CLINICAL PROGRESS

Peptic Ulcer

In the articles below three contributors have been asked to discuss recent progress in the diagnosis and management of peptic ulcer. Dr. D. D. Gibbs emphasizes the valuable role of the fibroscope in detecting gastric ulcers in patients with negative x-ray results and in studying the features of an individual ulcer. Dr. M. J. S. Langman shows that, though carbenoxolone may promote healing of gastric ulcer, it is doubtful in duodenal ulcer; further trials are needed of a new antipepsin, which gave promising results in a preliminary trial in patients with gastric ulcer. Mr. J. L. Dawson concludes that for duodenal ulcer the simplest of any of the standard operations will probably be the safest for the patient, while for gastric ulcer the Billroth I partial gastrectomy has a very low recurrent ulcer rate.

Advances in Diagnosis

D. D. GIBBS,* D.M., M.R.C.P.

British Medical Journal, 1969, 4, 97-100

Radiological examination of the stomach and duodenum has remained unchallenged for more than 50 years as the single most important examination for patients in whom peptic ulceration is suspected. No approach has supplanted barium radiography. Other methods serve only to supplement standard x-ray examinations, and their application is confined almost exclusively to ulcers in the stomach. In the duodenum the skilled radiologist commands a monopoly, as there is no practical alternative to a careful search for features of ulceration in a contrast "meal." The proportion of duodenal ulcers escaping radiological detection has been variously estimated from 5-10% to one-third.

The success of radiologists in detecting peptic ulcers and the reliance placed on radiological diagnosis may lead to clinical turpitude. It is tempting to omit careful analysis of dyspeptic symptoms when a barium examination is, in any case, necessary. Unfortunately it is true that the most detailed history is of only limited diagnostic value in many patients; even if a peptic ulcer is strongly suspected a valid distinction cannot usually be made between gastric and duodenal ulceration on clinical criteria alone. The clinical diagnosis will often have to be revised in the light of investigational findings. But the value of detailed symptomatic analysis should never be underestimated, not only because it is a guide to investigation but because it may make a vital contribution to correct decisions in management. False concepts arise from exclusive reliance on barium radiology. "The mere exhibition of a dose of barium sulphate and exposure of radiographs is, it seems, commonly expected to decide whether a dyspeptic patient has a peptic ulcer. This belief is implicit in case reports which read 'barium-meal examination showed . . .' as though the examination was self-controlled and at its conclusion the x-ray screening couch presented an appropriately labelled ticket. Certainly the demonstration of a peptic ulcer may be one of the simplest exercises in radiology, but quite often it is one of the most difficult."

Even with expert radiology not all peptic ulcers can be detected, nor is it necessarily possible to distinguish radiologically between a benign and a malignant lesion. Very small ulcers are unlikely to be discovered even when they are placed most favourably for examination—in the middle third of the lesser curve of the stomach, or centrally on the anterior or posterior wall of the duodenal cap. Larger lesions if they are only superficial erosions of the mucosa cannot be shown radiologically. In certain areas, notably in the proximal and distal ends of the stomach, demonstration of ulcers is extremely difficult and is sometimes impossible. Both detection and interpretation can sometimes be improved by special radiographic techniques, especially by using the double contrast of air and a thin coating of barium to outline details of the mucosal lining. Such methods may be valuable as a "fine adjustment" after a lesion is suspected at the time of routine barium radiology. They necessitate intubation for the purposes of air insufflation of the stomach or to introduce a spray of barium. With recent improvements in flexible endoscopic instruments a direct inspection of the stomach will often be considered preferable and at least as informative.

Gastric intubation with hourly pH analysis of aspirates contributes indirect information from which the site and type of ulcer may be inferred. The investigation is simple to perform, but it is unpopular with patients and is seldom necessary.

Gastric Endoscopy

The centenary of the performance of the first gastroscopy by Kussmaul in 1868 has been an occasion for publishing accounts of the evolution of instruments and technique. The optical qualities, flexibility, and control of recently available instruments have advanced so much on the "old" fibroscope available 10 years ago that "it is like comparing a jet with a piston engine." Despite the variable and peculiar shape of the stomach, comprehensive views can now be expected in most examinations using some of the modern fibreoptic models available. This means that previously inaccessible "blind" areas of the stomach (notably parts of the posterior wall, fundus, cardia, and the distal antrum) can be brought within view.

The proportion of gastric ulcers discovered by fibroscope in patients who have had negative x-ray results is considerable, as judged by the admittedly small numbers so far published in Britain. The reported incidence varies between 5% and 20%, and differences are likely to depend on such factors as the type of examining instrument used, the quality of radiological examinations, and the details of patients submitted to examination.

Nevertheless, the use of the fibroscope extends beyond merely finding an ulcer in some patients who would otherwise be considered to have "non-ulcerative dyspepsia," and in fact it is more commonly used in patients who have already been shown
to have an abnormality in the x-ray film. Features of the ulcer itself, such as the sharpness of its edges, prominence of a surrounding hyperaemic halo, and the shape and character of the base, can be studied; peptic ulcers can also be examined in the context of surrounding mucosal abnormalities and disturbances of motility. Such cumulative data can be important in distinguishing benign from neoplastic ulceration, and may help predictions on prospects for healing of individual peptic ulcers.

**Intragastric Photography**

The procedure for obtaining photographs at different points in the stomach by means of a miniature intragastric camera mounted on the end of a narrow flexible tube was revived in Japan in 1950, and the evolution of the method has been described elsewhere.\(^1\)

In Japan gastric photography is carried out on many thousands of persons every year, for both diagnostic and screening purposes, particular stress being laid on the detection of localized and treatable carcinomas. While the technique is safe, simple, and easily learnt, difficulties sometimes arise in the interpretation of gastrophotos, which in Japan is a specially learnt discipline. In some patients with radiologically negative dyspepsia gastric photography will show evidence of peptic ulceration. Thus Blendis and his colleagues\(^3\) found among 117 patients who had photographic evidence of ulceration after negative radiographs, while others\(^4\)\(^-\)\(^7\) have suggested that gastric ulcers are seen more frequently by gastrophotography than by gastroscope. Nevertheless, these comparisons were made on the results of examinations using conventional semiflexible lens system gastrosopes, which are considerably less effective than the most recently available fibrosopes.

"Blind" intragastric photography is likely to be superseded by combined fibroscopy and intragastric photography as a diagnostic procedure. Still photographs, however excellent their quality, are no substitute for a direct look at an ulcer, especially for peristalsis, distortions, and mucosal changes. But "blind" photography—which is quicker and easier to perform than fibroscopy—may retain its place as a screening procedure in a country such as Japan, where there is a particularly high incidence of carcinoma of the stomach.

**Multipurpose Endoscopes**

The experienced radiologist is seldom wrong when he makes a confident diagnosis of simple ulcer. But all too often the radiological features are not sufficiently characteristic to justify dogmatic assertions about the benign or malignant nature of gastric ulcers. Examination by fibroscopy or photography does not necessarily settle uncertainties; even interpretation of the macroscopic appearances of ulcers in resected specimens may prove fallacious. The universal all-purpose gastroscope has still to be devised, though recent advances approach close to the ideal. The instrument must permit views of the whole stomach, should incorporate an intragastric camera, and should provide a reliable means of obtaining tissue or cellular material under direct vision. The efficacy of cytological diagnosis, using a jet of fluid directed at a suspicious ulcer or other gastric lesion, has recently been demonstrated,\(^8\)\(^-\)\(^10\) and in some patients this could prove more reliable than tiny biopsies, which are not necessarily representative of the histological features of the entire lesion.

Fibrescopes which incorporate an intragastric camera offer opportunities for inspection of gastric ulcers and the recording of changes in their appearance and size at intervals during treatment. Such examinations may complement or replace serial barium-meal studies and provide accurate information on the stage of healing that has been reached.\(^11\)

**Medical Treatment**

M. J. S. LANGMAN,* M.D., M.R.C.P.

British Medical Journal, 1969, 4, 100–102

There is much epidemiological and clinical evidence to show that gastric and duodenal ulcers are not identical. They have occurred with frequencies which have varied independently at different times and in different geographical areas, and while duodenal ulcer tends to be associated with gastric hypersecretion and a large parietal cell mass the reverse is probably true for gastric ulcer. The treatment of the two conditions will therefore be considered separately.

**Gastric Ulcer**

Gastric ulcer is at present rarer than duodenal ulcer in the United Kingdom, as in most other areas of the world, but its treatment has been the better defined. This has occurred because the change in gastric ulcer size can be determined with reasonable certainty by comparison of serial changes in barium meal radiographs.

The long-established methods of treatment have included rest, stopping smoking, sedation, gastric diets, and alkali treatment, but only the first two of these have proved really valuable in accelerating ulcer healing. Though alkali administration may relieve symptoms there is no evidence that it affects ulcer size. Even when quantities sufficient to maintain an intragastric pH above 4·0 were administered by drip into the stomach no benefit was found when expressed in terms of accelerated healing.

A regimen which is based simply on bed rest and stopping smoking can result in an impressive reduction in ulcer size, but there are clear advantages in methods which give the same benefit but allow the patient to continue his normal daily routine. In the last few years drug treatments have been sought and found which would allow this.

**Liquorice Derivatives**

Carbenoxolone Sodium.—Liquorice extracts have long been used as folk remedies for ulcer and good results have been claimed from using simple pastes. Glycyrrhizic acid extracted from liquorice is the basic substance from which carbenoxolone sodium is obtained. The original observation\(^19\) that carbenoxolone sodium will promote the healing of gastric ulcers has been confirmed on several occasions.\(^21\)\(^-\)\(^23\) The results appear to be similar to those which can be obtained with bed rest,\(^24\) but treatment with conventional doses, ranging from 50 to 100 mg. three times daily for four to six weeks, is frequently complicated by side-effects of fluid retention, especially in the elderly. Fluid retention, which may be sufficiently severe to cause cardiac failure, is less prominent when dosage is restricted to 150 mg. daily, but the rate of ulcer healing is correspondingly reduced. It may therefore be preferable

* Senior Lecturer, Department of Medicine, University of Nottingham.