AN ADDRESS

ON THE

INDIVIDUAL VALUE OF THE SYMPTOMS IN
PERFORATIVE PERITONITIS, MORE ESPECIALLY
AS REGARDS OPERATION.*Delivered before the Hunterian Society.*By CHARTERS J. SYMONDS, M.S., F.R.C.S.ENG.,
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MR. PRESIDENT AND GENTLEMEN, I shall endeavour to fulfil your trust by asking your attention to a subject of practical interest. I propose to deal with acute perforative peritonitis, and especially to examine into the value of the symptoms as directing operation. There is no more important question before us to-day, for while on the one hand it must be our aim to avoid operating unnecessarily, on the other hand it must be recognised by all that early operation has saved many lives. Though one would make the statement with the deepest sense of its gravity, I think it not too much to say that operation in these acute diseases need never be harmful however early it be undertaken.

Our recent knowledge has taught us the frequency with which the appendix is the cause of acute symptoms and my remarks will centre around the acute affections of this body. In using the term "perforative" I must add that so far as the appendix is concerned, though the symptoms are acute and alarming, there is at the moment no pathological perforation in the majority of cases. My title must be regarded as a *c*inical one.

The patient, whose case I will relate as a type of the acute condition, was a woman of 50. In better health than usual, on account of a holiday, she was seized at 10 o'clock on Wednesday night, April 29th, with severe pain in the abdomen and vomiting. The bowels acted three times within a few hours. The pain continued through the night. She was first seen and examined by Dr. Huggill, on Thursday, April 30th, fourteen hours after the onset. The pain was chiefly limited to the right inguinal region, although the whole abdomen was more or less tender. There was slight general distension. The temperature was 99°, and the pulse 80. She was given a hypodermic of morphia. At 6 P.M. the temperature was 100.8° pulse 96. The pain still continued, but was less severe; the abdominal distension had not diminished, and the right inguinal was still the more tender region. The patient felt sick, but there had been no vomiting. Five hours later (11 P.M.) the temperature registered 100.2° and the pulse 92. She complained of feeling faint, and of pain in the back; the abdomen was resonant, and moved slightly on inspiration. There was marked tenderness on the left side. The second night was passed with much restlessness, and very little nourishment was taken. Early in the morning, somewhere about 5 o'clock, she was taken with intense pain all over the abdomen. When Dr. Huggill arrived soon afterwards he found her in a condition of collapse. The temperature had fallen to 97° the pulse was rapid, the whole expression typical of the most severe peritoneal injury. A full dose of morphia was administered hypodermically. In eight hours the temperature stood at 102°, the pulse 128; the abdomen did not move so freely on inspiration; it was distended, and very tender. One hour-and-a-half later the temperature of 103° was maintained, the pulse had dropped to 112, there had been a little vomiting, and the pain continued to recur, though some relief was obtained from hot applications. When I arrived at 6.30 P.M., forty-four hours had elapsed since the onset. The patient was now practically free from pain, and thought herself much better. She conversed in a bright, lively manner, and could not understand our taking a serious view of her case. The abdomen was uniformly distended, and did not move on inspiration. There was distinct resistance in the right iliac region, with tenderness, but no duiness, and no localised swelling. The temperature was 102°, and pulse 100.

The main question was, whether the case was one that might terminate in localised abscess, or whether it would not be wiser to operate at once. We decided to operate, and for the following reasons:—The sudden onset indicated a severe peritoneal injury; the early abdominal distension, growing more marked and unrelieved by treatment, indicated extending irritation; the localising symptoms settled the seat of the disease. Then the continued pyrexia pointed to a septic process in the wall of the appendix itself. We had as a special point the sudden collapse of the morning, marking probably a fresh and sudden extension. On these grounds, in the face of the placid condition into which the patient had entered, we incised at once. A foul abscess was found, the appendix was gangrenous, the adherent great omentum was black and green, and the suppuration was extending towards the pelvis. After removing the omentum and appendix and flushing with an abundance of boiled water, it was thought wiser to put a drain into the pelvis above the pubes. A tampon of gauze was placed in the inguinal wound deep into the cavity. The operation was well borne, and by 10 P.M. the temperature was 101° and pulse 104. For the first twenty-four hours there was a good deal of distension, relieved, however, by the flatus tube. Hiccough occasionally gave trouble, and there was some sickness. Only a small amount of thin reddish fluid was withdrawn from the drainage tube, which was removed in thirty-six hours. The inside of the tampon was removed in twenty hours and replaced. It is unnecessary to relate the further progress of the case, which was uneventful, as I am dealing mainly with the question of operation.

Now when a patient in perfect health, no matter of what age, is seized in the way I have related, what are the prominent causes that may give rise to the symptoms? Dr. Fagge used to say we should think of three conditions, namely, perforation of the appendix, perforation of the stomach or duodenum, and a ruptured ovarian abscess, or, as I am told is more correct, ruptured pyosalpinx. Such a remark was not intended to be complete. We must bear in mind such conditions as ruptured tubal pregnancy, ruptured hydatid and gall bladder, suppurating mesenteric gland, perforation by a gall stone on its way to the duodenum, and even tuberculous peritonitis.

PAIN.

Taking the symptoms in detail, the first point we will consider is the value of pain at the onset of the case. It was sudden and alarming, was felt all over the abdomen, and was accompanied by sickness. These initial symptoms are common in three other conditions, which may be termed the "colics," namely, renal, hepatic, and intestinal colic. In these the onset closely resembles the graver complaints, and the diagnosis is often difficult. As a broad general distinction separating these two groups of cases, it may be said that the colics improve quickly, are not accompanied by a sustained elevation of temperature, that in two of them localising symptoms quickly develop, for example, jaundice in one and vesical irritation in the other, while in the third (intestinal), if not soon relieved, the symptoms become very grave, the pain remains general, and indications of strangulation and obstruction of the bowel arise. Here let me point to some errors that may occur if we rely wholly upon the initial symptoms, especially pain.

A man aged 42, a couple of hours before we saw him, was seized with violent abdominal pain and sickness. He was in great agony, rolling about in the bed, with pain in the "pit of the stomach," perhaps a little to the right of the median line, and he was retching and vomiting. The diagnosis was that of perforating ulcer of the stomach.

My present impression being that it is as well to allow such cases to pass into the stage of repose usually following the onset before operating, we waited six hours. On going to the man's bedside, we found him breathing rapidly, with dilating nostrils, with great pain in the side, and all the aspects of pleuro-pneumonia. The man went through an ordinary right basic pneumonia, and went out quite well. Within a week of this occurrence we were called one evening to a woman between 50 and 60, with great abdominal pain and tenderness about the region of the gall bladder. She was somewhat sick; a little jaundiced, had a high temperature and a rapid pulse. The diagnosis first suggested was that of suppurating gall bladder. After carefully considering her case, and noting that the pulse could not be counted at the wrist, because of its great rapidity and irregularity, we decided that operation was out of the question. This woman went through an attack of acute pneumonia on the right side, and walked out of the hospital quite well.

Not more than a week after these instances, a girl of 20 was brought with a history that at 11 P.M. she was seized with violent abdominal pain and vomiting, both of which persisted up to the time we saw her, about 3 P.M. the following day. We explored, with the expectation of finding a perforating gastric ulcer, for there was a long history of indigestion, and she was young. We found a perfectly normal peritoneum and stomach, closed the wound and put her to bed; she was never sick again, got rapidly well, and we came to the conclusion it was all hysteria.

Pain at the onset is no doubt an indication of severity, allowance being made for the difference in the ability of patients to bear pain. When pain is localised to the right iliac fossa, its value as to the seat of trouble is obvious. When pain is continuous, I mean is independent of handling, and thus to be distinguished from tenderness, it is a sign of great value, and an important indication for operation.

I would say that pain recurring after the period of repose is always a grave sign, and an important indication for operation. Therefore, we see the absolute necessity of not obscuring this valuable guide by the continuous use of sedatives.

GENERAL ABDOMINAL DISTENSION AND IMMOBILITY.

These are two of the most important symptoms. In the

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present case, the abdomen when first seen, some fourteen hours after the onset, was slightly full, and when I saw her forty-four hours after the onset, it was uniformly distended and tympanitic, and was not moving on respiration. What does this distension in the early stages signify?

It has been clearly shown by Dr. Malcolm that the early distension occurring after operations, called by Mr. Tait peritonitis, and which he claimed to cure with sulphate of magnesia, is reflex. It is not peritonitis, but a sympathetic irritation, and is relieved by a flatus tube or a turpentine enema. This early distension is, I take it, the effect of injury to the peritoneum, or more correctly to the abdominal sympathetic. I use the word "injury" advisedly, for we see these symptoms frequently in abdominal injuries, and after operations of all degrees of severity involving the abdominal contents. The first effect of perforation is injury, and is quite comparable to that inflicted by an operation or ordinary traumatism.

Let me here remark that we must examine the abdomen carefully to rightly estimate this distension. Everyone must have observed that when a patient is placed upon an operating table the distension appears much greater than in the bed, whether the enlargement be due to intestinal distension or tumour. In bed the patient lies in a hollow and much of the swelling is concealed. I am, therefore, in the habit of bringing the patient to the edge of the bed, tucking a pillow under the other side so as to let the body be as flat as possible. The value also of bringing the bed well into the light and drawing aside the curtains so as to obtain a really good inspection cannot be over-estimated, for upon the amount, character, and distribution of the distension the diagnosis may depend. This distension, then, following upon an acute onset has a most grave significance. If it yield in twelve hours to a turpentine enema or a flatus tube, we shall know it is reflex and not serious; but if it do not yield or it recur we must look upon it with great concern, for it does not disappear so long as there is progressive peritoneal irritation. Lastly, if, as in this case, it persists during the period of repose, it becomes a valuable indication for operation, and, together with temperature, decided me to advise interference. In attempting to separate these cases of acute perforation from those of acute obstruction, I would say that the early appearance of distension and its continuous presence point rather to perforation. In ordinary cases of strangulated hernia distension is by no means an early sign, being often absent after three to four days. When the strangulation is within the abdomen altogether the distension is earlier, but is not so early or so marked as in perforation.

To summarise the value of distension:

1. It is absent in the early stages, when there is rigidity only.
2. In all cases the general distension, which does not yield to a tube (or turpentine enema) on the second or third day, indicates progressive disease, and the case will probably require operation.
3. When a perforating gastric ulcer is suspected, there may be no distension for twelve to twenty-four hours, at which period it is a serious symptom.
4. In appendix cases, general distension without localised tumour, without dulness, but with pain and tenderness, has a grave significance.

If with the points mentioned in the previous paragraph, the temperature be continuously raised, the case is still more grave, and may call for immediate operation, even forty-eight hours after the onset.

When general distension has subsided, or yielded to the flatus tube or an enema, and a localised swelling can be felt, the outlook is favourable. Four leading signs remain to be watched—namely, increase of swelling, aggravation of pain, persistent elevation of temperature, and the general condition I will refer to, as indicative of septic absorption, in the absence of pyrexia.

The first two, associated as they must be with one or other of the last two signs, form a group of symptoms pointing to the necessity of immediate operation.

In examining these distending abdomens, movement of the bowel or coiling will sometimes be noticed. Now, this is generally seen in chronic cases, as, for example, obstruction in the large intestine or adhesion in the small, but it is common to see it also in strangulated hernia, and in these it is

not an unfavourable sign, as I have seen many such cases recover after operation. This visible peristalsis in acute obstruction is uncommon, though its occurrence in strangulated hernia comparatively frequently would lead us to expect it. It was well marked in a case of obstruction from impacted gall stones on the sixth day, and it led me to give a more favourable prognosis than other conditions justified.

The next sign is that of localised tenderness and swelling. In the case under consideration, where the diagnosis of the site of perforation was never in doubt, the pain was soon localised to the right iliac fossa, and the only question remaining was as to the wisdom of operating at once. When a swelling is not found in the iliac fossa, we must examine the rectum. Here I have on several occasions found the abscess filling the pelvis, and even when no abscess has formed, the swelling around the appendix may be felt and the diagnosis made.

When an appendicitis runs a favourable course the distension quickly subsides, and the swelling can be isolated. It may be said, in fact, that when in appendicitis the swelling can be felt, immediate anxiety is over. By immediate, I mean for a few hours. If it increases steadily, then operation is called for; especially is this demanded if the temperature keeps high. But when the temperature is of the hectic type there is less immediate risk. In acute cases, however, there may be no local swelling to be felt and no dulness. These are the difficult cases. The general distension masks the dulness and conceals the swelling. The presence of gas in the abscess in a few cases contributes to the resonance. In the case here related, though there was a fair amount of pus, there was no dulness; and this is a frequent observation. We may take it, then, that localised swelling and dulness, when present, are of great value; but that with large collections of pus these signs may be absent. One curious point is to be noted, and that is, that tenderness and pain may be felt in the left side and obscure the diagnosis. I have several times seen this, and on the whole think it of little value. I mean it does not indicate suppuration on the left side. Persistence or increase of tenderness and pain, with an increasing swelling, demand operation in the presence of a normal temperature and pulse, but especially if the temperature be high. Moreover, the inability to find swelling and dulness, in the presence of pain and distension, marks a serious case.

VOMITING.

This symptom is usually present in all cases, certainly in all where a sudden onset occurs. The vomiting is immediate and subsides with the pain, and is followed by repose, and this repose will continue a variable time, even till the last few hours of life. The greater the amount of sedative the longer the delay. This form of vomiting marks an important distinction between perforative peritonitis and strangulation of the bowel. Vomiting is more persistent in strangulation. In the perforating cases vomiting is early, subsides rapidly, and a period of repose follows. Its persistence would lead me to diagnose strangulation. Fortunately it is a symptom which presses for operation in any case.

Notice, that while it always accompanies the onset of perforation, it may be, and often is, absent in cases of gangrenous appendicitis. As a symptom of onset it indicates severity or suddenness, and is present in most cases that run a favourable course. If it recurs after careful feeding, rest, and a sedative, it becomes an alarming symptom, and as a rule the case demands immediate surgical interference. Of all the symptoms, it may as a single one be most relied upon. Its value is enhanced if it return during the period when all food is withheld.

If vomiting be an important symptom its absence has a significance equally great. In fact I should be disposed to say that the absence of vomiting causes more anxiety when the question of operation is raised than its presence. We must not, in fact, rely upon this sign as a necessary indication for operation. In the period of repose it is absent, for the initial attack empties the stomach, and often the lower bowel as well. Then, again, our method of treatment aims at preventing vomiting. We withhold food, giving only the simplest materials; we keep the patient at perfect rest, and administer sedatives. Thus we delay the reappearance of this important guide. It has often appeared to me that the patient who comes into hospital after home treatment, com-

prising, as it does, little rest to body generally, frequent attempts at feeding, one or more doses of oil, and gives in consequence a good history of two to three days' vomiting—runs a better chance than one who has been carefully treated and the vomiting kept in abeyance. I am not sure, in fact, that a good meal of bread and milk, for instance, or a free drink given when we were doubtful as to the existence of an obstruction, would not be a good treatment. Such a measure is justified by the observation that those patients who in obstruction or appendicitis are frequently sick during the first two or three days appear to be none the worse for it, and being in consequence operated upon early generally do well. I mean that where a case has been very carefully treated vomiting may be absent, while the patient is steadily getting worse. This we see constantly in the septic peritonitis of appendicitis, and we see it in gall-stone obstruction. We must not wait for this sign; if we do, the only opportunity for operation may be lost. We must remember that strict abstinence from stomach feeding retards for a time its occurrence, and when vomiting does recur under careful treatment the end is probably near.

TEMPERATURE.

It has been long known that the temperature of the patient is of no particular value in cases of strangulation of the bowel. In hernia, for example, the temperature is always low, and the same is true of internal strangulation. Nor do we find the temperature raised in cases of perforating gastric ulcer, nor again in a ruptured tubal pregnancy. When the temperature however does rise in one of these acute cases, and remains elevated, it has a special significance, is a valuable aid to diagnosis, and an important indication for operation. A rise at the onset, followed by a rapid decline, and succeeded perhaps by a rise of one degree, or a degree and a half, indicates irritation, as for example that due to the passage of a stone along the ureter. This temperature is not of a septic nature. The temperature in the case under consideration rose early and remained high.

Chart I.

One might furnish a large number of similar cases from one's own experience. To take one other instance. A girl of 17 was seized during Monday night with diarrhoea and sickness and was given, at 2.30 A.M. on Tuesday, a dose of senna, followed by three enemata as home treatment. Later on Tuesday the temperature was found to be 101°, and was high in the evening. The records in the accompanying chart begin on Wednesday, the third day.

When called to decide the question of operation we had, in the presence of a general condition, exactly similar to the text case and with no local dullness, the best of all guides, a temperature which had been continuously high for two and a half days at least. In contrast with these illustrations let me refer to cases where the temperature, though it may rise high in the early stages, falls with advancing disease. No better illustration can be given than a case seen with Dr. Dunbar at Clapham. The man was first seen on the third day with a temperature of 101.8° in the morning and

Chart II.

102.6° in the evening, and as you will see, it fell in a most deceptive way, especially as the pulse fell in association.

Chart III.

It was in this case that the general condition to which I refer later proved so valuable a guide, and in conjunction with local pain and tenderness, decided operation. A large and very septic abscess was opened through the loin and recovery followed.

I might give many such examples to illustrate this pregnant fact, namely, that temperature and pulse may steadily fall, while dangerous septic processes are advancing.

When it is elevated, as in the two cases I have related, what does it signify? These high elevations point to septic infection of the connective tissue of the appendix, for where the peritoneum alone is concerned absorption is slight, but if the connective tissue be involved the absorption may be as rapid as in any other part of the body. I will go so far as to say that such a temperature as occurred in the case under consideration points to the necessity of immediate operation, and I believe that the appendix will almost uniformly be found to be gangrenous to a greater or less extent. What may happen if we do not interfere in such a case? First, the septic pro-

cess extends to the peritoneum and the patient dies. Secondly, absorption may take place in the liver, leading to pylophlebitis—a complication uniformly fatal. Thirdly, its necrosis may be partial or complete, the entire appendix coming away on opening a localised abscess.

Chart IV.

Chart IV. depicts the temperature in such a case. It may be divided into three periods, first, from the sudden onset on October 12th to October 18th, a period of six days, when the morning record averaged 100°, and the evening 102°. Secondly, October 19th to the 23rd, during which time—five days—it was normal both morning and evening; and thirdly a rise to 100° up to the fourteenth day, when a large abscess was opened. The reading of such a temperature seems to be that there was a septic process in the connective tissue of the appendix, lasting for a week, during which time the temperature was high. When this ceased and no further absorption took place, the temperature fell, though there was a large collection of pus around the sphacelated appendix.

The temperature in this case gives further support to the view I suggest—namely, that the high and continuous temperature indicates a septic process in the connective tissue of the appendix. When this is completed the temperature falls, though a large abscess lies in a portion of the peritoneal cavity, and is increasing. Absorption sufficient to cause elevation of temperature does not take place through the peritoneum, now covered and protected by lymph. We may look upon the fall of temperature as indicating a cessation of the septic process in the appendix itself. When all danger of secondary infection has passed, rupture of the abscess into the peritoneal cavity is the remaining danger, and this not infrequently occurs on the tenth or fourteenth day.

It has also been suggested that a bacillus is absorbed which depresses the temperature. Certainly there would appear to be some such reason for the notable absence of temperature, though I prefer, as more in accord with what we see elsewhere, the explanation I have given above; for could absorption take place, there are abundance of pyrogenetic organisms present in the pus.

To summarise the directing value of pyrexia:

(a) If the temperature be high in the initial stages—say 102° to 104° for the whole of two days—it indicates a septic process in the wall of the appendix. Before a localised abscess can form there may be fatal metastasis to the liver. This continuous temperature, as in Chart II, as a single guide may be relied upon as an indication for operation. While a good number end in localisation, and may be opened on the eighth or fourteenth day, an almost equally large number die from extension to the peritoneum, or from metastatic abscesses.

(b) If this “continuous” temperature fall after five to seven days, there will still almost invariably be suppuration, which will be evidenced by distension, increasing pain, the general signs of septic absorption, even with a normal pulse and temperature (see Charts III and IV).

(c) The absence of pyrexia, at the time we are called to decide the question must be discounted, in the face of a good history of onset, of early fever, and the fact that the patient is not decidedly better after four to six days from the onset.

(e) When the fall in temperature is accompanied by diminution of pain and local tenderness, so that the swelling can be outlined; when the distension yields, and the general condition is free from the signs of irritation, then operation is not immediately necessary. Fortunately this occurs in the great majority of cases, and spontaneous recovery follows. In a

fair number, a local abscess of slight infectivity results, giving plenty of time for decision, and carrying little risk.

PERIOD OF REPOSE.

The most striking feature in the case forming the text for these remarks was the general condition that existed just before operation. Too much attention cannot be given to this stage. Let me describe it more fully. The woman lay in bed feeling well; there was no distress, no general abdominal pain, the pulse was quiet, she felt very much better, and in her own opinion and in that of her friends was rapidly recovering. The food taken had been retained, and the change from the acute pain in the morning and that of the onset was so complete as to give a general impression to everyone of true improvement. There were three signs, however, which showed that this was fictitious. First, the temperature was high, and had been so—except when it suddenly fell for a few hours—for more than twenty-four hours; secondly, there was general distension of the abdomen, which had not yielded to a tube; and thirdly, there was an increased swelling in the right iliac fossa. These three associated, as in this case, point to the immediate necessity for operation.

I wish now to draw attention to the value of this period of repose. In nearly all the acute cases a stage is reached soon after the onset marked by a cessation of all acute symptoms. The patient passes, unaided by sedatives, into a condition of repose. A lull takes place in the advance of the disease, or, more correctly, the relief from pain and sickness and the general sense of comfort experienced by the patient are interpreted as being signs of improvement. This period of repose, if wrongly interpreted, may lead to disaster, and, if deepened by the regular administration of sedatives, will almost certainly do so. It is in its early stage a period of safety—one in which operation is successful. That this lull takes place in all these four conditions let me illustrate by some striking examples. A girl of 20, seen forty-eight hours from an acute onset, was considered so well on arriving at the hospital that operation was postponed until next morning, when a foul abscess was evacuated.

In a case of perforating gastric ulcer the patient, a girl of 20, was at first refused admission, and no operation was deemed necessary by the physician, yet in a few hours, when the abdomen distended and operation was performed, it was too late.

The first case of perforating gastric ulcer to which I was called by my colleague, Dr. Perry, was a man of 45. The perforating symptoms occurred twelve hours before, and few, I believe, would have recognised the necessity for immediate operation. The pulse was 60, the man calm and free from pain, the abdomen free from distension though rather rigid. I was obliged to confess that to me there seemed no good reason for operating. I immediately, however, carried out the operation requested, and had the satisfaction of finding a perforating ulcer on the anterior wall, from which bile and gastric contents were escaping.

We must not wait for the graver symptoms if we are to save these patients. Details might be given of any number of cases where waiting for the development of such symptoms as vomiting, elevation of temperature, characteristic pulse, and pain, have led to fatal results.

GENERAL CONDITION.

I have in relating my case remarked that the general condition of the patient was deceptive, and have enlarged on this point under the “period of repose.” There is another general condition occurring in appendix cases where suppuration exists in the presence of normal pulse and temperature, which is a most important guide to operation. It was well exhibited in a man, aged 22. On the eighth day the pulse was 64, the temperature 98.8°, but the aspect of his face and skin was that of septic poisoning. He was flushed, with a moist skin; the pulse was irritable, the tongue furred, and he was restless. One expected a temperature of 102°, and a pulse of 110. The fact that he showed this condition on the eighth day pointed to extending suppuration, and rendered operation imperative. A large collection of foul pus was evacuated by the loin, and he recovered. In this case, in addition to the general aspect, we had extreme tenderness in the anterior and posterior lumbar regions, and definite fulness, though no dulness.

Summing up the study of these symptoms, let me add that the diagnosis cannot always be made at the first visit. It is by the wise conduct of the case and careful watchfulness that success is attained and mistakes avoided.

My own experience is drawn from cases seen in hospital at various times after the onset, or in private also at various intervals, and from such experience I venture to draw up the following method of treatment and after-care.

In the first place, when called to an acute case the various symptoms must be written down. An apparently simple colic may prove to be a perforating gastric ulcer or, again, we may find ourselves being elaborate over an ordinary stomachache. It may be quite possible to make a diagnosis at our first visit. Much depends upon the time that has elapsed since the onset, and this interval must be carefully borne in mind. We may see the patient during the pain and stress of onset or, again, after the period of repose has set in, or later when pain has recurred and the third stage of the attack entered upon, or, lastly, when the pulse is failing and the patient's condition negatives any interference. The effect of sedatives again must be estimated if administered before we see the case, and all the symptoms weighed carefully in the light of the period upon which the case has entered.

If we can decide that a gastric ulcer has perforated, a tubal pregnancy ruptured, or find the worst and most acute form of perforating appendix, then operation offers in most cases the only hope. I say in "most cases," for it is well known that spontaneous recovery does take place in all these cases, even when the early symptoms are most urgent.

There are cases of appendicitis alarming in their fulminating progress, in which operation to be successful must be undertaken within twenty-four hours. In one instance we operated successfully nineteen hours from the onset, found a gangrenous patch at the root of the appendix surrounded by pus, and so situated that there could have been no lateral boundary.

Suppose we are called in at the period of onset, and cannot decide between the "perforative class" and the "colics," what is our best line of action? If the pain be moderate and subsiding the best plan is to apply hot fomentations and dispense with sedatives, give no medicine of any kind (unless it be a carminative placebo), and make a second visit in four hours. If the pain be great we must administer a dose of opium—hypodermically, if possible—employing the smallest quantity that will give relief, and then make our second visit in four to six hours. The importance of this early second visit cannot be overestimated. Over and over again a patient has been ordered a purge for an attack of colic at a first visit, and at the second a graver diagnosis has been made.

Having given a hypodermic injection, or 20 drops of Batley's solution every hour till the pain subsides, we enter upon the second stage of our case. Repose follows, as I have pointed out, naturally in most cases, and is deepened or initiated by the sedative, and at the second visit the obvious comfort will screen the signs of advancing disease.

Now we enter on a stage in which an error may be fatal, and in which everything depends upon the accurate observation of the symptoms and the correct use of sedatives. No words are too strong in which to condemn the prescription of opium to be given by an attendant at regular intervals. The only safe plan, and one I would urge as a routine practice, is to give the sedative when the visit is made. We can time this second visit, and adjust the dose, so that we see our patient free from the effects of the drug, and are in a position to review the symptoms, little if at all masked by treatment. Again, when the period of repose sets in, as it frequently does after the initial dose, no sedative is required. If we have a simple colic to deal with, a single dose will be sufficient, and for the rest fomentations will answer, and the same may be said of the many cases of appendicitis that recover. I remember Sir Samuel Wilks saying over an appendix case, many years ago, that he had never seen anyone die for the want of a purgative. I am afraid I must say that I have seen a good many die because sedatives were regularly and continuously employed. In the case under consideration, a single full dose was given by Dr. Huggill at his visit and nothing was ordered, so that I saw the patient free from the effect of opium, and was able to make

good observations. When a second dose is required, after, say, twelve hours, and especially if required after twenty-four hours, then the case begins to look serious, and we can put aside many of our possibilities. The advantage of a second visit within a few hours, say six, is of the greatest value, and in all cases presenting a serious initial aspect should be made.

I have more than once been called to a case, and withheld operation, and at a subsequent visit when the patient at my request was free from opium, operated, or, on the other hand, was equally certain that no operation was or would be required. I am fully aware that frequent visits are often difficult to make; still, I hold it a paramount duty to stand by these acute cases for at least forty-eight hours, so as not to miss the development of any symptom. By that time, we know pretty well how the case will go.

In offering these observations I do not forget that each case has an individuality. The ability to endure pain, we all know, is a most variable factor. In the most simple appendix case, a patient may require sedatives for several days, and, on the other hand, in the most serious septic cases there may be no pain at all, at least not enough to demand a sedative.

How may we know that the case is doing well? Relief from pain in the absence of sedatives will be one of the leading signs, but one of the most misleading. In appendix cases there will be diminution of distension; we can localise the swelling though it may be very tender; the patient does not require any further sedative; sickness has not returned, and, if distension exists, it yields to the enema or tube. Now, in the great number of appendicitis cases these signs of improvement will appear within twenty-four or forty-eight hours. Most of these will get well without further symptom; others will end in the formation of an abscess, giving plenty of time to form an opinion and to direct treatment. When a case is not doing well, I would say that perhaps one of the most valuable of the early signs of advancing disease is general distension of the abdomen, then tenderness, the absence of local swelling, the absence of dulness, the patient continues to complain of pain, and if with these there be a rise of temperature and of pulse we have cause for the greatest anxiety.

In the perforating gastric ulcers, if we cannot form an opinion at the first visit and have followed the line of treatment I have suggested, then the first sign of distension or of renewed pain indicates the commencement of peritonitis.

Turning now to the question of operation, it will be gathered from what has preceded that I am in favour of early interference, though we may not infrequently open an abdomen to find everything healthy and the diagnosis wrong. Now the more frequently we operate in these acute cases the more often will we find mistakes, and therefore we should be in a position, before undertaking such an operation, to say that if the case end in a simple exploration, no harm will result. The responsibility attending this position everyone will understand, and will certainly appreciate, if in their hands a fatality occurs in conducting such an exploration. We encounter the same problem in severe abdominal injuries. Here it is very difficult to distinguish between the early signs of shock and those indicating rupture of the intestine or other viscus. The only safe plan is to see the patient every three or four hours until symptoms indicating definite progress one way or the other have developed.

Such an experience and training it is impossible for us all to obtain, or the judgment and knowledge that go with it. But even those less happily placed can at the present day be fairly correct in method, and where life is in peril and no other help available, the best under the circumstances must be done. How good and how successful this best has become in our smaller towns and cottage hospitals, we have only to look at the admirable records in the journals to appreciate. In speaking, therefore, freely of operation, of the small risk attending early exploration, in advocating early interference, I am fully conscious that such a measure of success can only be obtained in the hands of an operator whose training makes an error in method almost impossible. To error in judgment we are all liable; we may err in deciding upon operation, we may err in the management of the difficulty we encounter, but as our means for diagnosis improve these errors will grow less.