Systematic Review and Meta analysis. *Gastroenterology*. 2006; 131 (2):390-401.
9. Meineche-Schmidt, Jørgensen T. 'Alarm symptoms' in patients with dyspepsia: A three-year prospective study from general practice. *Scandinavian Journal of Gastroenterology*. 2002; 37 (9):999-1007.
10. Sung JJ, Lao WC, Lai MS. Incidence of gastroesophageal malignancy in patients with dyspepsia in Hong Kong: Implications for screening strategies. *Gastrointestinal Endoscopy*. 2001;54(4):454-8.
11. National cancer control programme. Cancer Incidence Data: Sri Lanka 2007. Sri Lanka. *National cancer control programme*; ISSN: 2345 9107.
12. Sumathi B, Navaneethan U, Jayanthi V. Appropriateness of indications for diagnostic upper gastrointestinal endoscopy in India. *Singapore Medical Journal*. 2008; 49 (12): 970-76.
13. Cohen J. Comprehensive Atlas of High Resolution Endoscopy and Narrowband Imaging. *Blackwell Publishing* 2007.
14. Wilcox CM, Muñoz-Navas M, Sung JY. *Atlas of Clinical Gastrointestinal Endoscopy* 3rd edition: Elsevier Health

Sciences 2012.

15. Tytgat GNJ. Role of endoscopy and biopsy in the work up of dyspepsia. *Gut*. 2002;50(suppl iv):13–16.
 16. Lichtenstein DR, Cash BD, Davila R, et al. Role of endoscopy in the management of GERD. *Gastrointestinal endoscopy*. 2007;66(2):219–24
 17. Cotton P, Williams C. *Practical Gastrointestinal Endoscopy*. London: Blackwell Science, 2008
 18. Gado A, Ebeid B, Abdelmohsen A, Axon A. Endoscopic evaluation of patients with dyspepsia in a secondary referral hospital in Egypt. *Alexandria Journal of Medicine* 2014;51(3):179–84.
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