The Pyloric Antrum in Patients with Gastric Ulcer

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SUMMARY

Gastroscopy with antral biopsy has been carried out in 25 patients with gastric ulceration. The biopsy specimen was taken a distance from the ulcer where the mucosa appeared normal. In 15 cases there were gross histological abnormalities. These findings support the view that in gastric ulcer patients there is a diffuse mucosal lesion of the antrum. It is believed that gastritis is the primary event.

The exact pathogenesis of gastric ulceration is unknown, but recently an interesting theory has been advanced. The suggestion is that initially a diffuse antral gastritis occurs and that this gastritis persists. The mucosal reaction in the early stages is adequate, but later, according to these authors, the mucosal reaction fails, so that gastric ulceration results.

The present investigation was undertaken to examine this hypothesis by studying antral mucosa in human subjects with gastric ulcers. The areas examined in the antrum were all some distance from the actual site of any ulceration.

PATIENTS AND METHOD

Gastroscopy and gastric biopsy were carried out in 25 patients with gastric ulcer. The instrument used was the fibre-optic gastroscope, with a biopsy forceps that could be accurately manipulated under visual control. The site selected for biopsy was a point along the lesser curvature, about half-way between the ulcer and the opening of the pylorus. All specimens were fixed in 10% formal saline solution and stained with haematoxylin and eosin.

Only patients with ulcers in the usual position along the lesser curvature were selected and carcinoma was excluded as far as possible by barium meal examination, acid secretory studies and exfoliative cytology. All examinations were done as elective procedures in patients with established ulcers. No cases were included where gastroscopy was carried out as an emergency procedure for haematemesis, and no cases were included where there was a history of taking alcohol, aspirin or cortisone.

RESULTS

In all 25 cases the mucosa between the ulcer and the pyloric opening appeared normal when seen through the

Fig. 1. Antral atrophic gastritis. The mucosa is thin; there is a moderate cellular infiltration in the lamina propria (× 150).

*Date received: 1 November 1971.
gastroscopy. Antral peristalsis appeared to be normal and a small amount of bile reflux through the pylorus was often observed. The histological findings are summarized in Table I.

The surface epithelium, the pyloric glands and the mitotic activity were completely normal in 10 of the 25 cases. In the remaining 15 there were marked histological changes. Chronic atrophic gastritis, as defined by Magnus, was seen in 7 cases. Fig. 1 illustrates the appearance. The mucosa is thin and there is a decrease in the number of mucus glands. In the lamina propria there is moderate cellular infiltration.

In the remaining 8 cases the mucosa was regarded as being abnormal because of the number of goblet cells seen in the surface epithelium, as illustrated in Fig. 2, and because of the increased number of mitotic figures.

DISCUSSION

Occasional goblet cells do occur in the surface epithelium of normal gastric mucosa, but the author has seen large numbers of these cells only in abnormal mucosa.

Normally, a single mitotic figure may be seen in the neck area of the gastric pits in some 5 - 6 high-power fields. The presence of 3 or more mitotic figures in a single high-power field is considered to be abnormal and to indicate that the mucosa is unusually active.

It is not surprising that abnormalities of the pyloric gland area were seen in some cases only. Examination of gastric mucosa by the 'swiss roll' technique has shown that gastritis is a patchy lesion with many areas of normal mucosa appearing adjacent to the abnormal areas.

Although the findings from the present investigation support the view that there is a diffuse mucosal abnormality involving the antrum in patients with gastric ulceration, it is not possible to be sure of the sequence, that is, whether the gastritis or the gastric ulcer is the primary event.

Du Plessis observed that gastritis was maximal in the distal antrum, not in the mucosa adjacent to the ulcer. He therefore concluded that the gastritis was not secondary to the ulcer, but that it occurred initially. Recently Gear et al. also stated their belief that gastritis was the basic disease process, and gastric ulceration was the secondary phenomenon. This view was based on direct biopsy evidence that gastritis persisted, or even became worse, after healing of the ulcer, regardless of whether the treatment had been medical or surgical.

I wish to thank Mr L. Triegaardt and Mr A. Veenstra, who prepared the histology specimens and photomicrographs. Permission to study these patients was kindly given by the Superintendents of the General Hospital and Baragwanath Hospital, Johannesburg.

I was assisted by grants from the Association of Round Tables in Southern Africa and the South African Medical Research Council (Grant M.14/71/51).

REFERENCES