

The Chicago Classification of Motility Disorders

An Update



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KEYWORDS

- Esophageal high-resolution manometry • Achalasia
- Esophagogastric junction outflow obstruction • Aperistalsis
- Distal esophageal spasm • Hypercontractile esophagus
- Ineffective esophageal motility

KEY POINTS

- The Chicago Classification of esophageal motility disorders is based on a clinical study comprising 10 test swallows performed in a supine posture.
- Esophageal motility disorders are divided into disorders with esophagogastric junction outflow obstruction, major disorders not encountered in normal subjects, and minor motility disorders defined by statistical abnormalities.
- Three subtypes of achalasia are defined that are clinically distinct in terms of responsiveness to therapeutic intervention.
- Major esophageal motility disorders are aperistalsis, distal esophageal spasm, and hypercontractile (jackhammer) esophagus.
- Ineffective esophageal motility is likely to replace weak peristalsis and frequent peristalsis in version 3.0 of the Chicago Classification.

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Conflict of Interest: S. Roman has served as consultant for Given Imaging.

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INTRODUCTION

High-resolution manometry (HRM) is the current gold standard technique to assess esophageal motility. It uses closely spaced pressure sensors to create a dynamic representation of pressure change along the entire length of the esophagus. Data acquisition is easier than with conventional manometry and interpretation is facilitated by esophageal pressure topography (Clouse) plots.¹

Along with the technological innovation, an international consensus process has evolved over recent years to define esophageal motility disorders using HRM, Clouse plots, and standardized metrics. This classification, titled the Chicago Classification, was firstly published in 2009² and was subsequently updated in 2012.³ It was intended to be applied to HRM studies performed in a supine position with 5-mL water swallows and for patients without previous esophagogastric surgery. The 2012 version of the Chicago Classification focused entirely on redefining esophageal motor disorders associated with dysphagia in HRM terms; it did not provide guidance on the assessment of the esophagogastric junction (EGJ) at rest or upper esophageal sphincter (UES) function. Since that publication, substantial further research has been presented and published, intended to improve the diagnostic accuracy and clinical utility of the Chicago Classification. In recognition of this, the international HRM Working Group met in Chicago in May 2014 in conjunction with Digestive Disease Week to discuss these new data in the context of working toward an update of the Chicago Classification (v3.0). This article presents a brief summary of these discussions and proposals to work toward the Chicago Classification 3.0; a process due to be completed in early 2015.

METRICS AND SWALLOW PATTERN CHARACTERIZATION

The Chicago Classification is based on scoring of 10 5-mL water swallows performed in supine position. EGJ relaxation, esophageal contractile activity, and esophageal pressurization are evaluated for each swallow. However, a major indication for manometric studies is in the evaluation of patients for potential antireflux surgery and some description of EGJ morphology and quantification of contractility is desirable. Hence, the incorporation of simple metrics relevant to these aspects of motility will be incorporated into Chicago Classification v3.0. Proposed metrics under discussion include mean inspiratory pressure, mean expiratory pressure, the extent and variability of the separation between the lower esophageal sphincter (LES) and crural diaphragm (CD separation), and the EGJ contractile integral (CI), all of which have been used in publications. However, discrepancies exist in the details of calculation methodology for these metrics, the strength of data supporting their utility, and their normative ranges among HRM devices,⁴⁻¹¹ all of which are important limitations meriting further consideration.

Esophagogastric Junction Morphology and Deglutitive Relaxation

With HRM and Clouse plots, the relative localization of the 2 constituents of the EGJ, the LES and the CD, define EGJ morphologic subtypes.¹² This feature of EGJ morphology is fundamental, and is likely pertinent to its functional integrity. With type I EGJ morphology, there is complete overlap of the CD and LES with no spatial separation evident on the Clouse plot (Fig. 1) and no double peak on the associated spatial pressure variation plot. With type II EGJ morphology, the LES and CD are separated (double-peaked spatial pressure variation plot), but the nadir pressure between the 2 peaks does not decline to gastric pressure; the separation between the pressure peaks is less than 3 cm. With type III EGJ morphology, the LES and CD are clearly

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