**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
 |