**Table S1. Classification of high resolution manometry (HRM) per the Chicago Classification version 4.0.** High-resolution manometry (HRM) classifications listed are based on the application of the Chicago Classification v4.0 to 10 supine and 5 upright test swallows.4, 20 An abnormal TBE was considered ‘conclusive’ for EGJ outflow obstruction (EGJOO) if the 5 minute column height was >5cm or a 1 minute column height was >5cm in addition to impaction of a barium tablet.21 a “NotEGJOO” possibly included isolated findings of elevated supine IRP, elevated upright IRP, or presence of intrabolus pressurization, but not all three.

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|  | ***Classification*** | ***Criteria*** |
| ***CONCLUSIVE CLASSIFICATIONS*** | *Type I achalasia* | * Elevated median IRP (supine or upright) and * 100% failed swallows |
| *Type II achalasia* | * Elevated median IRP (supine or upright) and * 100% failed swallows and * ≥20% swallows with pan-esophageal pressurization |
| *Type III achalasia* | * Elevated median IRP (supine or upright) and * ≥20% swallows with premature contractions and * No evidence of peristalsis |
| *EGJ outflow obstruction* | * Not meeting criteria for achalasia (subtypes I, II, or III) and * Elevated median supine and median upright IRP and * ≥20% supine swallows with elevated intrabolus pressure and * Symptoms of dysphagia or chest pain and * Abnormal TBE |
| *Absent contractility* | * Normal median IRP (supine and upright) and * 100% failed swallows |
| *Hypercontractile esophagus* | * Not EGJOOa * ≥20% hypercontractile swallows * Symptoms of dysphagia or chest pain |
| *Distal esophageal spasm* | * Not EGJOOa * ≥20% swallows with premature contractions * Symptoms of dysphagia or chest pain |
| *Ineffective esophageal motility* | * Not EGJOOa * ≥50% failed swallows (supine position) or * >70% ineffective (i.e. weak or failed; supine position) swallows |
| *Normal motility* | * Not EGJOOa * Not meeting criteria for a disorder of peristalsis |
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| ***INCONCLUSIVE CLASSIFICATIONS*** | *Achalasia* | * Median IRP values near the upper limit of normal (supine or upright) and * 100% failed swallows (with or without panesophageal pressurization) * Evidence of appreciable peristalsis with upright swallows (if type I or type II achalasia pattern in the supine position) |
| *EGJ outflow obstruction* | * Not meeting criteria for achalasia (subtypes I, II, or III) and * Elevated median supine and upright IRP and * ≥20% supine swallows with elevated intrabolus pressure and * Absence of dysphagia or chest pain or * Not meeting TBE criteria for conclusive EGJOO as above (i.e. not conclusively abnormal TBE or did not complete TBE) |
| *Hypercontractile esophagus* | * Not EGJOOa * ≥20% hypercontractile swallows * Absence of dysphagia or chest pain |
| *Distal esophageal spasm* | * Not EGJOOa * ≥20% swallows with premature contractions * Absence of dysphagia or chest pain |