Acid Reflux at the Gastroesophageal Junction

Mats Guerrero Garcia Hall, MD

Half-time seminar, March 2, 2017, 16.00

Kirurgiska klinikens bibliotek, plan 8, C-blocket
Skånes Universitetssjukhus, Lund

Supervisor: Stefan Öberg
Co-supervisor: Jörgen Wenner

Background
The prevalence of Gastroesophageal reflux disease (GERD) is 20 %, based on weekly symptoms of heartburn and regurgitations. As reflux symptoms are not specific for GERD a reliable objective method for diagnosis, evaluation of severity and treatment efficacy is needed. Acid reflux is currently evaluated with ambulatory pH monitoring with a specificity and sensitivity between 87-96% and 97-100% in patients with erosive disease. In patients without mucosal injuries that constitute the majority the sensitivity is poor (36-48%), which limits the usefulness of the pH test. Acid reflux is underestimated at the conventional 6 cm level and pH monitoring near the gastroesophageal junction possibly improves the diagnostic performance and understanding the pathophysiology in GERD.

Aims
To study the acid environment and the diagnostic performance of wireless pH monitoring at the squamocolumnar junction (SCJ) compared with the conventional level. Study pathophysiological mechanisms of reflux and correlation with mucosal abnormalities of the distal esophagus.

Method
Fifty-five healthy volunteers and 149 patients with suspected GERD were included between 2005 and 2010. A complete upper endoscopy and simultaneous dual wireless pH monitoring and symptom analysis was performed at the SCJ and the conventional level. The distal esophagus, hiatal hernia, Helicobacter Pylori and columnar lined esophagus were documented. Biopsies were taken from the SCJ.

Preliminary results
Acid reflux and diagnostic precision of pH monitoring at the SCJ was significantly higher compared with the traditional level, confirmed in second study containing a larger population. Symptom Association Probability (SAP) of distal pH monitoring was higher and combining positive SAP and the pH test improved sensitivity significantly. Characteristically acid exposure is greater in patients and postprandial exposure composed of low acidic multiple short episodes. Irregularities of the SCJ were rare at normal acid exposure and in healthy individuals but with increasing acid exposure irregularities also increased.
Conclusion
Conventional pH monitoring underestimates acid reflux at the GEJ whereas distal pH monitoring and combination with SAP improves the diagnostic precision. Esophageal acid reflux does not originate from the acidpocket residing above the SCJ for longer periods. The normal SCJ is even and irregularities are a manifestation from acid reflux.

Papers:


4. Hall MG, Wenner J, Oberg S. The normal squamocolumnar junction is circumferentially even and minimal irregularities are manifestations of gastroesophageal acid reflux. Scand J Gastroenterol 2017;52(3):270-275.