

concentrations and alkaline phosphatase activity remain normal. Our policy is to give vegetarian Asians with osteomalacia 3000 units (75 µg) of vitamin D<sub>2</sub> syrup once a month for life.

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## Use of endoscopy in patients with dyspepsia

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Dyspepsia may be an early symptom of a serious illness, such as peptic ulceration, cholelithiasis, or gastric carcinoma. Many patients with dyspepsia are examined by upper gastrointestinal endoscopy, but organic lesions are not found in up to one third. There is little evidence to show that endoscopy is helpful,

*Sensitivity, specificity, and positive and negative predictive values of various investigations used to diagnose active on chronic gastritis associated with Campylobacter pylori in 107 patients*

	Endoscopy		Culture		Rapid urease test		IgG >504*		IgA >205*	
	Positive	Negative	Positive	Negative	Positive	Negative	Yes	No	Yes	No
Histological diagnosis of gastritis:										
Positive	23	39	51	11	58	4	56	6	35	27
Negative	21	24		45		45	2	43	10	35
Sensitivity (%)		37		82		94		90		56
Specificity (%)		53		100		100		96		78
Positive predictive value (%)		52		100		100		97		78
Negative predictive value (%)		38		80		92		88		56

\*Optical density at 450 nm.

though a histological examination often shows the presence of gastritis.

A strong association between the presence of *Campylobacter pylori* in the gastric mucosa and histologically confirmed type B gastritis is well recognised.<sup>1</sup> It is not clear how commonly gastritis associated with *C pylori* occurs in dyspepsia without ulceration and whether the presence of *C pylori* results in different symptoms. We therefore carried out a prospective study of patients with dyspepsia to try to determine this. We also compared the sensitivity and specificity of endoscopic examination with those of histological examination, rapid urease tests,<sup>2</sup> serological tests, and culture to determine whether endoscopy and antral biopsies are useful.

### Patients, methods, and results

We studied 107 consecutive patients with dyspeptic symptoms, whose endoscopy showed either no abnormality or minor inflammatory features in the antrum (usually patchy erythema). One of us (DV) asked the patients whether they had epigastric pain, nausea, heartburn, halitosis, and postprandial bloating. At endoscopy four antral biopsy specimens were taken from each patient for histological examination. Rapid urease activity was tested, samples were cultured, and serum immunoglobulin concentrations were measured.<sup>1,3</sup> Histological evidence of *C pylori* was taken as confirmation of the presence of the organism. The sensitivity, specificity, and positive and negative predictive values were calculated for each test compared with histological examination. In addition concentrations in the patients positive and negative for *C pylori*

on histological examination were compared with the *t* test after logarithmic transformation.

The most common symptoms experienced by the patients were postprandial bloating with nausea (68), epigastric pain (18), and halitosis and heartburn (21). Sixty two of the patients showed histological evidence of active on chronic gastritis; all of these also had *C pylori* on microscopy, and *C pylori* was cultured in 51 cases. The remaining 45 patients had normal histological features without evidence of gastritis or *C pylori*. Normal endoscopic findings were obtained in 63 of the 107 patients, while 39 were found to have patchy erythema and five superficial erosions. The table shows the sensitivity, specificity, and positive and negative predictive values of endoscopy and the other

investigations assessed when compared with the histological findings. IgG concentrations had a high sensitivity and specificity.

### Comment

We found that 58% of patients with dyspepsia without ulceration had gastritis on histological examination even though in many of them the mucosa appeared normal at endoscopy. In all cases the gastritis was associated with *C pylori*. The main symptom experienced by the patients was postprandial bloating, which was present in 73% (45/62) of those with gastritis and 51% (23/45) of those without gastritis. Serological testing for *C pylori* is useful in screening a population at risk,<sup>4</sup> to monitor the response to treatment,<sup>5</sup> and perhaps to investigate patients with dyspepsia before endoscopy. Our data showed that endoscopy had a lower sensitivity and specificity than all the other tests used. We conclude that endoscopy is unhelpful in patients with dyspepsia if endoscopic biopsy specimens are not taken routinely.

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