COINCIDENT DUODENAL AND GASTRIC
ULCER.

(With Special Plate.)

BY

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The surgical treatment of duodenal and gastric ulcer is still the subject of controversy, and opinion is sharply divided as to the exact place which surgery should hold, and will ultimately maintain, in the treatment of this disorder. There is, however, an imposing accumulation of evidence of the curative action of a gastro-enterostomy in cases of duodenal ulcer. Collective statistics show that complete relief from symptoms follows in 85 per cent. of cases of duodenal ulcer following gastro-enterostomy. For gastric ulcer, on the other hand, this operation is much less successful, and most surgeons are agreed that when the ulcer is situated on the lesser curvature of the stomach a direct attack on it of one kind or another is essential for a lasting cure.

The object of this paper is not to analyse the causes of non-success following gastro-enterostomy for duodenal ulcer further than to point out the frequency with which a coincident ulcer is present in the stomach, an ulcer which is liable to escape observation unless a systematic search is made for it. During the three years prior to the war I examined in the *post-mortem* room 490 bodies for duodenal ulcer. In 41 bodies one or more duodenal ulcers were found—that is, in 8 per cent. In 5 cases one or more gastric ulcers were present along with the duodenal ulcers—that is, in 12 per cent. of cases of duodenal ulcer a coincident gastric ulcer was found (Fig. 1). Whilst, therefore, fully aware of the frequent association of ulcer in both stomach and duodenum, I confess to have omitted to make a systematic examination for multiple ulcers in all upper abdominal operations until five years ago, when the following case brought home to me the importance of a complete assessment of pathology at operation.

CASE.

A man, aged 28, had been operated on two years previously for a perforated duodenal ulcer. The perforation had been closed and the pelvis drained. For two months after the operation he had been free from symptoms, and then the typical periodic attacks of indigestion had returned.

At the second operation, performed in July, 1920, a chronic duodenal ulcer on the anterior wall of the duodenum, with considerable stenosis, was found. Posterior gastro-enterostomy was performed, and two months later the patient expressed himself as being relieved but not cured of his dyspeptic symptoms. In 1921 he returned still complaining of intermittent dyspepsia. A jejunal ulcer was suspected, and a third operation was carried out just one year after the second. No jejunal ulcer was found, the duodenal ulcer had healed, but high up on the lesser curvature of the stomach there was a large, chronic, indurated, penetrating ulcer, obviously of long standing. The base of the ulcer was burnt out with the cautery and the edge sutured and invaginated. For the five years since this operation the patient has been free of all symptoms.

It appeared to me to be quite clear that this patient had had all along coincident gastric and duodenal ulcers, and that until the last (third) operation treatment had been directed only to the latter. A direct attack on the gastric ulcer was followed by a symptomatic cure. Since this lesson I have made a systematic examination for gastric ulcer at all operations for duodenal ulceration. During this period I have operated on 300 cases of ulcer, and the results of the five years' experience are as follows:

	Male.	Female.	Total.
Duodenal ulcer alone ...	167	54	221
Gastric ulcer alone ...	17	20	37
Coincident duodenal and gastric ulcer	27	15	42
Totals ...	211	89	300

Some interesting points emerge in regard to the sex and age incidence of ulcer from this series of 300 cases.

The common occurrence of coincident gastric and duodenal ulcer is clear—namely, that in 16 per cent. of duodenal ulcer cases there was present a gastric ulcer as well; and in 53 per cent. of cases with gastric ulcer one or more duodenal ulcers were found. If the cases of coincident gastric and duodenal ulcer be excluded, we find that duodenal ulcer was exactly six times as frequent as gastric. In the male subject the proportion of duodenal to gastric ulcer was 9 to 1, in the female 2.7 to 1. If all ulcer cases be included, the proportion of duodenal to gastric ulcer is 3.3 to 1. In the male sex it is 4.4 to 1, in the female sex 2 to 1. We may fairly deduce from these figures that, given the factors predisposing to ulceration, the probable site of ulcer will be the first part of the duodenum and after this the lesser curvature of the stomach.

DIAGNOSIS.

It is often very difficult from the patient's history and ordinary clinical examination to be sure whether he is suffering from a gastric or a duodenal ulcer, or both. When, however, the pain comes on at varying intervals after food, whilst still displaying the periodicity so constantly found with ulcer, one has some grounds for suspecting that ulcers may be present in both stomach and duodenum. The x-ray picture after a barium meal is the real aid to accurate diagnosis. In the early cases the x-ray evidence of the gastric ulcer may be a little uncertain, and be confined to a slight irregularity of outline of the lesser curvature with some degree of spasmodic hour-glass contraction. In the later cases, where stenosis has occurred, the very typical picture of hour-glass stomach and duodenum leaves no doubt as to the diagnosis (Fig. 2).

TREATMENT.

There can be little doubt that under prolonged and efficient medical treatment many early cases of gastric and duodenal ulcer can be completely cured. More often than not, however, the patient either does not seek, does not get, or will not submit to the prolonged rest and strict dietary until he has had numerous attacks, which have led to definite organic changes in the gastric or duodenal wall. When such changes have occurred the hope of a lasting cure by medical measures alone is distinctly less, and if one course of medical treatment is followed by relapse operative measures should be considered. We are concerned here merely with the surgical treatment of coincident ulcers in the stomach and duodenum. From the experience of the 42 cases dealt with in this paper, in the treatment of which a considerable variety of surgical measures have been employed, I should, in the first place, divide the cases roughly into two classes:

1. Comparatively early cases with active ulceration but little or no stenosis.
2. Old-standing cases with marked stenosis, often in elderly people.

In Class 1 the operation must include the extirpation of the gastric ulcer, either by partial gastrectomy, excision, or cautery, together with some form of gastro-enterostomy. In Class 2 the clinical and the pathological picture are both dominated by the stenoses and their results, and anastomotic operations, without any direct attack on the ulcers, are followed by the most gratifying and lasting success. This latter fact is of importance, as in many cases the patients are old, thin, and feeble, and not well suited for drastic surgical procedures. In 18 of the 42 cases in this series the patients were over 50 years of age, in 3 cases the patients were over 70 years of age, yet all made excellent recoveries after multiple anastomotic operations.

It may be asked what safeguard we have against the malignant degeneration of the ulcer if such conservative measures are adopted. My experience has been that, whilst malignant disease may arise in a gastric ulcer (in one case of this series it was found and proved fatal), it does not arise in the cicatrizing type which leads to hour-glass contraction, and the risk of it may be regarded as a negligible factor in determining the operative procedure in these old-standing stenosing cases.

The correct method of dealing with cases in the first group, where active ulcers are present in both stomach

and duodenum, is not an easy matter to decide. A resection of the whole ulcer-bearing area, whilst a logical procedure, is rendered difficult in many cases by the fixity of the duodenum. It was only carried out in two cases

TABLE I.—Operative Treatment in 42 Cases of Coincident Gastric and Duodenal Ulcer.

Operation.	No. of Cases.	Result.	Present State.
Posterior gastro-enterostomy ...	7	7 R.	3 perfectly well; 4 still complain of gastric symptoms.
Anterior gastro-enterostomy and lateral anastomosis	3	3 R.	2 very well; 1 still complaining.
Gastro-duodenostomy ...	1	1 D.	Death from pulmonary embolism on tenth day.
Excision of ulcer and posterior gastro-enterostomy	2	2 R.	1 very well; 1 late recurrence of symptoms.
Excision and anterior gastro-enterostomy	1*	1 D.	Death few hours after operation.
Excision and gastro-duodenostomy	1	1 R.	Patient very well.
Cautery and posterior gastro-enterostomy	15	15 R.	All very well.
Cautery and gastro-duodenostomy	1	1 R.	Very well.
Pyloroplasty ...	1	1 R.	Very well.
Double gastro-enterostomy and lateral anastomosis	1	1 R.	Very well.
Gastro-gastrostomy and posterior gastro-enterostomy	2	2 R.	Both very well.
Gastro-gastrostomy and gastro-duodenostomy	1	1 R.	Very well.
Gastro-gastrostomy and gastro-duodenostomy and duodeno-jejunosomy	1	1 R.	Very well.
Pyloric exclusion and gastro-enterostomy	1	1 R.	Very well.
Posterior gastro-enterostomy and duodeno-jejunosomy	1	1 R.	Very well.
Partial gastrectomy ...	2	2 R.	Both very well.
Exploratory operation ...	1†	1 R.	Death some months later.

* Perforated.

† Malignant.

FIG. 3.—Diagrammatic drawings of operations carried out in the 42 cases dealt with. Below each diagram the number of cases so dealt with is stated.

in this series. Simple gastro-enterostomy alone is insufficient, and will be followed by persistent symptoms in 50 per cent. of cases. Burning out the ulcer with the thermo-cautery, followed by invagination and a gastro-enterostomy, was carried out in 15 cases, and with uniform success. I confess to a pleasant surprise on hearing from the

patients in this group of their freedom from all subsequent digestive trouble. So favourable were the reports in this group that I now regard the Balfour operation as that of choice for the early, active cases of coincident gastric and duodenal ulcer.

There were two deaths in this group of 42 cases. In one case death occurred suddenly on the tenth day, from pulmonary embolism. In the second case, that of an elderly lady, the gastric ulcer had perforated eight hours before operation, and death resulted from general peritonitis. A death rate of 4.8 per cent. cannot be regarded as high when it is considered that in many of these cases one is dealing with old and emaciated subjects.

The great variety of operations which were carried out in this series of cases is illustrated in Table I and Fig. 3.

CONCLUSIONS.

1. Coincident ulceration in stomach and duodenum is relatively common.

2. In this series it occurred in 16 per cent. of all duodenal ulcers and in 53 per cent. of all gastric ulcers.

3. Two groups of cases are to be distinguished when considering operative measures: (a) active ulcers without stenosis in relatively young people (below 50); (b) unhealed but cicatrized ulcers with stenosis in elderly subjects.

4. The Balfour operation is recommended for Class (a). Purely anastomotic operations give a lasting symptomatic cure in Class (b).

MAN AS THE INTERMEDIATE HOST OF THE TAENIA SOLIUM.

(With Special Plate.)

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INFECTION by the *Taenia solium* has become extremely rare in this country, and the recognition of the aberrant *Cysticercus cellulosae* stage of this intestinal parasite in man by radiological means is of interest.

The *Taenia solium* used to be commoner, and was described at a period when x radiations were not being employed in medicine, and it has not been found possible to discover a record of appearances which may be seen in radiograms when man becomes the intermediate host. The condition is well recognized, and not of rare occurrence at the present day in many parts of the world, notably in Germany, in some parts of America, and in India, and I hope that the publication of this case will give me access to additional information upon this interesting subject, and that I may receive references to cases which have been seen.

The tapeworm known as the *Taenia solium* is characterized by a scolex bearing four somewhat prominent suckers and hooklets, varying in number from twenty-six to twenty-eight. It is an extremely long parasite, and lies in the intestinal tract of man, who is the host, the intermediate host being the pig. The proglottides contain the ova, and as they ripen are discharged in the faeces, the ova retaining a certain motility, and are swallowed by the pig. The gastric juices of the intermediate host act upon the shell of the ovum and dissolve it, and the oncosphere, which is set free in the stomach, passes into the blood stream, whence it is carried all over the body. It may settle in the brain, either in its substance or in the meninges, in the lungs, in the heart, in the eye, but most commonly in the skeletal muscles. It rarely lodges in the substance of the liver. It soon becomes transformed into a clear elliptical cyst, measuring about a centimetre by half a centimetre, and if lying in muscle substance takes up a position with its long axis parallel to the fibres of the muscle, which it separates. It slowly degenerates and becomes calcified, and may become apparent and give rise to symptoms and signs. Osler reports a case in which hundreds of subcutaneous nodules proved to be calcifications of the *Cysticercus cellulosae*, and many cases in which these bodies

FIG. 1.—“Opposing” duodenal ulcers and gastric ulcer on lesser curvature. (The usual sites of ulceration.)

FIG. 2.—Coincident duodenal and gastric ulcers with stenosis, showing hour-glass stomach and duodenum