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Do Patients With Hoarseness and Endoscopic Signs of LPR Have Abnormal Esophago-Pharyngeal Reflux? a Study Using Simultaneous Impedance-Phmetry, Oro-Pharyngeal pH Monitoring (Restech) and Pepsin Measurements in Saliva

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Abstract

It is proposed that hoarseness can be induced by abnormal exposure of the vocal cords to gastric contents. In these patients, laryngoscopy may show non-specific inflammatory signs, generally attributed to LPR. New methods are proposed to assess pharyngeal exposure to gastric contents. They are suggested to measure 1) liquid or mixed gas-liquid acid and non-acid reflux (HMII-pH), 2) aerosolized acid reflux (Dx-pH measuring system, Restech), and 3) presence of pepsin in saliva. We **aimed** to quantify pharyngeal exposure to gastric contents in patients with hoarseness and asymptomatic controls. **Methods:** 21 patients with hoarseness and "positive" laryngoscopy (mean age: 51 range: 23-75) and 10 asymptomatic controls (mean age: 26, range:21-34) underwent simultaneous hypopharyngeal MII-pH monitoring, oropharyngeal pH monitoring and saliva pepsin sampling. The HMII-pH catheter was located with impedance sensors in the esophageal body, 3-5 cm distal to UES and 0-2 cm proximal to UES. The Dx-pH catheter was located posterior to the uvula and pepsin in saliva was measured using an in vitro device utilising two pepsin monoclonal antibodies (PeptestTM) at 5 different times during the 24 period. Patients were studied "off" PPI. **Results:** Healthy controls had 1) no liquid or mixed gas/liquid reflux in the pharynx, 2) 2 controls had positive Dx-pH and 3) 2 controls had more than 1 saliva sample +ve for pepsin with the other tests negative. Patients with hoarseness were classified into 4 groups: a) all tests positive (n=2); b) 2 tests positive (MII-pH + pepsin (n=5) or MII-pH + Dx-pH (n=3); c) all tests negative (n=5) and d) patients with positive Dx-pH or pepsin without evidence of HMII detected reflux. These patients were considered negative (n = 6). Acidic MII pharyngeal reflux was only detected in the patient group (n=3). Oropharyngeal pH drops (Dx-pH) were poorly associated with HMII-pH reflux. 11% of Dx-pH drops to pH<4, 15% of pH drops to pH<5 and 10% of pH drops to pH<5.5 coincided with HMII detected liquid or gas reflux in the esophageal body. Pepsin was detected in saliva in two or more of the five samples collected in 52% patients and 20% controls. The detection of pepsin in saliva occurred in 7/10 patients with acid or non acid reflux detected by HMII-pH. Positive pepsin saliva samples were preceded by more reflux events in the previous 60 minutes- 3(1-4) compared to negative saliva samples 0(0-2) p<0.0001. **Conclusion:** a) We identified a subgroup of patients with hoarseness with

objective detection of esophago-pharyngeal reflux (11/21). b)the majority of pH drops detected by Dx-pH do not correlate with retrograde flow (liquid or gas) in the oesophageal body. c) Detection of pepsin in saliva suggests the likelihood of reflux episodes in the previous 60 minutes.

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