

## A Clinical Lecture

ON

### THE EARLY DIAGNOSIS OF CANCER OF THE STOMACH.

Delivered before the Final Fellowship Class at the London Hospital

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GENTLEMEN,—The subject to which I wish to draw your attention to-day only a few years ago was considered to be entirely outside the province of surgery. Many of our medical colleagues appear to think that it is so still. Yet it is absolutely beyond contradiction that the only proceeding known at the present day which holds out the least hope of curing a patient suffering from this complaint is a surgical operation. Medicine does not offer the slightest, and does not pretend to; it merely treats the symptoms and lets the disease alone. And I have no hesitation in expressing my conviction that the time is not far distant when the public, who are much better informed as to the progress of surgery and surgical treatment than is usually believed, will insist on a surgical consultation being held at the earliest opportunity in every case in which there is the least suspicion of the existence of this complaint. One of our greatest living authorities on diseases of the stomach the other day went so far as to say that the repugnance of the patient to operative measures is very often merely the outcome of the repugnance and lack of initiative in the physician.

Cancer of the stomach at its onset is a local complaint. If operated upon sufficiently early it can be removed completely and the patient cured. If left it involves the glands in a definite order and spreads into neighbouring structures, such as the pancreas, but for cancer it is for a long time free from the presence of metastatic growths which either make their appearance late or not at all. The stomach, unless it has been allowed to become tied down by adhesions, is easily accessible in all its parts, with the exception of the cardiac orifice, and stands sutures singularly well. Shock, unless the patient is exhausted by advanced disease and prolonged starvation, need never give rise to anxiety. Peritonitis is a thing of the past. Primary union with restoration of function can be relied upon if only the favourable time has not been allowed to pass by. Our task is to make a diagnosis while the growth is still local, before it has involved the glands or the neighbouring organs, while the cancer is still in that stage in which removal can be effected without too great a degree of risk. When the diagnosis is obvious, when the glands in the neck are involved and there is a fixed tumour in the abdomen, when the patient has already lost two or three stones in weight and there is a cachectic look upon his face, it is too late. The only chance has been lost and nothing can bring it back again. Unhappily, in London at least, patients suffering from cancer of the stomach are usually allowed to reach this stage in a well-developed form before the condition is realised. In the North it appears to be different.

Cancer of the stomach is met with in circumstances so different that cases may be divided into two distinct classes. It may either begin, apparently *de novo*, in a perfectly healthy stomach, in a perfectly healthy man who has never had more than the most transient indigestion; or it may develop at the site of some old chronic ulcer which has been the cause of more or less suffering for years past. It is still undecided what proportion these two classes bear to each other. Some years ago Hauser estimated that at least 4 per cent. of cases of chronic ulcer ended in cancer, but this is manifestly a very low estimate. Looking at it from the opposite point of view, Spaschko found that out of 100 cases of carcinoma of the stomach all but ten had originated in this way. Jedlicka, from the statistics of Maydl's clinic, considers that this mode of origin is much the more frequent of the two. Certainly carcinoma and chronic ulcer are both most common in the same regions of the stomach; and with the well-known tendency for carcinoma in other

parts of the body to originate from the neighbourhood of scars, especially of scars that are constantly being irritated, it seems only natural that this mode of origin should be the common one. Our own post-mortem statistics are of no value with regard to this point, for nearly always by the time a patient has died from cancer of the stomach all trace of any antecedent ulcer has long since disappeared. The only certain information we shall ever have must be derived from a long series of early operations carefully recorded, but all probability is in favour of the proportion being a very high one, even if it falls short of 90 per cent.

Now, gentlemen, I have not brought any museum specimens to show you to-day, for the very good reason that none of them illustrate the point to which I wish to direct your attention. Museum specimens are of especial value in showing us what should not be allowed to occur. They illustrate the last stage of the disease, the stage that is incompatible with the further prolongation of life, when no one would dream of such a thing as operation. What I wish to deal with to-day is the very earliest, the stage in which there is yet hope not only of relief but of cure, and naturally specimens that illustrate this are only to be obtained by the rarest chance. But I have brought the clinical histories of several patients who have been recently under my care and these I propose to discuss with you now. For the present I am only concerned with those cases in which there is either no history of ulcer of the stomach at all or in which, if there has been an ulcer at some distant time, it has long since ceased to cause any symptoms. All those cases in which there is evidence either of long-standing ulceration or of the deformity and contraction which it so often leaves behind it I shall put aside. Whether cancer is beginning to develop in them or not ought not to make the least difference in the line of treatment. In all alike cure is impossible without an operation and even the smallest measure of relief improbable. Delay only makes the condition worse—very quickly if cancer is present, more slowly if it is not, until at last in either case the time comes when nothing can be done and the specimen is mounted in a museum as a warning.

Looking back upon these histories the first thing to attract the patient's attention was nearly always either an alteration in the appetite or pain. In several vomiting occurred as an early symptom; one patient persisted that he had never been troubled in any way until he had a sudden attack of hæmatemesis; and one or two, though they were aware that something was not right, never complained until they had become alarmed by suddenly discovering the existence of a tumour; but in nearly every case careful inquiry elicited the fact that either some alteration in appetite or pain, or both together, preceded everything else. The alteration in appetite took various forms. In most there was a distaste for meat and all rich articles of diet. In some the distaste was general. There was complete loss of appetite; no wish or desire for food, even a loathing of it, though previously the appetite had been normal. I have not met with any instances in which the appetite was increased though such are said to be by no means uncommon. Exercise, cold, and change of air made little or no difference. There was no definite evidence of gastritis though most suffered from flatulence and one or two used to vomit a little mucus; there were simply no wish to eat and an utter distaste for food. Then, very soon, loss of strength and energy followed and in those who kept a record loss of weight as well. In several who were under my care the loss of energy was not only physical but mental. They became listless and apathetic, taking no interest even in their own symptoms, tired of everything. I am bound to add that in most the change was so quiet that it was only by looking back that it could be appreciated and this, no doubt, is one reason why it is so seldom recorded, but I do not think it easy to over-rate the importance of it when it does occur. Distaste for food, and particularly for albuminous food, occurring suddenly without any definite reason in a middle-aged person who is apparently healthy and who has never given occasion for gastritis is a very disquieting symptom.

Pain, varying in severity, may occur at the same time as loss of appetite or not until later. It is rarely absent altogether, though it may be no more than a sense of oppression and discomfort. As a rule it is continuous and though, as in simple gastric ulcer, it is worse after meals, it never quite disappears and vomiting does not give much relief. The usual situation for it is in the epigastrium and

it is nearly always associated with deep tenderness. Superficial or cutaneous hyperæsthesia I have seldom seen in cases of cancer, unless there was some obstruction at the pylorus.

Now, as I have described to you on former occasions, the walls of the stomach are quite insensitive to ordinary stimuli, such as cutting, crushing, or the application of heat or acid. On the other hand, the slightest pull upon the parietal peritoneum is felt at once most acutely and produces a marked effect even if the patient is under deep anæsthesia. The pain therefore of cancer of the stomach cannot be due to contact of the food with the surface of the sore; nor can its exacerbation an hour or so after meals be caused by the increasing acidity of the contents of the stomach, even in those exceptional instances in which the acidity is increased. The real cause is undoubtedly the movements of the stomach. The parietal peritoneum is normally highly sensitive; and when there is a cancerous growth it is made very much more sensitive by the hyperæmia which always surrounds such a growth. This increased sensitiveness is the reason why the pain in cancer is continuous, why it never really ceases as it does in cases of simple ulceration, and this, too, is the reason why the pain becomes severe as soon as the stomach begins to work. If the growth is near the cardiac end the exacerbation begins as soon as the food is swallowed. When it is near the pyloric end it does not set in until later, and always the pain increases in intensity in proportion to the degree in which the orifices are obstructed. The narrower the passage the greater the effort and the more severe the pain.

As cancer occurs at or near the pylorus in 60 per cent. of the cases of cancer of the stomach, and in 10 per cent. at the cardia, it can be understood that pain is rarely absent in this disease and is an early symptom. In those rare instances in which the growth starts at the greater curvature there may be no complaint of pain until the transverse mesocolon has become involved.

When the two symptoms which I have mentioned—distaste for food and more or less pain—occur together without any obvious reason in a middle-aged person who has previously enjoyed good digestion, and when they do not disappear in the course of a week or two under ordinary treatment, it becomes imperative to try to ascertain what is the actual condition of the stomach. It is of no use waiting for the symptoms to mature, for a tumour to show itself, or for the loss of strength and weight to become so plain that its cause is unmistakable. It is too late then. The diagnosis, if it is to be of any use, must be made while there is still a chance of curing the patient. How it is to be done, how suspicion is to be converted into a reasonable degree of certainty, is the problem before us.

So far, of all the methods of investigation that have been proposed and tried there are only two that are of the least real use in practice, and only one upon which much reliance can be placed. The first of these is a more exact examination of the working power of the stomach than can be obtained by inquiring into the patient's sensations, and the second is direct palpation through an incision. The estimation of leucocytosis during the process of digestion, illumination of the stomach, testing its absorptive power by giving the patient some substance such as iodide of potassium which ought to make its appearance in the excreta within a few minutes, radiography after the ingestion of bismuth or other opaque substances, whether free or inclosed in an albuminous capsule which should dissolve in a certain time, and other methods which have been tried from time to time are either not within the range of practical surgery or else give results which cannot be relied upon.

In actual every-day practice, where you have to deal with men and women who have never had an instrument passed down their œsophagus, and who have the greatest dislike to the idea of it, the utmost that you can do in order to ascertain the working power of the stomach more exactly is to give some simple form of test meal and after a certain time has passed empty the stomach of its contents. By doing this it is possible to ascertain with a fair degree of accuracy the composition of the gastric juice, its activity, whether there are abnormal substances present, and whether the stomach still retains its motive power unimpaired. But it does not succeed nearly so well with private patients as with those who are accustomed to have it done for laboratory purposes and who have furnished all the chief data that we know. Moreover, in any case a single trial is not enough. It must be repeated at least once, and very often it is necessary to vary the conditions and do it several times, for it is

not easy to find out by a single test whether, for instance, the stomach is capable of emptying itself in the right time as well as of secreting a normal gastric juice. You will find very often that it will tax all the persuasive power you possess before the patient will consent to have it done in such a way as to make the result worth having.

The ordinary test meals are Ewald's (35 to 70 grammes of wheaten bread and 300 to 400 cubic centimetres of water or of weak tea) and Boas's (oatmeal soup, made by boiling rolled oats in water with a little salt). The latter is preferable in one respect that it does not contain any preformed lactic acid. The results they give are fairly uniform, but they both labour under the defect of being decidedly unappetising, even to those whose digestion is in good working order. They do not appeal to the special senses in any way, and consequently they do not give any information with regard to the possibilities of the secreting power of the stomach. The patient should, of course, have fasted for some hours or the stomach must be washed out first. Then, after a certain specified time, usually one hour in the case of such a simple meal, the contents of the stomach are syphoned off by means of a tube and examined. In those instances in which it is wished to ascertain the motive power of the stomach, either a longer time, about three hours, should be allowed; or a meal of a totally different character, the products of which can be easily recognised, should be given six hours before. If any of this is found when the contents of the stomach are removed after the second meal it is clear that the stomach has failed to empty itself as rapidly as it should.

If in such a case as the one which we have just been considering, in which there have been rebellious anorexia and more or less continuous pain, chemical examination shows the absence of free hydrochloric acid or the presence of lactic acid in more than that minute quantity that may have come from the mouth; or if the microscope shows the presence of that peculiar slender non-motile organism known as the Oppler-Boas bacillus, there can be no question that exploration should be carried out with the least possible delay. It is true that the Oppler-Boas bacillus and lactic acid (there is good reason for thinking that the two are associated together) may be present in other disorders, such as dilatation of the stomach without carcinoma; and that free hydrochloric acid (and even that which is combined) may be absent in chronic gastritis, advanced pulmonary tuberculosis, atrophy of the stomach wall, cardiac disease, and, as we have recently had occasion to observe, carcinoma of the transverse colon; but the combination of these symptoms is so suggestive, the risk of leaving a carcinoma so great, the risk of exploration so slight, that there should not be a moment's hesitation. Other tests are of no help. The presence, for example, of small quantities of blood or of sarcinæ or other organisms is of no value one way or the other; and unless the growth is very far advanced there is no probability of finding any fragment of it in the debris or of recognising it if found.

The unfortunate side of all these experiments is that a negative result is not of the least value and ought not to influence either your diagnosis or your treatment. Free hydrochloric acid may be present in abundance when there is cancer, especially in that very common form which originates from the scar of an old ulcer and which is often associated with the presence of a tumour. Lactic acid may be entirely wanting. It usually is when there is free hydrochloric acid, as this interferes with the growth of the organism that causes the fermentation. The Oppler-Boas bacillus may be absent. There may not be a trace of blood and the stomach may be able to empty itself completely within a reasonable time, and yet there may be cancer. You may well ask then what is the use of these experiments, which are repugnant to the patient's feelings, and what is to be done if the result they give is either inconclusive or negative? They are purely for confirmation. You must make up your mind first from the clinical data which you can learn at the patient's bedside. There is far too great a tendency at the present day to rely upon what are called exact scientific methods of diagnosis and to overlook the patient. Laboratory findings, as we know them at the present day, are of very little use in the early stages of such a disease as this. When the results at which they arrive are sufficiently well marked to dispel doubt it is nearly always too late. It may not be so by-and-by. I have the greatest possible respect for those engaged in such a difficult line of work. But it is so now. If the experiments confirm your suspicions, well and good. If they do not you

must have the courage of your convictions and make up your mind that if one or two weeks' treatment does not effect a distinct improvement you will proceed to the other method which I mentioned—direct palpation through an incision. If there are really rebellious anorexia and more or less continuous pain I should certainly not wait longer.

I have the strongest possible objection to what I have sometimes spoken of to you as roving commissions inside the abdomen, and I have consistently declined to adopt such a proceeding. But when there is definite evidence that one particular organ is not doing its work as it should do; when there is no reason to be found why it does not; and when it is clear that the patient's health is beginning to suffer the circumstances are absolutely different. Exploration is no longer a roving commission. It is part of a definitely thought-out plan to clear up the reasonable suspicion of the existence of a disease which must be dealt with at once if at all, and which if left will inevitably prove fatal within no long space of time. What is there to be said against it? Suppose after all that no trace of induration or of adhesions or of anything that could suggest the presence of cancer is found; suppose there is nothing wrong? In such a case the risk incurred by the operation, if performed with due precautions as it is at the present day, is no greater than that of the anæsthetic. I quite admit that in cases of hopeless abdominal cancer laparotomy may prove fatal, or certainly may hurry the patient along the downward path; but that is because they are cases of hopeless cancer. Where there is no cancer or other incurable disease sapping the patient's strength there is practically no danger.

Granted that the method is safe, is it certain? Is it not possible that cancer might be overlooked, or that the induration around an old chronic ulcer might be mistaken for cancer? That, of course, is a mere question of experience. It is conceivable that a small carcinoma in the most inaccessible portion of the stomach might not be felt but it is most improbable; and with regard to the other point, if there is a chronic ulcer with such an amount of induration around it that it is impossible to distinguish it from carcinoma, it should be dealt with in the same way and either excision or gastro-jejunostomy should be performed according to the condition found. If not cancerous already there is very grave reason to fear that such an ulcer, continually being irritated, will become cancerous.

Finally, if cancer is found, is it wise or safe to attempt to remove it, or is such a proceeding attended with too much risk? That is the strongest argument in favour of early exploration that can be suggested. The risk is exactly proportionate to the extent of the growth and the length of time it has lasted. The chief reason why the results, which have improved enormously of late years, are not better than they are is that the diagnosis is not allowed to be made sufficiently early, that direct palpation through an incision is not resorted to at the first suspicion. If only this were done statistics would tell a very different tale.

Let me conclude with a remark from one who is a recognised authority—Hemmeter: "The simple continuance of a chronic gastritis, or nervous dyspepsia, in spite of logical and scientific treatment, accompanied with progressive loss of body weight during three or four weeks, justifies the suspicion of latent gastric carcinoma." If you suspect the existence of cancer you must not wait.

FOREIGN UNIVERSITY INTELLIGENCE.—

Basle: Dr. Fritz Voit of Erlangen has been appointed to succeed Professor His who goes to Göttingen.—Berlin: Dr. F. W. Seiffer, *privat-docent* of Neurology and Mental Diseases, has been granted the title of Professor.—Freiburg: Dr. Adolf Windaus, *privat-docent* of Chemistry, has been granted the title of Extraordinary Professor.—Halle: Dr. Walter Gebhardt, *privat-docent* of Anatomy, has been granted the title of Professor.—Heidelberg: Dr. R. O. Neumann, *privat-docent* of Hygiene and of Bacteriology, has been promoted to an Extraordinary Professorship.—Pavia: Dr. Carlo Tarchetti of Genoa has been recognised as *privat-docent* of Internal Pathology.—Pisa: Dr. Adolfo Dario Bocciardo has been recognised as *privat-docent* of Internal Pathology and Dr. Luigi Ricchi as *privat-docent* of Ophthalmology.—St. Petersburg (Military Medical Academy): Dr. Khavtowski has been promoted to the Ordinary Professorship of Anatomy.

A STUDY OF THE STREPTOCOCCI PATHOGENIC FOR MAN.

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(Continued from p. 713.)

It now remains to give in detail the results of our examination of the streptococcal strains which we have found associated with disease in man.

IV. ANALYSIS OF 228 STRAINS OF STREPTOCOCCI, PATHOGENIC FOR MAN, ON THE LINES OF THE ALREADY INDICATED CLASSIFICATION.

The results fall into two groups, those in which they are clearly the primary causal agent in the disease and those in which they have been isolated from cases in which the primary disease was evidently or possibly due to other causes. This second group is nevertheless one of much importance, for the streptococci are of all bacteria the commonest in "secondary" infections. Disregarding the first form, streptococcus equinus, which is not known to have any relation with human disease, we shall consider the types which we have found under five headings. We disregard also streptococcus mitis, as the few examples met with in disease can with equal convenience be classed as variants of streptococcus salivarius.

1. *Streptococcus pyogenes* (*syn.*: *streptococcus erysipelatos*).—We give first a tabular view of the variants which we are disposed to refer to this, the commonest pathogenic species.

TABLE II.

		Reaction with Gordon's nine tests.							Growth on gelatin at 20° C.	Morphology.	Frequency of occurrence.			
		Milk clot.	Neutral red.	Saccharose.	Lactose.	Raffinose.	Inulin.	Salicin.			Coniferin.	Mannite.	Definitely pathogenic.	Associated with disease.
Type form ...	1a	·	·	+	+	·	·	+	·	+	Longus to medius.	33	5	
Variant liquefaciens	} 1b	·	·	+	+	·	·	±	·	Liquefying +	Medius.	·	1	
		·	·	+	+	·	·	·	·	+	Longus.	8	8	
Variants by defect or excess.	} 1c	·	·	+	+	·	·	·	·	+	·	2	1	
		·	·	+	+	·	·	+	·	+	·	1	·	
		·	·	+	+	·	·	·	+	·	Liquefying +	·	·	
		·	·	+	+	·	·	·	+	·	+	Medius.	·	2
		·	·	+	+	·	·	·	+	·	+	Longus.	5	·
		·	·	+	+	·	·	·	+	·	+	·	4	1
		·	·	+	+	·	·	·	+	·	+	·	5	1
} 1j	·	·	+	+	·	·	+	·	+	·	·	1	·	
	·	·	+	+	·	·	+	·	+	·	·	7	1	
	·	·	+	+	·	·	·	+	·	+	·	2	·	
	·	·	+	+	·	·	·	+	·	+	·	2	·	
} 1m	·	·	+	+	·	·	·	+	·	+	·	2	·	
	·	·	+	+	·	·	·	+	·	+	·	1	·	
Totals	...	...	...	...	...	...	...	...	...	...	71	20		

The characters which induce us to refer any given specimen to this species are negative reactions with milk, neutral red, raffinose, and inulin, vigorous growth on gelatin at 20° C., long to medium chains in broth, and a speedily fatal result when inoculated into a mouse soon after isolation from the patient's blood or tissues. We must now specify the actual diseased conditions from which we have cultivated the varieties in the foregoing table.