TREATMENT.

In acute abdominal conditions with sudden onset it will generally be admitted that, whether a definite diagnosis has been made or not, surgical intervention holds out the best chance of recovery. In this condition death is almost certain to ensue unless the process of necrosis is arrested by incising the gland and free drainage; this should be performed as soon after the onset as possible; delay is fatal. That operation may be successful is proved by the published cases.

After performing a laparotomy a definite step in the diagnosis is made if dirty red-brown fluid is found in the pelvis, which was a marked feature in Cases II, III, and IV. If there is fat necrosis in the omentum the diagnosis is fairly obvious; but fat necrosis, although present in all the cases operated on, occurred in the omentum in only two of them (Cases III and IV); in Cases I and II it was present, at the time of the operation, only in the mesentery of the small intestine and in the transverse mesocolon. Finally, the pancreas will be found to be greatly enlarged, and the question arises whether one should be content with simple drainage of the pancreatic region, or whether cholecystostomy should be performed. One should be guided, we consider, chiefly by the general condition of the patient. As a rule, any prolongation of the operation should be avoided.

As a preliminary to the operation, we think it advisable to wash out the stomach, as in other conditions in which frequent and profuse vomiting is a feature. Measures to combat the marked collapse should also be taken prior to the operation, the most reliable, after warmth, being saline infusion and the exhibition of pituitary extract.

Since writing the above we have had the opportunity of seeing another case of this disease:

CASE VII.

A male, aged 47, who for several years had suffered with occasional attacks of pain in the epigastrium which had no relation to food, but had never been jaundiced, at 3 a.m. on May 6th, 1912, was suddenly seized with severe pain in the epigastrium, and vomited once. He was admitted to the Norfolk and Norwich Hospital at 4 p.m., and shortly after this his bowels were open. He was then collapsed and cyanosed, with rapid, feeble pulse. There was no movement of the upper abdomen on respiration, slight tenderness on pressing over the epigastrium, abdominal muscles rigid, and marked dullness in both flanks. The liver dullness was not obliterated.

Operation.

He was given 3 pints of saline and 1 c.cm. of pituitary extract by infusion during the operation. Mr. E. W. Everett performed suprapubic laparotomy and found blood-stained fluid in considerable quantity in the peritoneal cavity; he inserted a tube into the pelvis and then opened the abdomen above the umbilicus. On lifting up the omentum, fat necrosis was seen and the gall bladder was found to be full of stones. The latter was opened and drained, and the supraumbilical wound was closed. The patient was returned to bed in the Fowler position and continuous saline infusion administered by the rectum. He died at 10 p.m.

Necropsy.

A well-nourished, muscular man. General peritonitis, with dirty blood-stained fluid in the peritoneal cavity. Fat necrosis in the great omentum, appendices epiploicae, mesentery, and on the under surface of the diaphragm—most marked in the region of the spleen. The pancreas: head and first part of the body dark red in colour and of the consistency of soft india-rubber; the rest of the body and the tail appeared normal. The bile ducts were patent and apparently normal. The pancreatic duct was apparently normal, and was not bile-stained.

Microscopical sections show that the head of the pancreas is completely necrotic, no sign of the gland substance remaining; this part of the gland is extensively infiltrated with blood. The tail of the organ is seen to be in the first stage of necrosis, but no haemorrhage has taken place here. Between these two points all stages of necrosis are found. Throughout the organ there are areas of fat necrosis, but nowhere is there seen any evidence of inflammatory reaction.

In conclusion, we wish to record our thanks to Dr. H. J. Starling and Mr. E. W. Everett for their kind permission to use the notes of the cases under their care.

REFERENCES.

¹ Moynihan, *Keen's Surgery*, vol. iii. ² Opie, *Disease of the Pancreas*.

THE DIAGNOSIS AND TREATMENT OF
INTESTINAL OBSTRUCTION.*

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EXCESSIVE MORTALITY.

It is a reproach to our profession that many hundreds of men, women, and children die every year from intestinal obstruction due to mechanical causes. It is no exaggeration to say that in every case life could be saved or prolonged by surgical operations performed at an early stage of the illness. The mortality of cases of acute obstruction of the bowels submitted to operation is still appalling, probably as much as 75 per cent., and this is entirely due to the large number of cases in which surgical aid is sought or accepted as a last resource, although it is obvious that mechanical obstruction can only be removed by mechanical means. This deplorable and unnecessary waste of life is mainly due to the continuance of the old tradition which assigned all internal diseases to the province of the physician, or as the Germans put it, of "inner Medicine."

AN ESSENTIALLY SURGICAL CONDITION.

No modern physician would, of course, deny that the treatment of mechanical obstruction of the bowels is wholly and solely a surgeon's job. He is justified, of course, in pointing out that it is sometimes a matter of great difficulty to decide whether a given patient has or has not obstruction of the bowels, and whether, the fact of obstruction being admitted, it may not be due to some cause capable of spontaneous disappearance. Influenced, however, by such doubts, the tendency of the physician is to wait and see. No doubt most problems are eventually solved by this method, but when the solution is so often made at the expense of the patient's life, it would seem a speedier and safer way to open the belly and look.

I do not suggest that medical practitioners are wholly to blame for the late stage at which the majority of cases of intestinal obstruction reach the hands of the surgeon. The ancient habits and beliefs of medicine continue to be cherished by the public long after they have been discarded by the profession, and many patients still abstain from seeking medical advice until they have treated themselves on orthodox lines by purgatives, enemata, and poultices without relief. Too often, nevertheless, when the practitioner is called in attempts are made to continue this futile treatment instead of making a definite diagnosis, or advising an exploration.

CONFUSION BETWEEN CONSTIPATION AND OBSTRUCTION.

The reluctance both of the practitioner to advise and of the patient to accept an immediate or early operation is due in no small measure to an habitual confusion between the ideas conveyed by the terms "constipation" and "obstruction." The term "obstruction" is generally, and should be always, used to mean actual mechanical obstruction to the lumen of the bowel sufficient to hinder or actually arrest the onward flow of the intestinal contents at a particular point. Obstruction so defined, if it exists, is obviously a surgical condition, curable only by surgical means, and surgically urgent in proportion to the acuteness and degree of the obstruction.

The term "constipation," on the other hand, means nothing more than some greater or less delay in the periodical evacuation of the bowels. It is quite common to meet with persons who habitually go several days without an evacuation, and not very uncommon to see a patient who has had no evacuation for as much as a week or more without showing any signs of acute illness or even discomfort, and without obstruction of the bowel at any point. It is true that this delayed progress of the intestinal contents, or intestinal stasis, is often associated with certain anatomical changes in the large intestine, and that it has been attributed by Sir Arbuthnot Lane and others to certain sharp bends or kinks caused by the dropping of certain parts of the colon, so that it might be described as a form of organic intestinal obstruction. Whether we accept Sir Arbuthnot Lane's theory or not—

* A paper read before the Staffordshire Branch of the British Medical Association.

THE Middlesex Hospital and the New Hospital for Women each receives a bequest of £2,000 under the will of the late Mr. John Anderson, of Porchester Terrace, W.

on which for the moment I express my opinion—his cases have none of the clinical features of cases in which the lumen of the bowel is demonstrably affected, and Sir Arbuthnot himself describes them as cases of chronic constipation—a term which, as I have pointed out, does not usually, and should not imply obstruction.

DISTINGUISHING FEATURES OF OBSTRUCTION.

Pain.

What, then, are the clinical features which distinguish obstruction from mere constipation? The first in importance is pain. In all acute abdominal illnesses pain is a prominent feature of the onset, and is common to such different conditions as visceral perforation, visceral strangulation, acute inflammation of the appendix or pancreas, and acute intra-abdominal haemorrhage. The pain due to intestinal obstruction does not, however, develop until more or less violent peristalsis is excited in the bowel above the obstruction. During the early stage of an acute strangulation it may be obscured by the pain and shock of the initial lesion, but as this subsides the colicky pain of peristalsis takes its place. It is paroxysmal and of the kind known as griping. After a time it is often accompanied by visible or palpable peristalsis. This sign, whether in an acute or chronic case, always means obstruction of the bowel lumen, and is a definite and safe indication for immediate operation.

Distension.

Distension is the next sign to consider. It is a necessary sequel of obstruction, since the gas normally present very soon accumulates above the obstructed point, and is rapidly increased by putrefactive changes in the stagnant intestinal contents. The absence of intestinal distension more than twelve hours after the onset of abdominal pain practically negatives obstruction, except in a few cases where the obstructed point is very high up, and in these cases it may pass into the stomach, and is relieved by vomiting and eructation. The presence of any well-marked degree of distension, on the other hand, is strong evidence of the existence of something more than constipation, and to that extent is a danger-signal of great importance.

In acute cases, of course, distension does not necessarily imply intestinal obstruction at a definite point, since it is one of the earliest and most constant symptoms of acute peritonitis. But that distension without peritonitis means obstruction and indicates the need for operation is a clinical rule which should seldom be disregarded, whether in acute or chronic cases. When obstruction and general peritonitis coexist, the obstruction may be merely an incidental complication of the peritonitis, or peritonitis may be the latest stage of unrelieved obstruction. In either case the need for operation is apparent, but it must be remembered that most cases of mechanical obstruction, if unrelieved, generally terminate fatally from exhaustion and toxæmia, and remain free from general peritonitis to the last, so that if signs of peritonitis occur early the case is almost certainly not one of simple mechanical obstruction.

Muscular Rigidity.

The most valuable distinguishing sign between peritonitis and obstruction is undoubtedly muscular rigidity. In simple mechanical obstruction, muscular rigidity of the abdominal wall is absent. In commencing general peritonitis, it is practically safe to say that it is never absent. In visceral perforation—for example, gastric ulcer—in spite of the intense pain, rigidity is usually absent if the patient is examined immediately after the occurrence of perforation. Its subsequent occurrence marks the onset of peritonitis after an interval varying in different cases according to the amount and virulence of the escaped intestinal contents.

Intermittent griping pain, accompanied by intestinal distension and without muscular rigidity, point to obstruction both in acute and chronic cases.

Rise of Temperature.

Other symptoms help us to distinguish general peritonitis from intestinal obstruction, but they are of less value than rigidity, for most of them develop or differentiate themselves later in the case, while it is of vital importance to make the diagnosis at the earliest possible moment.

A rise of temperature usually follows the onset of peritonitis, and is absent in simple obstruction. But in a case seen early it is folly to wait for a rise of temperature when more significant signs already exist; moreover, the absence of febrile temperature does not even negative extensive peritonitis.

Rising Pulse-Rate.

A rising pulse-rate after an attack of acute abdominal pain points rather to perforative peritonitis than obstruction, and is an indication of grave internal mischief seldom disregarded. In simple obstruction the pulse and temperature may both be unaffected after the first onset symptoms, and this is one of the commonest reasons for dangerous delay, since many practitioners even nowadays do not appear to realize that a patient may be acutely and dangerously ill with a normal temperature and pulse-rate.

Vomiting.

Vomiting, like pain and distension, is a cardinal symptom both of obstruction and peritonitis; but there are significant differences in the time and manner of its occurrence. Vomiting soon after the onset of the pain is common to nearly all acute abdominal cases, and does not help to distinguish one cause from another. But if it does not cease at the end of the first twenty-four hours, and if the signs of peritonitis are not excessively severe, obstruction should be suspected.

Repeated vomiting, continuing after the stomach has been relieved of its original contents, and then followed by the prompt rejection of liquid food soon after it is swallowed, are symptoms which occur from the beginning in acute obstruction, and do not occur in peritonitis till the last and usually fatal stage.

Incessant vomiting, continuing from the onset of illness, is, of course, a familiar feature of acute gastro-intestinal poisoning, both by organic and certain mineral poisons, but such cases are seldom in danger of confusion with either peritonitis or obstruction. More often than not they are accompanied by diarrhoea, but the absence of early distension and of muscular rigidity distinguishes such cases from obstruction even where an absence of a recent evacuation of the bowels suggests the possibility of acute obstruction.

Violent lead colic has, however, been often operated on for acute obstruction—a more pardonable error, at any rate, than waiting too late for a successful diagnosis.

Absence of Bowel Evacuations.

Absence of bowel evacuations is the most direct and immediate result of complete obstruction of the lumen of the bowel, but I have left the discussion of its significance as a symptom to the last because lapse of time, sometimes of many days, is required before absence of evacuation has, taken by itself, any significance. It has already been pointed out that what distinguishes obstruction from mere constipation is not the length of time which may have elapsed without a motion of the bowels, but the co-existence of distension and vomiting in obstruction, and the absence of these symptoms in constipation. The absence of any escape of gas from the rectum is of far greater significance. If none whatever has been passed for more than twenty-four hours, obstruction may be suspected, and if the time is still longer, there can hardly fail to be accumulation of gas and distension of the abdomen—signs pointing strongly to obstruction in cases where signs of peritonitis are absent. It cannot be too strongly insisted that the passage of solid motion and even gas after the use of enemata is no proof whatever that obstruction is not present or has been relieved. I have met many instances in which dangerous delay in operating has been due to misleading importance being attached to the result of enemata. On the other hand, the spontaneous passage of flatus per anum may be accepted as proof that obstruction, if present, is not complete, and to that extent the urgency of the case is lessened.

Effect of Purgatives.

Inability to procure a motion of the bowels by means of purgative medicines is one of the oldest methods of testing the question of obstruction, and has usually been practised by the patient's friends before the doctor is sent for. If real mechanical obstruction exists purgatives

are useless, and in the later stages dangerous. If no obstruction exists there is no urgent need for an evacuation, so that where obstruction may reasonably be suspected, purgatives are best avoided. Only in the early stages of a doubtful case of acute obstruction is it permissible to use a full dose of castor oil with a view to clearing up the diagnosis.

TWO QUESTIONS TO BE DECIDED.

In discussing the symptoms and diagnosis of intestinal obstruction I have only alluded incidentally to the distinction between acute and chronic obstruction, because this question in any given case is of secondary importance in deciding whether an operation is or is not required. The first two questions which every practitioner should ask himself when called to any abdominal case, acute or chronic, in which pain, distension, and vomiting are present, are:

1. Is there acute peritonitis?
2. Is there intestinal obstruction at a definite point?

If there is good ground for believing or even suspecting either of these to be present, the case should be at once regarded as definitely surgical, and the responsibility for operating or not operating is emphatically one for a surgeon, since no one can maintain that either Nature or the physician can be trusted to cure either of these conditions if they exist, and to wait for full proofs in a doubtful case is to run risks compared to which the risks of an unnecessary operation are trifling. The distinction between acute and chronic obstruction is misleading also from a clinical point of view if the distinction is based, as it usually is, on the anatomical conditions which may be respectively classified as acute or chronic in their mode of origin. The really urgent and important points in a given case are the degree of the obstruction of the bowel lumen and the high or low position of the obstructed point or points.

Whether the cause of the obstruction has taken a considerable time to develop, like a stricture or a fixed kink, or has been brought into existence suddenly, like an intussusception or an internal strangulation, urgency only arises in either case when obstruction has become complete or nearly complete. Whether the cause of obstruction is acute or chronic in its origin, the actual onset of complete obstruction is usually sudden, and the doctor is frequently not summoned till distension has begun. The cases in which obstruction is most often not recognized, and is, therefore, allowed to remain unrelieved for a dangerously long period, are those in which the point obstructed is low down in the intestinal tract—for example, malignant stricture of some part of the colon. In such cases, although the history and symptom point clearly to the nature of the case, the surgeon is too often only summoned when vomiting and distension occur, which is generally many days after obstruction is complete. The mortality of these cases when submitted to colotomy is, in my experience, quite as high as that of cases of acute internal strangulation, although if promptly recognized it should be almost *nil*.

SOME MAXIMS.

The moral of the whole matter cannot be too emphatically stated or too often repeated, and it is this: Do not confuse constipation with obstruction. Always consider the possibility of obstruction when pain, vomiting, and distension exist together. If there is no rigidity and no fever in such a case, obstruction is practically certain and operation is urgently indicated. Above all, do not waste time with such futile and dangerous things as purgatives and enemata. If these rules were more generally followed the mortality of intestinal obstruction would be less appalling than it actually is.

The diagnosis and recognition of intestinal obstruction is a matter with which every medical practitioner should be familiar. The treatment of it is necessarily and exclusively surgical. There is no medical treatment of obstruction any more than there is of stricture of the urethra, or compression of the trachea, or of strangulated hernia. The sooner the advice recommending the administration of purgatives and enemata, the hot applications to the belly, and other futilities are left out of our medical textbooks, the better it will be for the next generation of practitioners and patients.

LOCALIZATION OF THE OBSTRUCTION.

Obstruction having been diagnosed and an operation decided on, the surgeon is confronted with a number of problems, some of great difficulty, on the proper solution of which in individual cases the result depends. The first problem is, of course, to find the point or points of obstruction, for in certain cases they may be multiple. In some cases the point is definitely known—for example, as when the seat of obstruction can be felt in the rectum itself. In others it is clearly indicated and located by the presence of some kind of abdominal "lump" or by the presence of active peristalsis ceasing abruptly at a particular point, or it may be suggested by the presence of an abdominal scar or the history of a previous surgical operation—for example, for appendicitis or for some gynaecological condition.

THE VARIOUS PATHOLOGICAL CAUSES.

Failing any direct indication of the seat of obstruction, a review of the patient's age and clinical history often affords valuable suggestions. The pathological conditions which give rise to obstruction should be recollected. In infants and young children intussusception and tuberculous peritonitis are responsible for the great majority of cases. Congenital narrowing of the intestines, especially of the colon, should also be remembered, and strangulation by a congenital diverticulum is not uncommon. In persons below middle age I should place first in importance and frequency strangulation of some part of the small intestine by one of the various forms of internal hernia, and kinking and obstruction of the small intestine by old peritonitic adhesions. Of the latter, tuberculous peritonitis, including tuberculous mesenteric glands, is perhaps the commonest cause, and may be met with at any age. Adhesions binding down and kinking the lowest portion of the small gut from past appendicitis are also common, and in women evidence of old pelvic peritonitis of tubal origin, or due to the presence of pelvic tumour should always be thought of and looked for. After middle age perhaps the commonest cause of organic obstruction is stricture of some portion of the large intestine either from epithelioma or from tuberculous ulceration. The latter is usually in the neighbourhood of the caecum.

INTERPRETATION OF CLINICAL HISTORY.

In reviewing the clinical history the mode of onset of the obstruction is a point of chief importance. If it begins suddenly, with an entire absence of previous ill health or abdominal trouble, one of the sudden lesions must be assumed—for example, internal hernia, intussusception, or volvulus. If the onset is not absolutely sudden, some indication of a more gradual disease will usually be found in the previous clinical history. In all cases it is assumed that the presence of any of the ordinary forms of external hernia has been carefully sought for and excluded.

The above examples do not pretend to be systematic or exhaustive, but they illustrate the mode of reasoning by which the surgeon seeks to solve the first problem with which he is confronted when about to operate for intestinal obstruction—namely, where to make his incision.

SITE OF ABDOMINAL INCISION.

This is a point of no small importance, because the saving of time is essential. Where the point of obstruction is known or approximately indicated, the incision should be made so as to give the most direct and most ready access to the point of obstruction. When no such indication exists the surgeon must either make a systematic exploration of the whole abdomen until he localizes the obstruction or he must content himself with giving immediate relief by opening and draining some part of the distended intestine above it. The latter course has been strongly recommended by good surgeons as the best course to pursue in desperate cases where operation has been delayed and the patient is dangerously exhausted. It is, however, a counsel of despair, and should only be applied to the most desperate cases. In cases of acute strangulation mere relief of the distended bowel will not avert a fatal issue if the strangulation itself is not relieved, and there must be few cases in which it is wise to suspend the obvious first rule of operating for obstruction

--that is, localize the spot and verify the cause. In order to carry out this rule, it is usual to make the ordinary median incision below the umbilicus and search for a palpable cause—for example, a band or an intussusception—by inserting the fingers or the whole hand. In this way one may sometimes light on the cause without much difficulty, but in others—a rapid examination—nothing may be felt, and if there is much distension, as there usually is, satisfactory palpation of all parts of the bowel is often impossible. The next proceeding is, then, to seek and draw up into the wound collapsed and empty bowel and to trace it upwards until the point of obstruction is reached. The difficulties and dangers of this procedure are familiar to all abdominal surgeons. It frequently ends in finding the obstruction only after a great mass of distended intestine has escaped from the abdomen, and then great difficulty is found in replacing it. The result is that the patient usually dies in a few hours of shock, even if the cause of obstruction has been removed. For this reason the incision should be quite small, and not more than a single loop of bowel should be drawn outside the abdomen at one time.

For acute obstruction of the bowels, where there is reason to expect an internal hernia, a volvulus, or pelvic adhesions, the ordinary median incision and systematic examination of the small intestine from below upwards is, I think, the best course to pursue in spite of the difficulties I have mentioned, provided attention is paid to rapidity and to gentle manipulation, but when there is no indication whatever as to the site and nature of obstruction, and especially where the patient is obese and much distended, I prefer to make an oblique incision in the right iliac region immediately over the caecum. An examination of the latter at once shows whether the point of obstruction is above or below it—that is, whether it is in large or small intestine, from the presence or absence of distension.

OPENING THE CAECUM.

If the caecum is distended and the condition of the patient precludes further search, immediate relief can be given by caecostomy without the necessity of verifying the exact site of the obstruction. The majority of cases of obstruction with distended caecum prove to be malignant stricture of some part of the colon which can be dealt with at a later period. The only condition to which a caecostomy "in the dark," so to speak, would be inapplicable would be a volvulus of the sigmoid flexure, in which the distension is usually so great that it could hardly fail to be found and recognized even through an incision over the caecum.

ADVANTAGES OF CAECOSTOMY.

There is another important advantage in opening the caecum in preference to performing a colotomy immediately above the obstruction, apart from the saving of time and avoidance of prolonged manipulation of the abdominal contents, because this operation does not hamper the performance of a radical operation for the removal of the strictured portion of the colon at a subsequent period to anything like the same extent as a colotomy near the obstruction. A left inguinal colotomy, for example, performed for the relief of obstruction at the upper part of the rectum practically precludes a restoration of natural defaecation even where the anatomical conditions would otherwise have made this a feasible operation.

Again, the contents of the caecum being usually liquid, even in advanced obstruction, not only is a more rapid relief given by a colostomy in this situation, but it is far easier to establish a temporary fistula which can be subsequently closed, than in the lower portions of the colon.

ADVANTAGES AND DISADVANTAGES OF COLOSTOMY.

The question whether in any given case an operation for obstruction should or should not conclude with the establishment of an immediate drainage, by means of colostomy or enterostomy, is often difficult to decide, and on its correct decision the result mainly depends. Where the obstruction is in any part of the colon, it is seldom that it can be relieved without a colostomy when natural evacuations have ceased for several days and the bowels are much distended with gas and faeces. When the

obstruction is in a movable part of the colon—for example, the transverse colon or sigmoid flexure—it is possible to bring the affected loop of bowel outside the abdomen, resect it, and tie in a tube into the upper end, thus both removing the disease and giving immediate relief. Nevertheless this course, though easy and rapid, is not to be commended, because the closure of the fistulae so formed is generally attended with more difficulty and more risk than the resection of the strictured portion of bowel followed by immediate suture of the divided ends. For this reason it is better, as I have previously mentioned, to relieve the obstruction by a temporary caecostomy, and leave the radical operation till later, when it can be done under favourable conditions both as regards absence of distension and of local sepsis.

TREATMENT OF SMALL INTESTINE.

The question of making an artificial anus is more difficult to decide when the obstruction is at some point or points in the small intestine. Malignant disease of the abdomen so advanced as to obstruct the small intestines is generally so diffuse that little relief is to be gained by making an intestinal fistula. But the majority of cases of obstruction of the small intestine are caused by bands and adhesions, the division of which is the first and most obvious indication of any operation for their relief. When the band is single and the obstructed or strangulated portion of bowel presents no signs of irrecoverable damage, the case differs in no respect from an ordinary strangulated external hernia, and is treated in the same way—that is, the bowel is replaced in the abdomen and the wound closed. In other cases, if the vitality of any portion of the bowel is doubtful, it must either be resected or at least left outside the abdomen. The exact procedure in any case depends on the judgement and experience of the operator, and no decision in surgery puts them to a more difficult test. The condition of the patient, the amount of bowel requiring resection, the time required to complete the operation, and the functioning of the bowel afterwards have all to be taken into account, and no rules can be formulated which will cover all cases.

A few guiding principles may, however, be given as the results of my own experiences, both fortunate and unfortunate. The first rule is that where there is much doubt as to the recoverability of bowel it is better to resect than to leave it. The second rule, which certainly applies to strangulated hernia, and probably with equal force to internal strangulations, is that resection, followed by immediate enterorrhaphy, is superior, both in its immediate and in its ultimate results, to division of the operation into two stages, in which, in my experience and observation, the patient seldom fails to die at the second stage, even if he tides over the first. I do not deny that surgeons are sometimes called upon to operate on cases of internal strangulation and of intussusception in which large pieces of bowel are already gangrenous, and in which time and shock do not allow more than the rapid removal of the dead or damaged bowel and the establishment of a rapidly performed enterostomy. Most of such cases are practically moribund when operated on, and no other course is open.

TEMPORARY ENTEROSTOMY.

Enterostomy properly performed is a most valuable procedure, not as a substitute for immediate suture after resection of bowel, but as a temporary exit for the faeces during the first few days after the strangulating band or adhesion has been divided, and even in some cases after a primary enterorrhaphy has been performed. Every surgeon who has operated for strangulated hernia must have seen cases which have "died cured." That is to say, the strangulation has been relieved, the strangulated bowel has shown the usual signs of being alive, and has been replaced in the abdomen. Nevertheless, vomiting and distension have not been relieved. At the end of twenty-four or forty-eight hours the patient has died, and at the *post-mortem* examination the strangulated coil has shown no sign of gangrene, but has been merely collapsed and empty. The same sequence of events may be sometimes seen in a case of strangulated hernia, where damaged bowel has been resected and a primary enterorrhaphy performed. In such a case also no defect in the bowel or in its mode of suture may be found at the

post-mortem examination. In either case death is caused by unrelieved intestinal obstruction, and the same occurrence is not infrequently noticed after operations for internal hernia or obstruction by intestinal adhesions in which the mechanical cause of the obstruction has been removed without relieving the obstruction itself.

The explanation of this fact is by no means clear. It is sometimes described as "paralytic ileus"; but however applicable this description may be to some cases of distension with obstruction, following severe abdominal operations, not involving the intestines themselves, it certainly does not fit the cases I have described. So far from being paralysed, the bowels above the point at which strangulation was relieved frequently continue in a state of active visible or palpable peristalsis. It is obvious that the strangulated coil of bowel or the adjacent portions which have been united after resection of the strangulated part in some way oppose an insuperable obstacle to the passage of the intestinal contents, even when propelled by unusually powerful peristalsis, just as a dead or functionally inert segment of bowel caused by mesenteric embolism will cause intestinal obstruction without any mechanical stoppage of its lumen. Why the interposition of a passive but easily distensible segment in the course of the intestinal tube should cause obstruction within the abdomen, and not do so when an equally passive tube of thin rubber is tied into the bowel and brought outside the body, is difficult to explain, but it is certainly a fact. In order to avoid this danger, without sacrificing the great advantages of an immediate restoration of the continuity of the bowel after enterectomy, I have on several occasions successfully resorted to a temporary drainage by means of a small rubber tube sewn into the bowel some inches above the line of section, and brought out through the abdominal wound. For this purpose, in the small intestine, an ordinary rubber catheter of No. 12 to 14 English scale suffices. It is passed through a small incision in the bowel, and fixed by means of a suture which transfixes both the bowel wall and the catheter itself. A second sero-muscular purse-string suture is then inserted in such a manner as to invaginate the first incision, and the bowel is then placed within the abdomen, taking care to avoid kinking.

The tube becomes loose in a few days, and leaves a small fistula which closes without difficulty as soon as the natural function of the united intestine is resumed. I regard this method as far superior to that of merely resecting the gangrenous or damaged loop of bowel and placing drain tubes in each lumen, since this method, even if the patient recovers, demands a difficult and dangerous operation for the subsequent restoration of the continuity of the bowel.

In conclusion, I should like to emphasize once more the following points: Large numbers of patients die every year from intestinal obstruction due entirely to mechanical causes which are remediable by surgical operation and by no other means. The majority of these fatal cases are not operated on until a late stage in the disease, and most of them are in the first instance treated by drugs or applications, internal or external, which cannot possibly give relief. The difficulty of diagnosing the existence of mechanical obstruction is increased by the popular confusion between constipation—that is, temporary suspension of the motor functions of the bowels—and real obstruction—that is, mechanical hindrance at a definite point. The consequences of the latter condition are so serious and so urgent that the question of its existence should be carefully considered in every case of abdominal illness in which pain is associated with vomiting, distension, and absence of recent bowel evacuation. If the possibility of obstruction cannot be excluded after a short period of observation, surgical assistance should be obtained as soon as possible. Obstruction of the bowels within the abdomen is just as much a surgical disease as strangulated hernia. The difficulty of the diagnosis in the former merely adds to its dangers, the greatest of which is delay.

A BILL is being promoted in Parliament which provides for the construction of a crematorium for South London in the parish of Lambeth.

THE late Surgeon-Lieutenant-Colonel H. W. Kiallmark, formerly of the Royal Bucks Hussars, left estate valued at £17,156. He left £1,350 to charitable institutions.

A CASE CONTRIBUTING TO THE STUDY OF FEVER WITHOUT OTHER PHYSICAL SIGNS.

BY H. GWYNNE LAWRENCE, M.B.LOND.

THE subject of the following notes was under observation for ten months. For the first six months he presented very little in the way of physical signs, although throughout this period he was the subject of marked fever—at first intermittent, with definite periods of apyrexia, but latterly remittent, and finally continuous.

The patient, aged 62 years, fifteen years ago resided in India for five years without any detriment. Two years ago he had an attack of tachycardia which passed off in a short period, and for three years he had suffered from an annual febrile attack believed to be influenza. No evidence was obtainable of alcoholic or dietetic excesses. The only other important detail upon which he laid much stress was the fact that all his life any form of aperient upset him profoundly, as did also enemata. For the first six months symptoms other than could be attributed to the fever were completely absent. During the last four clinical signs of cirrhosis of the liver appeared.

In the earliest days a bad night would be followed by a tongue thickly coated with a brown moist fur, the breath would be "heavy," the skin dry and hot, the face slightly yellow tinted, and occasionally some flatulent distension of the colon could be recognized.

The temperature rose at 6 p.m. daily to 102° or rather higher, and was at the normal line again at 6 a.m. This continued for a period of from ten to fourteen days, when a similar period of apyrexia occurred, and the patient became comfortable, and the tongue cleaned to a great extent, but not absolutely.

Conspicuous features at the height of the fever were the facts that the pulse was little disturbed, and rarely exceeded 62 in frequency, and that the respirations remained at 20 to 24. The skin was hot and dry, the bowels acted well, or only required gentle stimulation, and no after symptoms, for example, headache, etc., were experienced.

Blood examinations showed marked leucopenia. The red cells were practically normal in amount, with some deterioration in haemoglobin; the white cells were 2,300 per c.cm.

Agglutination tests to enteric and Malta fever were negative, as was also Wassermann's reaction. Blood cultures proved negative on all occasions.

Treatment was directed against pyorrhoea alveolaris, which was present, but only temporary improvement of this condition occurred, and the course of the main disease was absolutely uninfluenced. This state continued for six months. The liver became gradually more and more displaced upwards by the abdominal distension, the upper margin eventually reaching the fourth space in the vertical nipple line. During this period occasionally a slimy mucous stool, offensive in character, was passed, and an occasional attack, of short duration, of tachycardia occurred.

In the apyrexial period the appetite was good, the general nutrition improved, and there was a complete absence of symptoms.

At the sixth month ascites began to develop, and the abdominal distension was a continuous feature. The base of the right lung showed signs of compression, the skin became yellowish in tint, and showed loss of elasticity. The evidence at this period, from a clinical point of view, suggested the cardinal signs of cirrhosis of the liver—jaundice, ascites, and a liver apparently (by x-ray examination) of even contour, but rather smaller than normal. The spleen could be felt at the rib margin, and some discomfort was experienced over the splenic area. At this stage the blood cultures again proved negative, and the leucocyte count amounted to 1,716 per c.cm. The differential count was:

Polymorphonuclear ...	...	...	41 per cent.
Mononuclear ...	...	...	25 "
Lymphocytes ...	...	...	32.62 "
Eosinophiles ...	...	...	1.38 "
Red cells (per c.cm.) ...	...	...	3,800,000

For a short interval acute pain was experienced at the