



**UPPER GASTRO-INTESTINAL MOTILITY AND  
GASTRO-OESOPHAGEAL REFLUX**

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by

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## SUMMARY

In this thesis upper gastro-intestinal motility and its relationship to patients with gastro-oesophageal reflux has been investigated.

Current methods of assessment of gastro-oesophageal reflux have been used and where necessary validated. In addition new techniques have been developed to investigate upper gastro-intestinal motility. A technique of solid bolus radionuclide oesophageal emptying has been validated in normal volunteers and applied to patients. The use of plasma and salivary paracetamol levels to determine gastric emptying has also been explored. A technique for assessing antropyloroduodenal motility and duodenogastric reflux as determined by antral pH changes has been developed in an animal model and adapted to normal human volunteers.

Patients with primary gastro-oesophageal reflux have been assessed by some of these techniques. Oesophageal emptying in these patients was found to be significantly slower than controls. Following anti-reflux surgery no improvement was seen in the ability of the oesophagus to clear itself of a solid bolus.

Gastric emptying was significantly delayed in patients with gastro-oesophageal reflux, showing a delay in both solid and liquid emptying. No significant correlation was found between resting lower oesophageal sphincter pressures and the gastric emptying results. However a significant correlation existed between the delayed solid emptying and the presence of oesophagitis.

A double blind cross over trial of the drugs metoclopramide, domperidone and placebo was also conducted in a group of these patients. Patients clinically improved during all three treatment periods, but active treatments were not significantly better than placebo. Pre-existing delay of gastric emptying appeared to be of no significance, nor was a significant alteration in gastric emptying found after one months treatment with domperidone.

A further group of patients with gastro-oesophageal reflux was assessed by gastric emptying studies performed six months following a standardised fundoplication. This group showed more rapid solid and liquid gastric emptying. A group of patients who presented with recurrent gastro-oesophageal reflux following anti-reflux surgery was also investigated and found to have significantly slower gastric emptying.

Two additional groups of patients with secondary gastro-oesophageal reflux were also studied. Patients with progressive systemic sclerosis displayed a delay of oesophageal emptying and solid and liquid gastric emptying. Oesophageal emptying was also delayed in a group of diabetic patients with autonomic neuropathy.

This thesis confirms the abnormalities of oesophageal function described in gastro-oesophageal reflux disease. Further it demonstrates a significant proportion of such patients have delay in both solid and liquid gastric emptying. Agents that promote gastric emptying were not significantly superior to placebo in symptomatic control, however, surgery was associated with both symptomatic and objective improvement in gastric emptying.

A new technique for the assessment of antropyloroduodenal motility has been developed and is now being applied to patients. It is hoped it may clarify some of the questions unanswered by these studies.

DECLARATION

I declare that this thesis contains no material which has been accepted for the award of any other degree or diploma in any University and that to the best of my knowledge and belief, the thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis. I further consent to the thesis being made available for photocopying and loan if applicable if accepted for the award of the degree.

GUY MADDERN

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Part of the work described in this thesis has been published or accepted for publication. These publications are listed below in the order in which they were submitted.

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