

Figure S1. Binary ROC curve for control vs. achalasia (positive=achalasia). The solid line is the ROC curve; the diagonal dotted line indicates the line of no discrimination. AUC, 1.000 (bootstrap 95% CI, 1.000-1.000). The sensitivity, specificity and accuracy at a fixed probability threshold of 0.5 are reported in Table SI. AUC, area under the curve; ROC, receiver operating characteristic.

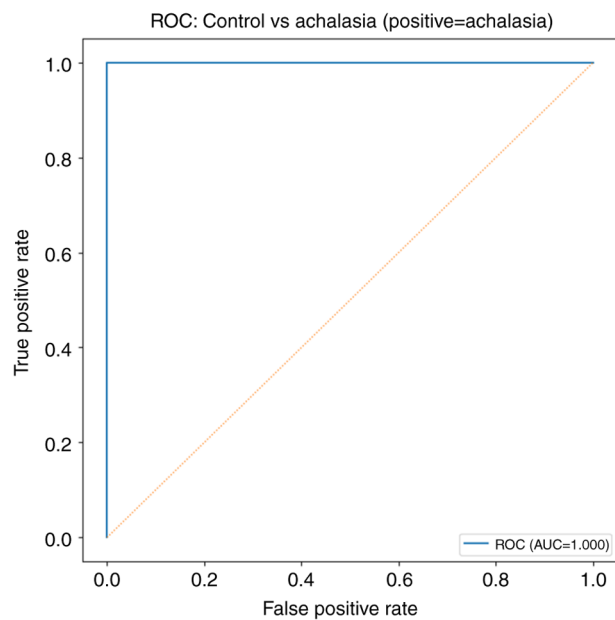


Figure S2. Multiclass ROC curves (one vs. rest) for type 1, type 2 and type 3 achalasia, and hypercontractile esophagus. Solid lines denote class-specific ROC curves; the dashed line indicates the micro-average ROC. The diagonal dotted line indicates the line of no discrimination. AUCs: Class-wise, 1.000 for all classes; micro-average, 0.999 (95% CI, 0.996-1.000); macro-average, 1.000 (95% CI, 1.000-1.000). The macro-average AUC value is reported; however, a macro-average ROC curve is not displayed because the macro-average AUC represents an average of the class-specific AUCs and does not correspond to a single ROC curve. AUC, area under the curve; ROC, receiver operating characteristic.

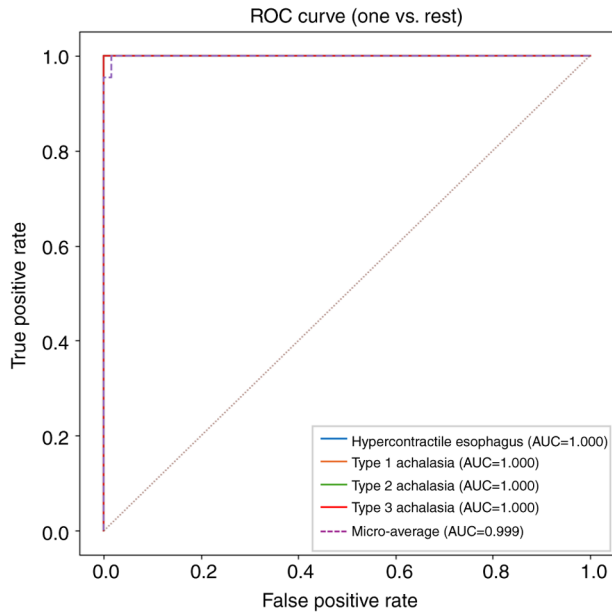
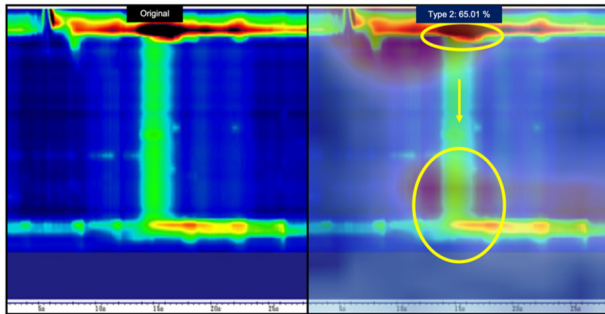


Figure S3. Examples of gradient class activation map images. In achalasia type 2, a persistent increase in panesophageal pressure was observed accompanied by lower esophageal sphincter and UES contraction (upper panel; yellow arrow). By contrast, patients with achalasia type 1 exhibit no concurrent increase in esophageal pressure during UES contraction (lower panel; yellow arrow). This observation may serve as an imaging characteristic specific to achalasia type 2. The percentage indicates the predicted probability for each class obtained from the softmax output. UES, upper esophageal sphincter.

Type 2 achalasia



Type 1 achalasia

