

# Methods of Quantitation and Display of Impedance Data for Estimating Gastroenterology Tract Parameters

Tech ID: 24077 / UC Case 2014-021-0

## BACKGROUND

Current methodology typically measures both pressure and impedance using sensors spread over the entire length of the esophagus. Impedance is used to provide a quantitative temporal measure of the advance of bolus in the esophagus, but it does not provide a quantitative measure of the extent of esophageal cross-sectional area or segmental volume.

## TECHNOLOGY DESCRIPTION

A UCSD researcher has developed a method and companion software to convert impedance values obtained using conventional instruments, such as high resolution manometry (that uses solid state pressure transducer) and impedance catheter to useful parameters and display in the real time in easily discernible graphics to assist physician in differentiating normal physiology from pathology and in pin-pointing the specific region of GI tract that may be of concern.

Provided below are examples of parameters as applied to esophagus, but the same technique is applicable to other segments of GI tract, such as colon etc.

- 1) Relative distension of esophagus.
- 2) Display of pressure simultaneously with distension.
- 3) Computation of the percent work done by each segment of the esophagus.
- 4) Estimation of the resistivity of the swallowed bolus.
- 5) The esophageal contents flow velocity- change in volume per unit time.

## APPLICATIONS

Physiology and pathology of the GI tract, such as those of esophagus and colon.

## ADVANTAGES

It is applicable to any impedance values obtained from conventional instruments. The method converts them to clinical useful parameter which can assist physicians in identifying GI pathology and region of concern.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,143,416	12/04/2018	2014-021

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## OTHER INFORMATION

### KEYWORDS

GI pathology, impedance, distension, esophagus, colon

### CATEGORIZED AS

- **Medical**
- Disease: Digestive System

### RELATED CASES

2014-021-0

