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Siurala M, Varis K & Wiljasalo M. Studies of patients with atrophic gastritis: a 10-15-year follow-up. *Scand. J. Gastroenterol.* 1:40-8, 1966.
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Bioptical long-term follow-up examinations suggest that atrophic gastritis develops by the way of superficial gastritis and shows a steady progression up to geriatric age, when a retardation of the process occurs. Atrophic gastritis seems to precede the occurrence of gastric carcinoma and to predispose to formation of gastric polyps and to pernicious anemia. [The *SCI*® indicates that this paper has been cited in over 155 publications.]

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The idea of following up subjects with different conditions of the gastric mucosa is in itself neither new nor bright. Its aim was to evaluate the gastric mucosa during a long period of observation, and to determine whether gastritis, specifically atrophic gastritis, has any precancerous properties. Indeed, our main credit was due for not giving up despite an almost hopeless task: to get patients, living all over Finland, to cooperate with a scheme of decades (up to 34 years) of endoscopical and bioptical follow-up.[1-7]

The difficulties often seemed almost overwhelming: the patients got too sick to be examined, they died, or they simply refused any additional examinations ("Dear doctor, I cannot endure another examination. I still have the feeling of your metal tube in my throat"). Sometimes we had no money to pay for their expenses, and sometimes they themselves were short of it.

The difficulties inherent to the study were further exacerbated by our poor postwar exposure to the world literature. We were unaware of the suction biopsy tube developed by Wood, and so we had to produce the necessary equipment (which, by the way, turned out to function quite satisfactorily).[8]

We started with 377 patients (116 with atrophic and 93 with superficial gastritis, and 168 with a normal body mucosa). Roentgenological and endoscopical examinations and multiple suction biopsies were performed in all, and submaximal histamine tests in most. Today these methodologies may seem somewhat meager. Indeed, they left the status of the antral mucosa unknown. Not until the reexaminations in 1974 were we able to employ direct-vision stepwise biopsy specimens from the antrum and body.

During the whole follow-up, 10 of the 116 patients with atrophic gastritis had died or shown at reexamination signs of gastric cancer. In addition, 1 of the 93 patients with superficial gastritis was found to have gastric cancer. In four cases, cancer was found within two years after the start of the follow-up.

At the start of the follow-up, the prevalence of intestinal metaplasia and of achlorhydria was about 60 percent. Of the patients with metaplasia and achlorhydria, signs of gastric cancer were found in 12 and 14 percent, respectively. Gastric polyps were found during the follow-up in 14 cases (4 adenomas and 10 nonadenomatous polyps). Of these, nine belonged originally to the atrophic group and in the remaining five cases atrophic changes were found in the body mucosa before the detection of the polyps.

Gastritis itself revealed, despite considerable individual variations, a general trend to progress with age. However, in old age there appeared to be a change in the dynamics, so that the process was retarded, and in the antrum it showed a distinct tendency to improve. The progression of gastritis noted during the first two decades of the follow-up was accompanied in 10 of the 116 cases of atrophic gastritis by signs of malabsorption of vitamin B_{12} that in two cases terminated in overt pernicious anemia.

It seems that atrophic gastritis with metaplasia and achlorhydria is associated with three interrelated conditions: gastric cancer, gastric polyps, and pernicious anemia. However, we still hesitate to draw any definitive pathogenic conclusions on the gastritis-cancer relationship. Indeed, there is not enough evidence to consider atrophic gastritis as a precancerous condition and still less as a precancerous lesion. On the other hand, atrophic gastritis seems, in most cases, to precede the occurrence of cancer, and it can at least be considered a *marker* of a precancerous state. However, even this conclusion is, according to our recent epidemiological calculations, valid only for the end stages of the process, i.e., for severe body and antral gastritis, in which the cumulative risks of contracting gastric cancer were calculated to be 4 and 20 times the expected ones, respectively.[9]

We think that the main advantage of our follow-up studies, and the probable reason for their common appearance in the reference lists, is that they are the only studies where atrophic gastritis was followed up with appropriate controls for more than half of the life span of humans.

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