

An Address

ON

THE EARLY RECOGNITION AND PREVENTION OF CARCINOMA OF THE STOMACH.

DELIVERED BEFORE THE SOUTH ESSEX DIVISION OF
THE BRITISH MEDICAL ASSOCIATION.

BY

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THERE is no disease amenable to surgical treatment for which so much could be done by the practitioner as for carcinoma of the stomach, not only in its early recognition, but in its prevention. General practitioners see the disease early, often in its precancerous stage. I, with rare exceptions, see it only in its more advanced stages, when diagnosis is certain and the result of treatment problematical. For example, among the 70 cases I have operated on, only in 17 was I able to do the modern operation of partial gastrectomy, and none of these could be called "early cases."

There is no organ upon which operation on modern lines for cancer gives such great relief and so excellent a prospect of cure; if untreated, death usually ensues within twelve months from the first onset of symptoms.

I do not propose to discuss at any length tests of the gastric contents which are almost impossible of execution by a man in active practice. I wish simply to draw attention to the early symptoms suspicious of carcinoma, the means at our command of proving or disproving their correctness, and to the possibility of preventing the onset of malignant growth in the stomach.

Cancer of the stomach is in the majority of cases a primary disease, the rare cases in which it is involved secondarily to growth of the pancreas, colon, or gall bladder, or from the oesophagus, do not concern us now. In the majority of instances the disease starts on the lesser curvature within an inch of the pylorus. Among the 70 cases I have operated upon, in 17 only was it actually at the pylorus, in 43 on the lesser curvature.

Carcinoma of the stomach in the majority of cases produces symptoms early, but they are usually vague, and those which are supposed to be typical of carcinoma only reveal themselves at a late stage of the disease. This is a most important point to remember in dealing with these cases.

In rare instances no symptoms are produced by the primary growth. I have met with this latency in 7 cases. In 4 the onset of ascites, sudden or gradual, first brought the patient under medical supervision, in 1 progressive loss of weight, in the remaining the presence of secondary growth—in 1 in the liver, and in the other in the left ovary.

I think we shall not be far wrong in saying that in 85 per cent. of the cases symptoms are present pointing to the stomach as the seat of the disease. These cases fall into three groups:

- (1) Carcinoma of the body of the stomach—usually prepyloric.
- (2) Carcinoma of the pylorus.
- (3) Carcinoma at the cardia.

In both (2) and (3) there are early signs of obstruction which I need not discuss.

Cases of carcinoma of the body of the stomach fall into three groups by the symptoms produced:

- (1) Following previous gastric disease.
- (2) Occurring in individuals with a previously "clean" gastric history.
- (3) Latent.

The last class I have already referred to.

(1) This is a most important group, and the one which is concerned with the prevention of gastric carcinoma.

Physicians generally have been sceptical as to the possibility of malignant growth originating in chronic gastric ulcer, but among my cases were 26 with a history pointing to chronic gastric ulcer of over four years' duration, 18 of these were over five, 5 of twenty-five to twenty-eight, 1 of

fifteen, and 1 of sixteen years' duration. The evidence, to my mind, admits of no doubt. Other surgeons have found higher percentages—Robson 59 per cent.¹ and Moynihan 60 per cent.² I have not included in these figures those cases in which there was a history suggestive of gastric ulcer many years previously, followed by years of good health. They include only those in which the symptoms extended over the periods named with the "free intervals" which usually occur in cases of chronic ulcer. Had all cases with a history of previous gastric trouble been included my figures would approximate those given by Robson and Moynihan.

Evidence has been obtained from the other side. Mumford and Stone³ traced 60 patients treated for chronic dyspepsia at the Massachusetts General Hospital. They found that 30 of them died from what was clinically carcinoma of the stomach. Of microscopical evidence we have the work of Wilson and McCarty⁴ in the Mayos' clinic, who found on examining the specimens removed by partial gastrectomy that in 71 per cent. there was evidence that the carcinoma had developed in chronic gastric ulcer.

It will not be overstating the case if we conclude that considerably over a third of the cases of carcinoma of the stomach originate in chronic ulcers and are therefore "preventable."

The following are examples of this group:

CASE I.—M. A., a woman of 41, was sent to me in June, 1909. She had had attacks of indigestion off and on for twenty-eight years. Six years previously she was told she had a chronic gastric ulcer, and was treated at home in bed for four weeks, in hospital for two. She got better, but relapsed so soon as she returned home. This treatment had been repeated several times. She was a thin, spare woman, in whom abdominal examination revealed no evidence of gastric disease. Free HCl was present, 0.14 per cent. Total acidity was 66. I operated, and found carcinoma of the prepyloric portion of the stomach on its posterior surface. I performed partial gastrectomy, and she left hospital three weeks later and is now well.

CASE II.—A fortnight ago I operated on a woman of 53 who had had attacks of indigestion treated as chronic gastric ulcer for ten years. For the past two years the symptoms had increased in severity, and the pain had been almost constant day and night for two months. On examination a hard irregular tumour was felt immediately beneath the ensiform, and on distension a large area to the left of this became resonant. Test meal: Free HCl absent, total acidity 12. I diagnosed an hour-glass stomach due to malignant growth. On exploration I found carcinoma starting on the lesser curvature, adherent to the under surface of the liver, producing hour-glass contraction with a large cardiac pouch. There were massive deposits in the subpyloric glands, and the growth had spread into the lesser sac and through the transverse meso-colon.

I could quote many similar cases in which serious gastric disease was diagnosed, treated by rest in bed, and relapsed, and yet surgical treatment was not undertaken until malignant disease had supervened. Had operation been carried out earlier there can be little doubt that the onset of malignant disease would have been prevented.

It is in the second group, in which carcinoma occurs in individuals with a clean gastric history, that early recognition is so urgently called for. The first symptom is usually epigastric pain or discomfort, called "indigestion," coming on in the midst of perfect health. Of insidious onset, the discomfort becomes pain, which may be a constant gnawing made worse by food, often keeping the patient awake at night, and not so often relieved when the stomach is empty as is the pain and discomfort of chronic ulcer. There may be no other symptoms. As time goes on the disease reveals itself by the gradual development of what are considered to be the symptoms of gastric carcinoma. The patient develops a distaste for food, particularly for meat, vomiting of coffee ground material commences, a tumour develops, and changes are noted in the gastric contents after a test meal, signs that the disease has advanced too far for the most effectual surgical treatment. Occasionally an acute haematemesis in a previously healthy man is the first indication of gastric disease. I have recently performed partial gastrectomy on a patient who had treated such a haematemesis twelve months previously as being due to cirrhosis of liver.

At the present time it is perfectly safe to say that all the positive signs of carcinoma of the stomach are late signs, and that any one of them (with the exception of the

secondary deposits) may be found in cases of simple gastric disease, or even in disease of other abdominal viscera.

I will briefly refer to the results of the analysis of gastric contents after a test meal. Considerable stress has been laid in the diagnosis of carcinoma of the stomach upon the absence of free HCl and diminution of the total acidity in the gastric contents removed after a test meal. There are, however, so many exceptions that too great importance must not be attached to it.

Among the last 20 consecutive cases of gastric carcinoma that I have operated upon at hospital, free HCl was absent and the total acidity was low in 11; in 6 of those in which free HCl was present the gastric symptoms had extended over many years. In these cases the acidity, free and total, was what we are accustomed to obtain in cases of chronic ulcer. Of the remaining 3 in which there was no history of previous gastric trouble, in 2 a trace only of free HCl was present and the total acidity was low; in the other both appeared to be normal. Comparing this with the results obtained from the last 20 consecutive hospital patients upon whom I have operated for simple gastric and duodenal diseases: they comprise 13 chronic gastric ulcers, 6 duodenal ulcers, and 1 case of chronic gastritis; free HCl was present in about normal amount, and the total acidity corresponded in all but 3 of the cases of chronic gastric ulcer—2 of these were cases of hour-glass stomach from the contraction of the scar of simple ulcer, and 1 had had a recent haematemesis. Among the 6 duodenal ulcers, HCl was present and increased in amount in all except 1, that I shall mention later. In the patient with chronic gastritis of many years' duration free HCl was absent and the total acidity was low.

In all these cases the investigations were carried out in the London Hospital Clinical Laboratory by the Director, Dr. P. M. Panton, to whom many thanks are due.

I am accustomed to teach that it is usual to obtain an excess of free HCl and a high total acidity in cases of chronic duodenal ulcer. In cases of carcinoma originating in a previously healthy stomach, at the time at which we see them free HCl is usually absent, and the total acidity is low. If this is so within a month of the onset of symptoms I have not yet been able to ascertain. In cases of chronic gastric ulcer and in carcinoma originating in chronic ulcer, free HCl is usually present in about normal amount, sometimes slightly in excess, and the total acidity corresponds. In those cases in which most help is needed to enable the correct surgical procedure to be carried out after operation has been decided upon—namely, those with many years' history, which may be chronic ulcer or may have overstepped the line and become malignant—no information is given of any value. In cases of chronic gastric ulcer apart from growth very rarely, in carcinoma of other organs commonly, and after severe haemorrhage, free HCl may be absent.

That these exceptions must be remembered in considering the weight to be placed on the absence of free HCl and the diminution of the total acidity is obvious from the following histories of three patients I operated on on one afternoon recently.

CASE III.—The first was a man, aged 35, with a history suggestive of duodenal ulcer of three months' duration. As he had never been medically treated I had his septic teeth removed, and asked my colleague Dr. Robert Hutchison to take him under his care. A test meal was given. No free HCl was found, and total acidity was 49. I therefore thought it my duty to explore. I found what I considered to be a simple chronic ulcer of the first part of the duodenum. In view of the result of the test meal, however, I excised it, and performed a posterior gastro-jejunostomy. The microscopic examination confirmed the naked-eye diagnosis.

CASE IV.—The second patient was a man of 38 who had had a severe haematemesis due to a small acute ulcer on the lesser curvature. There was absence of free HCl, and total acidity was 36.

CASE V.—The third was a woman of 47 who had had symptoms of gastric disease for ten years. Free HCl was absent, and total acidity was 12. I found a malignant hour-glass stomach.

This last case is an apparent exception to the teaching that in cases of carcinoma of the stomach supervening on chronic ulcer there is little change in the gastric contents examined after a test meal. But the growth had produced an hour-glass stomach, and I have found in the last two examples of this condition due to simple causes that

I have operated on a similar absence of free HCl. In both cases further examination fourteen days after gastro-jejunostomy showed free HCl present.

At the present time there is no certain early sign of gastric carcinoma. How, then, is it to be recognized early? This can only be done by treating seriously any digestive disturbance arising in adults; the surest early sign we possess is given by the failure of medical treatment.

If dyspepsia arises in an adult previously in good health a careful examination is made for signs of organic disease of the stomach, tumours, dilatation, etc. After treatment of all bad teeth, the patient should be given a few days' rest in bed. This is often sufficient to cure, but if symptoms persist or recur after all causes, such as overwork and bad habits, have been corrected, surgical intervention should be the rule after analysis of gastric contents. It is only in this way that we can hope to treat carcinoma of the stomach early.

If signs of organic disease of the stomach are present on the first examination, the patient should be advised to submit to surgical treatment.

My contention is that any previously healthy adult who without obvious reason, bad habits, overwork, etc., commences to suffer from epigastric discomfort, should be looked upon as possibly suffering from carcinoma. We need to educate the public to understand that dyspepsia at this time of life should not be regarded lightly and cannot be efficiently treated without rest, often rest in bed.

In connexion with this subject it must be remembered that disease of any part of the digestive tract—gall bladder, appendix, colon—may interfere with the functions of the stomach and cause discomfort after food. The difficulty that not infrequently arises in the diagnosis between certain cases of duodenal ulcer and gall stones must be familiar to you all. "Appendix dyspepsia" is a very definite condition, and while usually associated with excess of free HCl I have found absence of free HCl in long-standing cases, the patients being sent to me as carcinoma of the stomach. These are further reasons why surgical treatment should be undertaken.

I do not wish it to be understood that I advocate surgical exploration in every case of dyspepsia; far from it. I simply contend that cases of dyspepsia in adults which do not yield to rest in bed and diet after removal of carious teeth and correction of bad habits are usually due to organic disease, amenable only to operative treatment, and at a certain period of life are suspicious of carcinoma.

You may be surprised that I have not mentioned the gastroscope as a diagnostic instrument. In its present form its use is probably more dangerous than exploratory laparotomy in the hands of a competent surgeon. It is difficult, if not impossible, to see the whole of the stomach; other parts of the intestinal canal and other viscera cannot be investigated. I have also omitted all mention of the presence of a tumour as a symptom, as this is a late sign. Early and certain recognition of carcinoma of the stomach is only possible by surgical exploration after the failure of medical means of cure.

It would be out of place to do more than briefly touch upon the methods employed after abdominal exploration. With regard to the cases in the second group in which early exploration is justifiable, the abdomen should be opened by pulling the right rectus outwards after dividing its anterior sheath. If this is done, a post-operative hernia is impossible. After the belly has been opened, the stomach is carefully examined from end to end and on both surfaces, special attention being directed to the cardiac end, for it is here that disease is apt to be overlooked, especially the pouch of an hour-glass stomach—a disease which may mimic carcinoma. If no disease is found by external examination, it is useless to open the stomach. The duodenum, gall bladder, colon, kidney, and appendix should be examined for signs of disease. If carcinoma of the stomach is present, our aim is to remove it freely, together with the lymphatic territories concerned. This always means the whole of the lesser curvature, the first part of the duodenum, the lesser omentum, and as much of the great omentum as possible, leaving enough of the fundus of the stomach to do a gastro-jejunostomy. The amount removed can be seen in a photograph I have taken of the parts removed by partial

gastrectomy from a woman of 32, in whom carcinoma developed after thirteen years' medical treatment for gastric ulcer.⁵

The death-rate of this operation should not be more than 15 per cent. In the 17 that I have done 3 have died—one in whom also I removed a portion of liver to which the pyloric end of the stomach was adherent died two months later as the result of a biliary fistula; one died from shock; and in the other the wound had to be hurriedly sutured with one layer of stitches; on the fourth day these gave way and he died from bronchopneumonia developed after the second anaesthetic.

The results of this operation are encouraging. The average duration of life, if recurrence takes place, is eighteen months. This is a considerable gain, as the duration of life from the first onset of symptoms in untreated cases is rarely more than twelve months. The quality of life is good; as a rule, no indigestion or vomiting, and the recurrence usually does not affect the stomach. At the present time about 65 per cent. of those who have survived the operation died of recurrences within three years. We must, however, remember that these were all "late" cases.

There may be difficulty in diagnosing the condition even when the belly is opened, but this will rarely arise in this second group of case. If it occurs, a rapid microscopic examination of a portion of the edge of the ulcer should be made while gastro-jejunostomy suitable for use after partial gastrectomy is being carried out. If the growth is found to be irremovable, gastro-jejunostomy should be done only if obstruction is present; if it is not, the operation entirely fails to relieve.

The death-rate of exploration is negligible.

I must now pass on to the second part of my subject—the prevention of carcinoma of the stomach. Earlier this evening I made the statement that at least one-third of all cases of carcinoma of the stomach arose in connexion with gastric ulcer. These cases I believe could be prevented. There is little doubt that acute gastric and duodenal ulceration is a septic disease. Acute ulcers of the stomach and duodenum are frequently found *post mortem* in cases of appendicitis, urinary sepsis, burns, etc. Cell poisons circulating in the blood lower the resistance of the gastric cells so that auto-digestion takes place,⁶ or minute suppurative foci occur in the lymphatic follicles along the lesser curvature.⁷ Oral sepsis is, I believe, a fertile cause of gastric ulcer, and hence one of the predisposing causes of cancer of the stomach. It is no uncommon thing for me to have to delay operation on patients with undoubted organic gastric disease of long standing until carious stumps have been removed.

It is not known with certainty why many acute ulcers heal and others do not; it may be that oral sepsis has something to do with it. Every acute ulcer, whether of the type found in the disease called gastrotaxis or not, should be treated by rest in bed and suitable medical measures after all carious teeth have been dealt with.

Chronic gastric ulcer should be treated in the same way unless signs of pyloric stenosis or hour-glass stomach are present, or haematemesis occur, when the surgeon should be called in. If rest fails to relieve or symptoms recur on resuming work, surgical treatment should be adopted. Chronic simple ulcers of any part of the stomach or duodenum will heal after a well-planned gastro-jejunostomy and efficient after-treatment. I have had the opportunity of proving this in several cases.⁸

If the ulcer is large, or markedly indurated, or if there is any suspicion of malignancy, it should be excised in addition.

Attention to the hygiene of the mouth, thorough treatment of acute and early chronic gastric ulcer, handing over to the surgeon those in the latter group that fail to respond to or relapse after treatment, would, I am sure, greatly diminish the incidence of carcinoma of the stomach.

REFERENCES.

- ¹ Mayo Robson, *Medico-Chirurgical Trans.*, vol. xc, 1907, p. 232. ² Mosshan, *Trans. Clin. Soc. Lond.*, vol. xxxix, 1905, p. 84. ³ Mumford and Stone, quoted Deaver and Ashurst, *Surgery of the Upper Abdomen*, 1909, vol. i, p. 270. ⁴ Wilson and McCarty, *American Journ. of Med. Sciences*, December, 1909. ⁵ Sherrin, *Clinical Journ.*, October 13th, 1910, p. 25. ⁶ Bolton, *Chas., Trans. Med. Soc. Lond.*, vol. xxxi, 1908, p. 249. ⁷ Miller, *Chas., Archives Path. Institut. London Hospital*, vol. i, 1906, p. 39. ⁸ Sherrin, *Trans. Clin. Soc. Lond.*, vol. xl, 1907, p. 156.

ACUTE JEJUNAL OBSTRUCTION IN A CASE OF ADVANCED PREGNANCY: OPERATION: RECOVERY.

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The following case is unusual and interesting.

The patient, an extremely healthy young married lady of 20 years of age, had been attended by Dr. E. A. Roberts during her pregnancy. The confinement was expected on November 15th, 1910.

When seen on October 25th she complained of extreme pain in the lower abdomen. On examination there were no signs of commencing labour, and the bowels had acted on the previous day. There had been a similar attack two days before, which had lasted two or three hours. On October 26th the pain shifted from the pelvis and became epigastric and severe, and the vomiting, which had commenced on October 25th, now became continuous.

Notwithstanding all forms of treatment these symptoms continued until October 28th, when she was seen by Dr. R. A. Gibbons and Dr. Herman, and the opinion was formed that the patient had intestinal obstruction high up in the small intestine. It was thought that induction of labour was not justified, and laparotomy was advised. Later Mr. Warrington Haward saw the patient and concurred with this view.

The patient was removed to a nursing home that night late, and was operated on at 4 a.m. on October 29th, Dr. Gibbons and Mr. Haward being present.

Notes by Mr. Wallis.

The patient was carried straight on to the operation table, where I first saw her. She was much distressed and in a nervous and excited condition. She was violently sick when on the operation table. After this had passed off she was anaesthetized by Mr. Bellamy Gardner and the abdomen was painted over with iodine solution. The abdomen was opened by an incision in the mid-line above the umbilicus 5 in. in length. The uterus presented itself at the opening and was gently held forwards. The stomach was found to be much distended, as was also the duodenum. The small intestine was collapsed and empty.

The uterus was held still further forward to enable the commencement of the jejunum to be seen, and it was at once obvious where the obstruction lay. About 6 in. from the commencement of the jejunum the gut was seen to be pressed on by the uterus—there was no suggestion of volvulus, but there was a definite line where the bowel ceased to act and where it was flat and contracted. This contracted portion and the bowel above were pulled out of the abdomen and the intestinal contents gradually pushed on. After a minute the collapsed bowel was seen to begin to be active, and as this was watched it was seen that the intestinal contents gradually passed on and on down the intestine which was quite healthy apart from the contraction.

It was not thought necessary to do anything further, and the wound was closed in layers, and finally by interrupted silkworm gut sutures. The stomach was washed out before the patient left the table.

Notes by Dr. A. E. Roberts.

Labour pains began six hours after the operation—that is, at 10.30 a.m. on October 29th. The first stage was complete at 1 o'clock. At 1.30 a stillborn fully-developed male child was born quite naturally and without assistance; fifteen minutes later the placenta and membranes came away naturally. Uterine pains were very strong throughout and contraction after delivery quite normal.

The patient appeared to suffer no additional discomfort from the operation wound, and was quite free from pain or discomfort after delivery. The puerperal period passed without any feature calling for remark, and was quite normal throughout.

The fetus was well nourished, weighing 8 lb., fully developed, but dead. Fetal movements had not been noticed by the patient for three days previously.

The patient made a perfect and uninterrupted recovery. The temperature at the time of the operation was 100.2°, and during parturition rose to 101.6°; pulse 130. Both dropped to normal the next morning, and remained so. The stitches were removed on the tenth day after operation, and the wound had healed well.

The rapid recovery of this patient was remarkable, and was in large measure due to her wonderful physique.

This case is unique in our experience of acute intestinal obstruction. The main points of interest are:

1. *The Seat of the Obstruction.*—This was unusually high up, and no doubt accounted for the almost continuous vomiting, and in many ways the symptoms were more like