An Address

ON THE

SIGNIFICANCE OF SOME OF THE SYMPTOMS OF APPENDICITIS.

FROM THE POINT OF VIEW OF THE URGENCY
OF OPERATION.READ BEFORE THE DORSET AND WEST HANTS BRANCH OF
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My first wish is to offer you my cordial thanks for the honour you have done me in asking me to come down and give an address before such an important Division of the Association. My next is to try and give you some explanation for bringing before you so trite and well-worn a subject. The reason is a very simple one. Though I have operated upon many hundred cases, I have very rarely come across one that has not taught me something; and to my mind it is still one of the most difficult questions in surgery to know the moment at which operation gives the patient the best chance of speedy recovery. Moreover, everyone has had some experience in connexion with appendicitis, and there is plenty of room for difference of opinion. So far as I can see, the only way in which it is possible in any individual case to come to a right decision is to try and form from the symptoms a clear mental picture of the actual pathological changes that are taking place in and around the structure concerned, to visualize the appendix, as it were, lying in the peritoneal cavity, and this is what I shall attempt to do to-day.

I need not say anything about the general causation of inflammation of the appendix. Everyone is agreed that the actual exciting cause is always and everywhere septic organisms, and that they always invade the appendix from the mucous surface. Fatigue, exhaustion, and cold may help by lowering the resistance of the patient's tissues. Stercoliths, foreign bodies, old adhesions, strictures, etc., may help by the way in which they favour the growth and retention of the septic organisms. But the actual exciting cause is always the same—a culture of septic organisms either growing in the appendix, or spreading into it from the neighbouring intestine. Sometimes they do little or no harm. Sometimes they merely cause inflammation of the mucous surface. But sometimes, when specially virulent, or when helped by other agencies, they spread into the wall, causing sloughing or gangrene wherever they go. They are the cause, and it is the position of the appendix, lying, as it does, covered with peritoneum in the general peritoneal cavity, that makes the consequences so serious. The ideal in operating is to prevent these consequences; not to wait until they have occurred; but to remove the cause before the infection has spread.

PAIN.

A. General Premonitory.

In an acute attack the first thing of which a patient nearly always complains is pain, starting in the right iliac fossa, and this is described and generally regarded as the beginning of the attack. This may be so, but it is not the beginning of the disease. This acute attack is merely a phase in the course of a morbid condition which has often lasted several days already. I have operated within six hours of the commencement of the acute pain and found the appendix already gangrenous, green and black and stinking. In other cases I have found a huge collection of pus. It is clear that this could not have happened within the time, and that there must have been a preliminary stage, a period before the acute pain set in, during which most important changes were taking place. There may be no manifest suppuration or pronounced toxæmia, but there must be preliminary changes in the appendix which steadily progress until they reach a certain point. Then instantly there is an outbreak of acute local pain.

Evidence of this preliminary stage can often be obtained from the history patients give of themselves, though unfortunately as a rule too late for them to derive any advantage from it. They often say that for some

days before the attack began they have suffered from a general sense of abdominal discomfort and pain, referred chiefly to the umbilicus. There has been a feeling of nausea, sometimes actual vomiting, and in almost every case some trouble with the bowels. There may not have been any rise of temperature or any marked increase in the pulse-rate; but they have been conscious of a sense of fullness and distension in the abdomen, and the appetite has been lost. In other words, septic decomposition has been going on in the intestine. Some irregular process of fermentation has been at work, not especially in the appendix, but more or less in the whole intestinal tract. The stomach probably has had but little share in it. There has been none of that sharp stabbing epigastric pain so characteristic of gastric dyspepsia. The small intestine, especially towards the lower end, and perhaps the caecum, have been the most concerned. These notoriously are the parts of the digestive tract in which septic organisms flourish best, and in which therefore septic decomposition is most active. And, as always happens when a large part of the bowel is involved, the pain and discomfort are referred vaguely to the region of the umbilicus.

These symptoms persist for one or more days without anything very definite happening. The bowel is trying to free itself from the septic poisons that are irritating it. The small intestine and the caecum perhaps succeed and the umbilical pain disappears. But unhappily the appendix does not. Here either because of its construction, or because of some foreign body, or for some other reason, the germs manage to gain a deeper hold; they invade the wall, acute inflammation, not limited any longer to the mucous surface, sets in, and spreads wider and wider until at last the parietal peritoneum is involved. Then, at once, the acute pain in the right iliac fossa begins. This is the starting point of the acute attack, but it is quite a mistake to look upon it as the starting point of the disease. It marks the stage at which what is commonly spoken of as appendicitis ceases to be merely inflammation of the appendix and becomes inflammation of the peritoneum.

This is not merely a theoretical consideration. It has a very important bearing upon the question of treatment. There is always the possibility, during this initial stage, of clearing out these septic organisms from the appendix, as well as from the intestine, only it must be done at once, before they have obtained too firm a hold upon the wall. After the acute iliac pain has once begun, I am afraid it is hopeless. But before this, while there is still only the general abdominal discomfort, it can be sometimes done. This is the great opportunity for medical treatment—an opportunity that does not last long and that never returns. Medical treatment may prevent an attack of appendicitis if it starts in time and is sufficiently energetic. It can never cure it.

The first thing to do is to insist upon abstinence. It should be complete for twenty-four hours. There is a great deal of nonsense talked about the necessity for maintaining the strength. In the very old and the very young it may be different, but appendicitis occurs for the most part in the young and strong, and there are very few of these who would be injured by an occasional day's fasting, and fever still whom it would hurt when there is incipient intestinal inflammation. I am by no means so sure that the practice of giving emetics, in which our forefathers used to indulge so freely, had not its merits, and certainly I should not attempt to check spontaneous vomiting.

Rest is the next thing. The patient should be confined to his room, if not to bed. You can judge of the injurious effect of exercise when there is a possibility of inflammation of the appendix by the ease with which it brings on a relapse when the patient has apparently recovered. Allowing a patient to get out of bed too soon is one of the commonest causes for relapses.

In theory, as septic decomposition is the cause, intestinal antiseptics ought to be of the greatest help. In practice they are almost useless, except calomel. One of my colleagues, it is true, has great faith in salicylate of soda, which, however, he gives for a different reason. Very full doses must be taken for it to have any effect. I cannot say I have ever known an attack cut short by it, but I am not prepared to say that it does no good.

But the great point is to clear the bowel out thoroughly, and in the shortest possible space of time. If the appendix

can empty itself with the rest of the bowel all will go well. For this there is nothing like a full dose of castor oil, combined with an enema. It is far better and far more to be relied upon than salts, or any other of the fashionable purgatives of the day, and it leaves the bowel as nearly empty as it can be, without a fluid residue in which the remaining organisms can begin to grow again. I cannot help thinking that the recent enormous increase in the number of cases of appendicitis is due in great measure to the abandonment of the old regulation blue pill and black draught, and to the consumption of quantities of frozen and otherwise preserved articles of food, which are notoriously more ready to decompose than those which are fresh.

B. Acute Local Pain.

This is the first stage of the disease—a stage which is often overlooked, so that it is imagined that an operation performed a few hours after the acute symptoms have set in, is performed within a few hours of the first onset. It may be absent altogether, and then the case is usually a very grave one; but as a rule it is present, and it lasts for one or more days. Then, sometimes very suddenly, there is an attack of acute pain in the right iliac fossa, and there is no further doubt about the diagnosis.

Now it is worth while considering the meaning of this acute pain. It certainly does not come directly from what is going on in the appendix. The mischief began in the appendix as soon as it began anywhere else, and it has been steadily getting worse and worse. This will not account for a sudden outbreak. Moreover the appendix may be cut, or squeezed, or pinched, or burnt with the actual cautery without the patient being aware of it. But it must not be pulled upon. The slightest pull upon it is resented at once, for this drags upon the parietal peritoneum. The appendix itself is devoid of ordinary sensation and ordinary sensory nerves. On the other hand, the parietal peritoneum is exquisitely sensitive, and as in the case of the conjunctiva, when there is the least degree of inflammation, its sensitiveness is increased tenfold. The sudden outbreak of acute pain means that the parietal peritoneum is involved. That is its real significance, and this marks a definite stage in the course of the disease. It has passed beyond medical measures.

The severity and persistence of this pain are of the greatest importance. If, without any opium having been given, it begins to subside in the course of two or three hours, and no other grave symptoms such as collapse, or muscular rigidity, make their appearance, there is in all probability no serious degree of inflammation. The attack is merely one of those which are often spoken of as appendicular colic, but which are really instances of catarrhal or superficial septic inflammation, and it will subside without any serious consequence. The mucous membrane is swollen and irritated. The lymphatics running from it are full of inflammatory products, and the parietal peritoneum, where it is continuous with the meso-appendix, is hyperaemic and unduly sensitive; but the septic organisms have not got the upper hand. If, on the other hand, the severity of the pain continues, and particularly if the area over which the pain is felt shows a tendency to enlarge, it may be taken as certain that the cause affecting the parietal peritoneum is a very serious one, and will probably require early operation. The other symptoms must of course be considered and weighed carefully with this one, but I am sure for my own part that severe pain in the right iliac fossa, persisting for more than a few hours, is a definite indication for operation, and that if the area is extending there must be absolutely no delay. Acute pain of this kind is too often associated with gangrene for the patient to be left a moment longer than necessary.

Gradual alleviation of the pain, especially if the area over which it is felt is becoming smaller, suggests that the inflammation is becoming localized. On the other hand, rapid disappearance at the end of twenty-four or forty-eight hours, especially in a young subject, is a most disquieting symptom. It may mean that the inflammation is subsiding; but much more often it means that the patient is becoming poisoned; that the appendix is already gangrenous; that a dangerous degree of septic absorption has set in; and that the pain is not felt because the patient is fast losing the capacity of feeling it. Of all the treacherous signs in connexion with inflammation of the

appendix, there is nothing so treacherous as what is called the quiet interval. It rarely occurs except in the young, for they succumb to septic poisoning so much more readily than those who are aged. It may begin at the end of the first day, or not until the fourth or fifth. There is an apparent steady improvement. The temperature drops. The pulse-rate is lower. (The strength is not so good.) The pain is said to be less. The local symptoms, the swelling, tenderness, and rigidity are not so marked. The patient's friends say he is much better. But the tongue is a little drier. The face is dusky. The eyes are sunken and dark. The senses are blunted. The mind is apathetic and contented. And, as a matter of fact, the patient is being poisoned as rapidly as he can be by absorption from a gangrenous appendix. The sudden disappearance of acute pain, especially in a young subject, and by sudden I mean four or five hours, means that no more time should be lost. But so deceptive is this, so treacherous is the apparent improvement, that it is often most difficult to persuade the friends. Yet these are the very cases in which gangrene of the appendix occurs most frequently.

This acute pain is sometimes felt on the left side, and not on the right, or much more upon the left side than upon the right. In these instances I have usually found that the appendix lies to the inner side of the caecum, and that the inflammation of the parietal peritoneum spreading from it is not limited to its immediate neighbourhood, but has spread across the middle line. Abscesses upon the left side are of course by no means uncommon. When the pain spreads towards the pubic region it is probable that the appendix is hanging down over the brim of the pelvis. In this case there is usually either increased frequency of micturition, or else retention of urine, because the contraction of the bladder is so painful that the patient is unable to carry it out.

Cutaneous Tenderness.

In many instances the skin over the right iliac fossa, and over a smaller area behind, is so exceedingly sensitive that a touch with a piece of cotton-wool is spoken of as causing actual pain. "Hyperalgesia" is a better term for it than "hyperaesthesia." The region is quite defined and bears no relation to the anatomical position of the appendix. If the caecum has never descended from beneath the liver it makes no difference; and consequently when this tenderness is present it is of great value in diagnosis. It distinguishes, for instances, at once between inflammation of the appendix and affections of the gall bladder or duodenum. These also have their areas of hyperalgesia, but it always lies above the umbilicus, corresponding with the ninth dorsal segment, never below.

But this cutaneous hyperalgesia is of great importance in another way. It is an early symptom, and is rarely present for more than a few days; and it nearly always means distension of the appendix and stretching of the walls. If it disappears slowly, the area gradually contracting, and all the other symptoms disappearing, too, it means that the appendix is slowly becoming emptied of its contents, and that all will be well.

Sudden disappearance, on the other hand, is almost equally positive evidence of the walls of the appendix having given way, owing either to ulceration or gangrene. I have seen this myself on many occasions, and am so convinced of its importance that I regard the sudden disappearance of this hyperalgesia as an absolute indication for immediate operation. Even when there is no history of its having been present in any particular case, I regard its absence, in the early stages of the disease, as a matter of grave significance.

Deep Tenderness.

This cutaneous hyperalgesia has, of course, nothing to do with the peritoneum. It is merely the expression of the irritable state of the nerve centre, which receives afferent impulses equally from the appendix and the skin over the iliac fossa. Deep tenderness is an altogether different matter. This is directly proportionate, both as regards extent and intensity, to the state of irritation of the parietal peritoneum beneath the spot at which the pressure is applied. If the irritation is slight, the tenderness is slight. If it is more severe, the tenderness is greater. Only when there is an extreme degree of septic poisoning, the tenderness may disappear altogether, because either the nerves are incapable of conveying stimuli, or the nerve-centres of receiving them, or both. I have seen several

instances in which there has been no abdominal tenderness at all, and they have all proved fatal. In several of these, it is worthy of note, the pulse-rate was abnormally slow, not more than sixty to the minute, which made them still more deceptive.

A good deal of interest attaches to the spot at which the tenderness is greatest. (Of course, I am speaking now of cases in which it is localized and not general, as in general peritonitis.) If, for example, there is a very tender spot just over the right iliac crest, it is almost certain that the inflammation is tracking up in the cellular tissue behind the colon, and that probably the appendix is running upwards behind the caecum. Rectal examination, in the same way, often gives a very definite clue as to locality. Firm pressure over the left iliac fossa will sometimes cause pain upon the right side. This has been interpreted by Rovsing as being due to displacement backward of gases from the colon into the caecum; but in the cases in which I have seen it, it seemed to me to be rather caused by pressure transmitted through the viscera straight across the middle line. Wherever the tenderness may be during the height of the attack, as this subsides it nearly always localizes itself in what is known as McBurney's point, midway between the umbilicus and the anterior superior spine. This is the spot from which it disappears last.

As some doubt has often been expressed about the value of McBurney's point, and as it is often wrongly described, I wrote to McBurney himself about it two or three years ago, and he very kindly replied. It has nothing to do with cutaneous tenderness and is dependent entirely upon the sensitiveness of the peritoneum. "If," he writes, "the peritoneum upon the anterior abdominal wall is inflamed, the pressure required to induce instant complaint of pain is so slight that one can almost believe that the complaint is caused by the irritation of a cutaneous nerve. But in the same patient, after a few days, when the inflammation has largely subsided, a fairly deep pressure is required to demonstrate the nature of the case, and no amount of superficial handling of the integument will elicit any sign of appendicitis. After a few, or after many weeks, when this same individual believes himself to be perfectly well, a very deep pressure with one finger on precisely the same point, will again produce the sign." McBurney insists that whatever the position of the appendix, careful examination will always show that the point of greatest tenderness is near its base. He describes this sign as being most useful in cases of chronic disease, in the interval between the attacks. Exceptions, he admits, do occur, but they are extraordinarily rare.

So far as my own observations are concerned, I am thoroughly in agreement with McBurney, and consider the demonstration of his point as of the greatest value. McBurney himself regards it as corresponding to the base of the appendix. I think it indicates rather the point or line at which the meso-appendix becomes continuous with the parietal peritoneum; but the difference is not material. I quite admit that a similar point may be present when the parietal peritoneum over the posterior wall is inflamed from any other cause, but I do not see that that detracts in the least from its value when the other symptoms point to the appendix.

Leucocytosis.

The proportionate number of leucocytes in the blood can hardly be considered a symptom of appendicitis, but it may give information so valuable as regards the question of urgent operation that I propose to consider it here. It is, of course, useless as a means of diagnosing appendicitis from the conditions that resemble it most closely—pyosalpinx, for example, or ectopic gestation, or ovarian abscess—for in these the blood changes are essentially the same. Its absence, moreover, is of little or no significance; but when it is present it distinguishes at once between such affections, for example, as appendicitis and typhoid (unless perforation has occurred already), and it is of the greatest help in settling whether suppuration has taken place or not. Either the increase in the whole body of leucocytes may be taken, or, if greater accuracy is desired, the increase in the polynuclear ones alone, the lymphocytes and large mononuclear forms being neglected. One single examination is not very satisfactory, unless, that is to say, the number is decidedly excessive, over 20,000 to the cubic millimetre, and the other symptoms are equally definite. Then it is conclusive. Successive examinations at intervals

of a few hours are of far higher value. Progressive increase in the number of leucocytes under these conditions is proof that operation should not be postponed a moment longer. Successful evacuation of pus is usually followed by a decline to normal in the number within the course of a few days. If the leucocytosis persists, or if it returns, it nearly always means the drainage is imperfect and that there is a collection of pus somewhere still. The opposite condition, leucopenia, occurring in the course of acute appendicitis indicates a degree of septic poisoning that is practically always fatal.

Pulse and Temperature.

With regard to the pulse-rate and the temperature as an indication for immediate operation, I have very little to say that is new. The pulse is, of course, the most valuable indication of all. An increasing pulse-rate is an absolute command, no matter what all the other symptoms together may indicate. I would go farther. If the case is really an acute one, and the pulse-rate does not soon begin to fall, I regard immediate operation as the safest course for the patient. An acute case, in which the pulse-rate keeps up, means that the septic absorption is not being checked by the natural processes of resistance, and that help should at once be given by removing the central focus from which the poison is spreading.

I have already alluded to some cases in which the pulse-rate is from the beginning and throughout abnormally slow. I can offer no explanation for them. Most that I have seen have been extremely acute cases of septic poisoning, but this is not true of all. The only thing to remember is that while a rapid pulse is a sure indication for immediate operation, a slow one, especially if its strength is not very great, is not an argument for postponement.

The temperature in acute inflammation of the appendix, taken by itself, is seldom conclusive. A rigor, of course, nearly always means suppuration; and a temperature that keeps high for several days together is good evidence that the case is a serious one and will require operation, but alone such a temperature does not indicate that operation must be immediate. On the other hand, even when there is a large abscess, the temperature may scarcely rise above the normal, owing to the fact that in these cases there is often so little tension. There are, however, two conditions in which a sudden change in the temperature is of very serious import. One is a sudden rise during apparent convalescence. This nearly always means a relapse with extension of suppuration, demanding immediate evacuation. The other is a rapid fall, and especially a rapid fall in the presence of an increased pulse-rate. Such a combination marks the beginning of the time when it is too late—the hopeless stage of general septic poisoning, and if anything is to be done it must be done at once. Speaking generally, it may be said that in all cases in which the pulse-rate is out of proportion to the temperature, gangrene of the appendix is imminent, if it does not actually exist, and nothing will be gained by temporizing.

I have by no means exhausted this list of symptoms, but I am afraid of exhausting your patience, so I will say nothing of the others, especially as there are two rather outlying observations that I wish to make. One of these is on the importance of individual symptoms in determining the question of the urgency of operation. There is not a single symptom that is not sometimes wanting. There may be no tumour. There may be no pain. The temperature may be normal. McBurney's point may not be present. There may be no abdominal distension. Negative evidence in such a case does not weigh anything. One single important symptom, if it is definitely getting worse, is enough, and not only justifies but compels immediate operation. The urgency of one is the guide, not the presence or the absence of all the rest. The appendix is lying in the peritoneal cavity, surrounded by peritoneum, full of a virulent culture of septic organisms. The rule should be to operate at once, no matter how soon, if any one symptom gives rise to the suspicion that those septic organisms are extending their sphere of action. The patient is only to be left if it is certain that the mischief is becoming restricted.

The other observation that I wish to make has reference to the mortality of early operations and of those performed during what has been called the intermediate period, that

is, from the third day of the acute symptoms until the sixth or seventh. So far as the former are concerned, it is fairly well agreed now that the line of safety lies in avoiding all delay. The earliest operations are the most successful, not only as regards immediate mortality but as regards rapidity of recovery. It needs no proof that if a septic focus has to be removed the operation is much more likely to be successful if the organisms are still confined within the appendix, than if they have already spread into the surrounding peritoneal cavity. The voice of what is commonly called authority, but what is really often only ill-informed prejudice, opposed this for a long time, but now at last has given way. With regard to the others, however, operations performed in what I have called the intermediate period, there is still some doubt because of their high rate of mortality. It is often said that if the first chance of removing the whole focus of infection has been lost, it is wiser to wait awhile, in the hope that in the few days' time it will become localized again, and walled in once more. I cannot say that I agree with this. I believe that it is much better for the patient to have the operation done at once, no matter if it is in the intermediate period, always provided, and this I think is essential, that too much is not attempted. If a thorough complete operation is performed at this stage, I admit the mortality is too high, and that more patients' lives would be saved if they were let alone. But this is not the case if only what is absolutely necessary is done. The condition of things is very simple. The septic organisms have spread through the walls of the appendix and are infecting everything around. Everything around in its turn is striving to resist the spreading infection. Anything like a complete operation can only do harm, for it must injure and impair the vitality of the surrounding tissues and render them less and not more capable of resistance. What should be done is the least possible. A fairly free opening should be made in the right iliac fossa, down to the focus of infection, and unless the appendix actually comes away of itself, nothing further should be attempted. A drain should be inserted and the wound very lightly packed with gauze to prevent the possibility of prolapse of the bowel, and nothing more. An opening made in this way provides a line of least resistance. So long as the abdominal wall was intact, the germs in spite of the opposition offered by the surrounding structures, kept spreading wider and wider. An opening such as this at once enables the surrounding structures to resist their advance and drive them out. It reverses the balance of pressure. Since I have adopted this plan, I have never had occasion to regret it. I do not mean that I have saved life in every case, but I am sure I have done it in a much larger proportion of cases than I should have if I had adopted what is called expectant treatment, or, in other words, left things to chance. Later, when the patient has thoroughly recovered from the acute septic stage, and the resistance of the tissues is thoroughly well established, the operation can be completed by removing the appendix.

FIBROLYSIN IN CICATRICAL PYLORIC OBSTRUCTION.

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THE point of interest in the following case is that it illustrates the marked property which fibrolysin (a modification of thiosinamin, consisting of a double salt of thiosinamin and sodium salicylate) has of rendering hard fibrous adhesions sufficiently soft to allow them to be stretched.

I. McM., house painter, aged 60.

Family History.

Noteworthy only in respect of patient's father who lived till the age of 70, and who had "stomach trouble" for many years.

Patient's History.

He suffered as a boy at school with "pains in the bowels," constipation and occasional attacks of vomiting.

He began his trade of house painter at the age of 15, and not until he was 25 did he feel pains similar to those from which he has recently suffered, at the level of the umbilicus, along with intermittent attacks of vomiting. These symptoms continued for about five years, after which came a period of comparatively

good health till he reached the age of 48, when he had an attack of plumbism confined to the symptoms of colic, constipation, and a blue line on the gums, the nervous system escaping. When about the age of 50 gastric trouble recurred, and took the form of "hunger pain" coming on two or three hours after a meal, and also markedly in the middle of the night. Vomiting was frequent in the afternoon and in the interval between tea and bedtime, pain being relieved thereby. The vomited matter consisted of undigested but recognizable food, showing lack of motor power in the stomach, narrowing of its pyloric orifice, or probably both. It was not particularly sour, proving that fermentation was not a prominent factor.

Treatment.

The above condition continued, more or less, till he came under my care in November, 1907; at that time there was considerable dilatation of the stomach, splashing being readily elicited.

He was much emaciated, and hardly able to do any work. His height was 5 ft. 7 in. and weight 8 st. 6½ lb. I began treating him by lavage of the stomach and argenti nitratis gr. ½ in pill taken twice daily, diet consisting of milk, raw eggs and meat purées. Under this régime he improved, vomiting ceased, pain was relieved and there was an increase in weight.

Towards the end of February, 1908, he had a recurrence, and similar treatment was again tried, but the symptoms were so severe that I suggested gastro-enterostomy; this he declined.

I then began hypodermic administration of fibrolysin in the epigastric region in doses of 2 c.cm. daily for a month, every other day for a week, and thereafter at intervals of three or four days for three weeks more, at the end of which time all treatment ceased. Massage of the abdomen—especially in the region of the stomach—was carried out daily for a month, commencing on the same day as the fibrolysin injections, and was stopped at the end of that time. Internally a mixture containing liquor strychninae and nitro-muriatic acid was administered and a diet consisting of milk, farinaceous food, raw eggs, and fish.

The result of treatment with fibrolysin showed itself within the first week after its commencement by greater comfort generally, cessation of vomiting after ten days, and of all pain within a fortnight. Constipation from which he had suffered all his life, improved, the bowels acting once a day without the administration of any aperient medicines. He rapidly put on flesh and gained in vigour, and has done his day's work ever since without fatigue or discomfort of any sort. His weight is now 10 st.

There were in this patient obvious symptoms of pyloric obstruction, as evidenced by the persistent vomiting and the "hunger pain." The obstruction was probably caused primarily by some superficial ulceration of the pylorus, leading on to irritation and consequent increase of fibrous tissue in the neighbourhood, the latter finally encroaching on the lumen of the pylorus.

There is one factor necessary to success in treatment of adhesions (wherever they may be situated) by fibrolysin, and that is that they must be in such a position where they can be massaged and stretched. Otherwise, although they are rendered soft, they remain in the same relation to surrounding tissues, and no good result is obtained.

In this patient massage was carried out externally by the hand, the motor power of the stomach being thereby encouraged—and stretching of the adhesions was effected by this power being brought to bear on the contents of the stomach, forcing them through the narrow but now dilatable pylorus.

Had the peristaltic action of the stomach been insufficient to force the contents through its pyloric orifice, no result would have followed the use of fibrolysin and external massage alone, for the contents of the stomach act in the same manner as a bougie, an instrument essential to success in situations where its use is possible. It is therefore necessary in treating such cases as the above by this method that the stomach be capable of some peristaltic action, otherwise operation offers the only hope of cure.

DR. STEPHEN J. MAHER, of New Haven, Connecticut, in a paper published recently in the *New York Medical Record*, stated that tuberculosis was a disease of the Indians before the white man came. It had now occurred in all parts of the State, and there was considerable evidence to show that it had occurred most frequently in badly drained districts, and in houses with damp cellars. Only a minority of the cases had followed other cases in the same house. The density of population of counties bore no relation to the prevalence of tuberculosis. There had been a marked decline in the death-rate from the disease for the past fifty years, and this had been regular before the discovery of the tubercle bacillus.