

AUTO-IMMUNE ATROPHIC GASTRITIS IN PATIENTS WITH DERMATITIS HERPETIFORMIS

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Abstract. Seventeen patients with dermatitis herpetiformis were tested for gastric hydrochloric acid secretion. Seven were found to be achlorhydric. Atrophic gastritis in these patients probably had an auto-immune pathogenesis, as judged by elevated serum gastrin level, high prevalence of antibodies against gastric parietal cells and antrum sparing of the gastric atrophy. This type of atrophic gastritis is considered to indicate a precursor state to pernicious anemia.

Key words: Dermatitis herpetiformis; Atrophic gastritis; Pernicious anemia; Gastrin

Occasional reports of patients with concurrent dermatitis herpetiformis (D.H.) and megaloblastic anemia have appeared (4, 12). Apart from mere coincidence, this could be attributed to malabsorption due to small-intestinal lesions in D.H. or to lack of gastric intrinsic factor as in pernicious anemia.

We have previously demonstrated that patients with D.H. have reduced secretion of hydrochloric acid and intrinsic factor (1). This has been corroborated by others (5, 13).

In the present study we have further investigated the gastric process in D.H. by means of serum gastrin assay, assessment of intragastric bile salts and gastroscopic examination to see whether this process resembles the one found in pernicious anemia.

PATIENTS AND METHODS

Seventeen consecutive patients (10 females, 7 males) with D.H., aged 27-72 years (mean 51 years), have been studied. They were not included in our earlier report (1).

¹ This paper was read at the Third Nordic Gastrin Meeting, Oslo, September 1974.

The duration of the disease varied between 1 and 20 years (mean 9 years). The diagnosis was based on a typical clinical and histopathological picture. At the time of investigation 11 patients were being treated with Dapsone and 3 were on gluten-free diet. All patients have on some occasion been treated with Dapsone, resulting in prompt relief of symptoms.

The augmented gastric secretion was determined after pentagastrin stimulation, as previously described (1). The intragastric position of the tube was controlled fluoroscopically.

Total bile salt concentration was measured in basal gastric secretion by an enzymatic method (10).

Gastroduodenoscopy was done on 7 patients by a fibre endoscope (Olympus GIF-D2). Multiple biopsy specimens were taken from the duodenum, antrum and corpus ventriculi.

The serum concentration of vitamin B₁₂ was determined by a radiosorbent technique (17).

Circulating antibodies against gastric parietal cells and thyroidal cytoplasmic antigen were demonstrated by an immunofluorescent-antibody technique (Statens Bakteriologiska Laboratorium, Stockholm, Sweden). The concentration of gastrin in serum from fasting patients was determined several times for each patient by means of a radio-immunosorbent method (14). Antiserum against gastrin was obtained from Dr J. F. Rehfeld, Copenhagen (No. 2604), and was characterized earlier (15).

Routine haematological data were determined for all the patients.

The differences between serum gastrin levels of different groups were evaluated by a non-parametric test. A *p*-value <0.05 is considered significant.

RESULTS

Seven patients had achlorhydria according to Callender's definition (3) (Table I). Five of the remaining 10 patients had low secretion of hydrochloric acid; no patient showed increased acid

Table I. Patients with dermatitis herpetiformis and achlorhydria

MAO=maximal acid output, P.C.A.=parietal cell antibody, Thy.=cytoplasmic thyroid antigen, Bile salt conc.=total gastric bile salt concentration

Patient	Sex	Age	MAO (mEq/h)	Antibodies		Serum- gastrin (pmol/l)	Bile salt conc. (mM/l)	Histopathology	
				P.C.A.	Thyr.			Antrum	Corpus
H.K.	♂	72	0.4	—	—	125	0.3	N.D.	N.D.
B.M.	♀	38	0.0	1/100	—	228	N.D.	Normal	Atrophy
I.E.	♀	53	0.0	1/100	1/10	242	0.0	Slight inflam.	Atrophy
A.H.	♀	67	0.0	1/25	1/25	188	0.5	Normal	Atrophy
B.U.	♂	60	0.0	1/10	—	69	0.4	Normal	Atrophy
K.L.	♂	64	0.0	—	—	88	0.2	Normal	Atrophy
Y.O.	♂	63	0.2	—	—	17	N.D.	Atrophy	Atrophy
Mean		59	0.1			137			
±S.D.						±85			
Reference group			M 23.3, ±6.9			20	1.0		
Mean±S.D.			F 17.7±5.4			±16	(n=10)		

output. The concentration of bile salts in the gastric juice was not raised in the 5 achlorhydric patients studied in this respect, nor in 5 patients with low gastric secretion of acid.

Only one patient had slight anemia, probably because of haemolysis induced by Dapsone. The serum concentration of vitamin B₁₂ was normal in all patients.

Seven patients had thyro-gastric antibodies: 4 against cyto-plasmic thyroidal antigen (titre 1/10–1/125) and 5 against parietal cells (titre 1/10–1/100). Four out of these 7 were achlorhydric. The results of serum gastrin assays are presented in Tables I and II, where the normal value is also given for our reference group of 67 persons without gastrointestinal disease, aged 15–85 years (14). The serum gastrin level was significantly increased in the achlorhydric patients compared with the reference group ($p < 0.001$) as well as with the group of patients without achlorhydria ($p < 0.005$). Four patients, who could secrete hydrochloric acid but with maximal acid output less than 5 mEq/h—the upper

limit for atrophic gastritis, using an approximate functional definition (2)—had normal serum gastrin values.

Biopsy revealed that 5 patients with achlorhydria and elevated serum gastrin levels had pronounced atrophic gastritis or gastric atrophy of the corpus mucosa. The antral mucosa was normal in 4 and only slightly inflamed, superficially, in one. The only patient with achlorhydria and a normal serum gastrin value was atrophic in the antral as well as in the corpus mucosa; he was the only achlorhydric with total villous atrophy in the specimens from the duodenum. Finally, one patient with normal hydrochloric acid output and normal serum gastrin had normal antral and corpus mucosa.

DISCUSSION

The present study demonstrated that about half of our patients with D.H. also had achlorhydric atrophic gastritis. This finding agrees with other reports (1, 5). Some of the remaining patients will probably

Table II. Patients with dermatitis herpetiformis and low or normal hydrochloric acid secretion

	Patients (n)	Age	Sex (F/M)	Antibodies		MAO (mEq/h)	Serum- gastrin (pmol/l)
				P.C.A.	Thyr.		
Mean		44	F=6			8.2	22
Range	10	28–64	M=4	n=1	n=2	2.6–18.4	14–31
Reference group						M 23.3±6.9	20
±S.D.						F 17.7±5.4	±16

develop a similar gastric atrophy, since they already exhibit a reduced ability to secrete gastric acid. It should be pointed out that these patients are on average 15 years younger than the achlorhydric patients.

During recent years it has been proposed that serum gastrin assay could help to differentiate atrophic gastritis into two pathogenetically discrete subgroups (11). Although this hypothesis has encountered some opposition (8), agreement seems to exist in principle upon one type of achlorhydric atrophic gastritis with high serum gastrin level due to antrum sparing of the gastric mucosal atrophy. This type—called "atrophic gastritis type A" by Strickland et al. (16)—is supposed to have an auto-immune pathogenesis and occurs mainly in combination with other auto-immune diseases (6, 7, 9). It is considered to be a precursor state to pernicious anemia (16). In the present study, 6 of 7 achlorhydric patients had elevated serum gastrin levels. Histopathological examination in all of them (except the one not examined because of complicating disease) revealed normal (or nearly so) antral mucosa, contrasting with atrophy of the corpus and fundus. Hence they fit the description of "type A atrophic gastritis". The combination of D.H. and frank pernicious anemia in a few reported cases may thus be more than a coincidence. The seventh achlorhydric patient had antral gastritis, which may explain the reduction of his capacity to release gastrin (11).

The concentration of intragastric bile salts was not increased in the patients studied. Hence a reflux of bile salts into the stomach is probably not the cause of the gastric atrophy in D.H. This seems to agree with the finding of atrophic gastritis with antral sparing in these patients and is in accordance with the suggestion that achlorhydric patients with D.H. suffer from a pre-pernicious atrophy of the gastric mucosa. Further studies are required to evaluate the use of serum gastrin determinations for the detection of D.H. patients who may develop pernicious anemia and so even run a potential risk of gastric carcinoma.

ACKNOWLEDGEMENTS

The histopathological examinations were kindly performed by Professor L. Angervall, Gothenburg.

The study was supported by the Swedish Research Council (Project No. B75-19X-4534-01).

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Received April 2, 1975

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