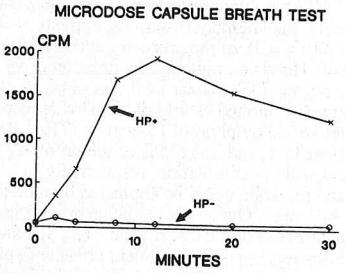
● A MICRODOSE, CAPSULE-BASED, ^{14}C-UREA BREATH TEST FOR H.PYLORI. B.J. Marshall, S.R. Hoffman, J. Sarosiek, R.W. McCallum. Div. Gastroenterology, University of Virginia, Charlottesville, VA 22908.

Previous investigators have used a 5 μCi ^{14}C-urea breath test to detect H.pylori (HP). Although such tests produce trivial radiation doses, a lower isotope dose is desirable and theoretically possible. The **AIM** of this study was to evaluate alternative breath test methodology in order to achieve optimal safety, speed, accuracy and cost. **METHOD**: One μCi doses of ^{14}C-urea were mixed with lactose and loaded into gelatin capsules. In preliminary studies (n=5), dummy lactose capsules were given prior to routine endoscopy and observed endoscopically 5 min after ingestion. 13 patients biopsied for HP (7HP+) fasted for 6h then swallowed a capsule with 20 mls of water. Breath was collected in bags at 2, 4, 8, 12, 20 and 30 minutes. Samples were pumped through hyamine solution and read in a scintillation counter to an accuracy of ±2.5%. To assess reproducibility, HP+ patients repeated the test the following day. **RESULTS**: Capsules viewed at endoscopy had all disintegrated on the corpus mucosa. In the breath test, HP+ patients averaged 1926 ±578 CPM at 12 min, whereas HP- patients averaged 47 ±11 CPM. The figure shows mean values for HP+ (n=7) and HP- (n=6) groups. At 12 min the test easily differentiated between all patients as either HP+ or HP- ($p<0.001$). Correlation between first and second tests was high ($r=0.78$). Total radiation exposure was equal to environmental background received in 24 hours. **CONCLUSION**: The microdose capsule-based ^{14}C-urea breath test for diagnosis of HP appears to be safe, fast, accurate, simple to perform, and environmentally benign.



● RECURRENT GASTROESOPHAGEAL REFLUX AFTER ANTIREFLUX SURGERY IN THE NEUROLOGICALLY DISABLED CHILD: A DIAGNOSTIC CHALLENGE. D. A. Martinez, M.D., M. Ginn-Pease, M.Ed., and D. A. Caniano, M.D.. Dept. of Pediatric Surgery, Children's Hospital and Ohio State University College of Medicine, Columbus, OH.

Symptoms indicative of gastroesophageal reflux (GER) following antireflux procedures (ARP) remain unrecognized and inconsistently studied in children and adolescents with profound neurologic disability (PND). This retrospective study analyzes postoperative symptoms, diagnostic testing, and subsequent surgical management of 240 patients with PND (nonambulatory, nonverbal) who underwent ARP (Nissen=235, Thal=5) between 1976 and 1989. In this large cohort of patients, 181 (75%) demonstrated a myriad of symptoms characteristic of GER on average 10.5 months (range: 12d - 7yrs) following their ARP. Symptoms were multiple in 163 (90%) patients and included respiratory problems (cough, congestion, pneumonia, and apnea) in 125 (69%), choking-gagging-retching (C-G-R) complex in 75 (41%), vomiting in 60 (33%), pain and irritability in 49 (27%) and gastrointestinal bleeding in 27 (14%). Diagnostic tests were performed in 102 (56%) symptomatic patients, of whom 47 (45%) were documented to have recurrent GER on one or more studies. (Table) A second ARP was performed in 14 (30%) of those with study-documented recurrent GER.

	No. of studies	GER (+)	GER (-)
Contrast Study	149	29 (19%)	120 (81%)
Endoscopy	44	23 (53%)	21 (47%)
pH Study	30	15 (50%)	15 (50%)
Chalasia Scan	21	6 (29%)	15 (71%)
Total	244	73 (30%)	171 (70%)

Conclusions:1) The majority (75%) of children with PND suffered with symptoms characteristic of GER following antireflux surgery. 2) Postoperatively, symptoms were not equated with GER as 44% of symptomatic children were not evaluated for recurrent reflux. 3) Diagnostic testing documented recurrent GER in 45% of patients tested. 4) Upper gastrointestinal contrast series were the most frequently performed, but least definitive study for diagnosis of recurrent GER. 5) We recommend thorough consideration and investigation of all symptoms after antireflux procedures to exclude recurrent GER.

GASTRIC AND GALLBLADDER EMPTYING OF A LIQUID MEAL IN PATIENTS WITH DYSPEPSIA AND HELICOBACTER PYLORI (HP) POSITIVE AND NEGATIVE UREA TEST. L.Marzio, F. DiFelice, M.G.Laico, P.DiIorio, C.DiTommaso, G.Seccia and F.Cuccurullo. Istituto di Fisiopatologia Medica, Universita' G.D'Annunzio, Chieti, Italy, 66100.

Gastric and gallbladder emptying after a standard liquid meal were evaluated simultaneously in 35 dyspepetics patients by real-time ultrasonography (RUS). Each patient was selected on the basis of a questionnaire where symptoms were reported. Postprandial fullness, bloating, pain at the epigastrium or right hypochondrium, burning, nausea and vomiting were the main symptoms evaluated. A score from 0 to 3 (0=absence, 1=mild, 2=moderate, 3=severe) was given to each symptom. Patients with a weekly score > of 12 were included. An upper g.i. endoscopy performed one week prior to the study showed in all patients a mild antral gastritis. Quick test for HP was performed in all patients. After an overnight fasting gastric and gallbladder emptying after a standard liquid meal were evaluated by means of RUS. Gastric and gallbladder scans were obtained at fasting and 15, 30, 45, 60, 75 and 90 min from meal end. Gallbladder volume was computed using the elissoid formula (0.52 * a * b * c) where a, b and c are the antero-posterior, lateral and longitudinal diameters respectively. Gastric emptying was evaluated through the determination of gastric diameters (antero-posterior and longitudinal) evaluated in a single scan performed at the epigastrium. Data were computed in percent value and analyzed statistically by means the ANOVA test. Twenty patients HP+ and fifteen HP- were studied. Symptom score was similar in the two groups. Five patients HP+ (25%) and five HP- (30%) showed a delayed gastric emptying of the liquid meal (< 50% of emptying after 90 min) fig 1. Overall data were not different statistically. Thirteen patients HP+ (65%) and only three HP- (20%) showed a reduced gallbladder emptying (< 40% of emptying after 45 min). Overall data showed a significant reduction in gallbladder emptying at 30, 45 and 60 min from meal in the HP+ group (fig 2). Two HP+ and one HP- showed a simultaneous reduction in gastric and gallbladder emptying. It is concluded that gastric and gallbladder emptying do not seem to be strictly correlated in our dyspeptic patients, the presence of HP+ seems to affect more the gallbladder than the gastric response to the liquid meal.

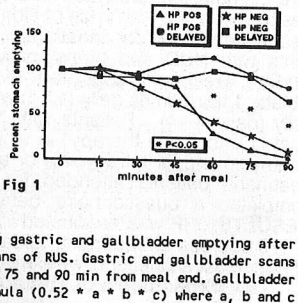


Fig 1

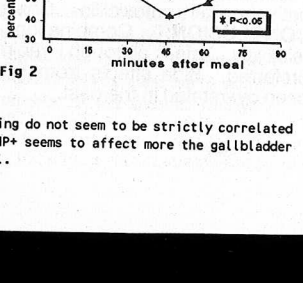


Fig 2

● A MICRO-METHOD FOR THE STUDY OF ACID SECRETION IN ISOLATED HUMAN GASTRIC MUCOSAL CELLS FROM GASTROSCOPIC BIOPSIES. Ichiro MASAOKA, Koji YAKABI, Takashi NAKAMURA. Third Dept. of Internal Medicine, Teikyo University School of Medicine, Chiba, Japan.

We have previously shown the characteristics of acid secretory function of human gastric parietal cell using isolated parietal cells from operated stomach (Gastroenterology 98; A85, 1990). Recently, we also tried to study the acid secretory function of human gastric parietal cell by the new method; micro-method using isolated human gastric mucosal cells from gastroscopic biopsies.

METHODS: The samples were obtained by endoscopic biopsies taken from human gastric mucosa. To prepare isolated gastric mucosal cells, 15 pieces of samples were digested with collagenase and EDTA. Isolated gastric mucosal cells were incubated in the medium containing 0.1μCi [^{14}C] aminopyrine (AP) and secretagogues $\bar{c}/\bar{s}$ reagents for 30 min. at 37°C. After incubation, the cells were separated by centrifugation and radioactivities of the pellets were measured. The data are shown as percent of basal.

RESULTS: AP accumulation in human gastric mucosal cells was markedly stimulated by histamine (677 ± 114%). Carbachol produced a small stimulation of AP accumulation (281 ± 44%), and gastrin also elicited a small stimulatory effect (184 ± 27%). These responses to three secretagogues were all reduced by the H_2-receptor antagonist cimetidine in dose-dependent manner. There was no potentiating interactions among these three stimulations.

CONCLUSION: These results shows that acid secretory function of human parietal cell was markedly stimulated by histamine, and carbachol and gastrin produced a small stimulatory effect which might be dependent on endogenous histamine. The micro-method using gastroscopic biopsy specimens is so useful to study the mechanism of acid secretion in human stomach.