

**Title:** Pepsin detection in expectorated saliva: a useful marker for airway reflux?

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**Introduction and Aims:** Gastro oesophageal reflux (GOR) is a very common cause for chronic cough. The clinical history of airway reflux differs from that of GOR disease and often the diagnosis of airways reflux is not considered. Although oesophageal investigations can support the diagnosis these are invasive, time consuming and expensive. The presence of pepsin in the oesophagus, or more proximally in the pharynx or the airways, suggest GOR. The aim of this study was to study the diagnostic utility of measuring pepsin in expectorated saliva in unselected patients presenting with chronic cough.

**Methods:** Consecutive patients referred to the Hull Cough Clinic were instructed to collect expectorated saliva on three occasions following symptoms (paroxysm of cough). Saliva was collected into tubes containing 0.5 ml of 0.01 M citric acid and analysed for the presence of pepsin using a lateral flow test comprising two unique human monoclonal antibodies to pepsin (Peptest™, RDBiomed Ltd). The cut off value to determine pepsin positivity was 25 ng/ml. Patients also completed the Hull Airways Reflux Questionnaire (HARQ), a validated tool to diagnose airways reflux.

**Results:** 72 patients were included in this study (females 49, mean age 58.3 years). Saliva pepsin assay was positive in at least one sample in 46 (64%). 24, 10 and 12 patients had 1, 2 and 3 positive tests respectively. 10 samples had pepsin levels above 250 ng/ml. For purpose of comparison this data was examined against 300 similar pepsin assays from 100 healthy subjects with no typical or atypical reflux symptoms. In this group only 6 of 300 samples had more than 250 ng/ml of pepsin measured and 64% had all three samples negative for pepsin.<sup>1</sup> This is shown in table 1. The median HARQ score was 30 (range 1-67).

Table 1

Test results for pepsin in patients with chronic cough compared to healthy volunteers

	At least one sample positive	One sample positive	Two samples positive	All three samples positive	All three samples negative	Pepsin level >250 ng/ml
Chronic cough patients	63.9%	33.3%	13.9%	16.7%	36.1%	4.6%
Healthy volunteers	36%	20%	12%	4%	64%	2%

**Conclusion:** A high proportion of patients with chronic cough have demonstrable levels of pepsin in expectorated saliva at the time of having symptoms. This non invasive test may be a useful investigation to support the diagnosis of airway reflux.

#### References

1. Hayat JO, Woodcock A, Dettmar P, Yazaki E, Kang J-Y, Sifrim D. Is pepsin detected in the saliva of healthy individuals? Gut 2013; 62 (Suppl 1) A108 – A109.