Gastric lesion in dermatitis herpetiformis

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SUMMARY Five of 33 patients with dermatitis herpetiformis (DH) were found to have gastric parietal cell antibody in their sera, whereas it was not found in 30 healthy controls of comparable age distribution. Fifteen of the patients with DH underwent further studies to investigate the histological and functional state of their gastric mucosa. Atrophic gastritis was found in all five patients whose sera contained gastric parietal cell antibody and in three of 11 patients with no antibody in their sera. In addition, there was marked impairment of acid secretion in the DH group as a whole, but, apart from one patient with overt pernicious anaemia (PA), there was no evidence of malabsorption of B₁₂.

Recent studies of patients with DH have shown marked impairment of gastric acid production in response to pentagastrin (Heading *et al.*, 1974). The presence of gastric parietal cell antibody (Fraser, 1970) and an increased prevalence of PA in DH has been noted (Cream and Scott, 1970). These reports, together with the findings of gastric parietal cell antibody in five of our 33 patients with DH, stimulated us to investigate further these patients with regard to gastric morphology and pentagastrin stimulated acid secretion.

Methods

PATIENTS

The sera of 33 patients with DH (24 male and nine female; age range 17-73 years) and 30 healthy controls (14 male and 16 female; age range 20-71 years) were screened for gastric parietal cell antibody. Sixteen of the DH patients (13 male and three female; age range 21-77 years) consented to further investigation including a gastric biopsy, a pentagastrin test meal, and tests of B₁₂ absorption.

GASTRIC PARIETAL CELL ANTIBODY

A 1 in 10 dilution of serum was examined by standard indirect immunofluorescence methods (Seah *et al.*, 1971) for the presence of antibodies against gastric parietal cell using cryostat sections of rat

stomach as antigen. The results were read without knowledge of the diagnostic status of the patient. Polyvalent antihuman immunoglobulin fluorescein conjugate (Burroughs Wellcome) was used for the initial screening and positive sera was subsequently screened using specific conjugates for IgA, IgG, and IgM (Boehringerwerke). Examination of the stained sections was made on a Reichard microscope incorporating an iodine 'light source' with Balzer FITC 3 and Kodak wratten gelatin 12 filters.

GASTRIC MUCOSAL BIOPSIES

Biopsies were obtained in fasting patients from the body of the stomach with a Crosby capsule under fluoroscopic control.

GASTRIC ACID STUDIES

Gastric acid production was measured by a standard method after pentagastrin stimulation (6 µg/kg body weight). Gastric juice was collected in 15 minute fractions for one hour before and one hour after pentagastrin and the quantity of acid analysed by neutralization with sodium hydroxide. Peak acid output (PAO) was calculated by adding the two highest consecutive quantities of acid in the post pentagastrin hour and multiplying by two. The results were expressed as mEq/h.

TESTS OF VITAMIN B₁₂ ABSORPTION

In all 16 patients serum vitamin B₁₂ estimations and tests of vitamin B₁₂ absorption were carried out. In the five patients with gastric parietal cell antibody,

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Schilling tests were performed without and with added intrinsic factor.

Results

ANTIBODIES

The gastric parietal cell antibody was found in five patients with DH and was not present in the control group. Antibody was of the IgG class only. Intrinsic factor antibody was found in only one patient (B.A.) who has overt pernicious anaemia. Table 1 shows further details of these five patients with gastric parietal cell antibody.

GASTRIC MORPHOLOGY

Eight of the 16 patients had atrophic gastritis including all five patients with gastric parietal cell antibody. The diagnosis of atrophic gastritis was made in the presence of loss or atrophy of glandular tubules. In some cases, there was an increased inflammatory infiltrate of the lamina propria and intestinal metaplasia. There was no correlation between the severity of the jejunal lesion (as judged by a single biopsy specimen) and atrophic gastritis (Table 2).

GASTRIC ACID STUDIES (Figure)

Achlorhydria was present in all five patients with gastric parietal cell antibody and in two patients without this antibody. The test was unsatisfactory in one patient and his result is omitted.

Acid output under similar conditions for sex and age matched controls are shown.

VITAMIN B₁₂

Vitamin B₁₂ studies in the five patients with gastric parietal cell antibody are shown in Table 1. In the remaining 11 patients vitamin B₁₂ absorption studies were normal.

Jejunal mucosa	No.	Atrophic gastritis	Low acid output
Normal	1	1	1
PVA	10	6	7
SVA	4	1	1

Table 2 Relationship of jejunal mucosa to gastric morphology and acid secretion

Discussion

The increased incidence of gastric parietal cell antibodies in this study confirms previous findings (Fraser, 1970) but, in contrast with the usual female preponderance for this antibody (Irvine *et al.*, 1970), four of our five patients were male.

The finding of low gastric acid secretion in nine patients (seven achlorhydria, two hypochlorhydria) is in agreement with the high prevalence of impaired acid secretion in DH reported by other authors (Heading *et al.*, 1974). Only one patient with reduced acid secretion had normal gastric morphology, thus demonstrating a good correlation between gastric acid production and an atrophic stomach mucosa. In contrast, intrinsic factor secretion was apparently adequate in this group of nine patients except in the one with pernicious anaemia, the remaining eight patients having normal vitamin B₁₂ absorption tests.

The finding of atrophic gastritis in eight of the 16 patients who were fully studied may overestimate the association between dermatitis herpetiformis and gastric pathology, as five of these patients were known to have gastric parietal cell antibodies, an established marker of chronic gastritis (Fisher *et al.*, 1967) before selection for further investigation. Nevertheless, three of the remaining 11 patients had identical gastric lesions despite the absence of

Patient	Age (yr)	Sex	Jejunal mucosa	GPC antibody	IF antibody	Gastric acid secretion	Gastric mucosa	Presenting serum-B ₁₂ (pg/ml) (normal 160-900 pg/ml)	Vitamin B ₁₂ absorption	
									Without IF (normal > 10%) (%)	Absorption with IF (%)
B.A.†	48	F	PVA	+	+	Achlorhydria	ND	24	< 10*	> 70*
F.C.	64	M	PVA	+	-	Achlorhydria	Atrophic gastritis	215	10.6	12.1
R.C.	63	M	Normal	+	-	Achlorhydria	Atrophic gastritis	360	20.7	ND
R.Ca.	45	M	PVA	+	-	Achlorhydria	Atrophic gastritis	135	10.6	21.8
D.W.	62	M	PVA	+	-	Achlorhydria	Atrophic gastritis	210	15.2	19.5

Table 1 Investigations in patients with positive gastric parietal-cell antibodies

PVA: Partial villous atrophy. GPC: Gastric parietal cell. IF: Intrinsic factor. ND: Not done. +: Positive. -: Negative. * Measured by faecal excretion of radioisotope labelled B₁₂ (normal > 10%). † Overt pernicious anaemia.

gastric parietal cell antibodies, as found in previous studies (Taylor, 1972).

Gastric morphology has not been reported in detail in DH but in the closely related condition of coeliac disease Hanskey and Shiner (1963) found six of 15 patients with gastric mucosal atrophy, suggesting a further relationship between these two diseases. This presence of atrophic gastritis and of gastric parietal cell antibody in some of our patients reinforces the suggestion that DH is often accompanied by widespread immunological disturbance. However, it would seem that gastric mucosal abnormality when it occurs in DH is usually occult, which is also true of the jejunal lesion, the high prevalence being revealed only by systematic study of jejunal morphology (Marks *et al.*, 1966). Nevertheless, it may be of importance to identify those patients with gastric abnormalities, as they may be at increased risk of the development of either overt pernicious anaemia (Bardhan *et al.*, 1969; Irvine *et al.*, 1974) or carcinoma of the stomach (Siurala *et al.*, 1966; Walker *et al.*, 1971).

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