An Address

ON

TWENTY-FIVE YEARS' PROGRESS IN
ABDOMINAL SURGERY

AT THE MANCHESTER ROYAL INFIRMARY.

*Delivered before the Manchester Medical Society on
February 3rd, 1926,*

BY

ARTHUR H. BURGESS, M.B., CH.B., M.Sc.VICT.,
F.R.C.S.ENG.,PRESIDENT OF THE SOCIETY; PROFESSOR OF CLINICAL SURGERY,
UNIVERSITY OF MANCHESTER; HONORARY SURGEON TO THE
MANCHESTER ROYAL INFIRMARY.

THE year 1925, in which you so greatly honoured me by electing me to your presidential chair, completing, as it does, the first quarter of the twentieth century, automatically invites retrospection. In 1900, as the resident surgical officer at the old Manchester Royal Infirmary, I was in very close touch with the surgical work of the institution, and it occurred to me that a comparison between the abdominal surgery of that time and of the present time might not be without interest and instruction to all of us.

In instituting such a comparison account must, of course, be taken of the increased number of beds available for general surgical use in the present as compared with the old Manchester Royal Infirmary (315 as against 186), and of the increase in the honorary surgical staff (from four surgeons and three assistant surgeons in 1900 to five surgeons and five assistant surgeons in 1925), as well as a corresponding increase in the resident and the junior non-resident staff. In 1900 the honorary surgical staff consisted of Messrs. Hardie, Southam, Wright, and Thorburn, with Collier, Platt, and Montgomery as assistant surgeons, and of these seven only one survives (Mr. F. A. Southam); while of the corresponding staff of physicians four survive (Drs. Steel, Bury, Wilkinson, and Reynolds), three of whom are still in practice. Thus the survival rate among the physicians is 66.6 per cent., as against 14.2 among the surgeons—nearly five times greater: one more proof, were any such needed, that the wear and tear of the strenuous and exacting life of a surgeon is very much greater than that of his medical brother.

For my purpose I will compare the abdominal operations (excluding gynaecological) performed in the year commencing January 1st, 1900, with those of the year ending December 31st, 1924. In 1900, out of a total of 2,343 operations of a general surgical character, 266 were upon the abdomen—that is, 10.97 per cent.; whereas in 1924 out of 5,353 operations 3,051—that is, 56.99 per cent.—were abdominal; the proportion of abdominal to other operations had increased more than fivefold. This increase is rather more marked in the "acute" (or "urgent") than in the "chronic" (or "non-urgent") type of case, since in 1900 "acute" conditions accounted for 30.8 per cent. of all the abdominal operations, but in 1924 for 40.6 per cent.

"ACUTE" ABDOMINAL SURGERY.

In 1900 82 operations were performed for acute abdominal conditions, with a mortality of 36.5 per cent.; in 1924 there were 1,241 such operations, with a mortality of 8.1 per cent.

Table I presents an analysis of the acute abdominal operations for the years 1900 and 1924 respectively, giving the proportion that each type of case bears to the total number of such operations, and the corresponding mortality. The total number for 1924 includes 85 cases not analysed in the table (acute cholecystitis 56, acute pancreatitis 6, other acute abdominal conditions 23), since these operations were unrepresented in the 1900 list. Presented in this form the great improvement in the 1924 percentage mortality of each type speaks for itself, ranging roughly from one-half that of the 1900 mortality in the case of acute intestinal obstruction to one-twelfth in the case of acute appendicitis.

TABLE I.—Operations for Acute Abdominal Conditions for the Years 1900 and 1924.

	Number of Operations.		Percentage of Total of Acute Abdominal Operations.		Mortality per cent.	
Year:	1900.	1924.	1900.	1924.	1900.	1924.
Strangulated hernia ...	50	106	60.9	8.5	22.0	9.4
Acute appendicitis ...	14	798	17.07	64.3	64.2	5.1
Acute intestinal obstruction	13	144	15.2	11.6	44.4	20.3
Perforation of gastric ulcer	5	28	6.09	8.7	80.0	14.2
Perforation of duodenal ulcer	0	80				10.0
Total acute abdominal operations	82	1,241			36.5	8.1

Strangulated Hernia.

The outstanding feature of the 1900 list is the great predominance of strangulated hernia—in fact, operations for hernia were the only common abdominal operations of that day, either acute or chronic. Those for strangulated hernia constituted 60.9 per cent. of all the acute abdominal operations, and those for the radical cure of hernia comprised 58.6 per cent. of all operations for chronic abdominal conditions, while, taken together, hernia accounted for 59.3 per cent. of all the abdominal surgery. In 1924 strangulated hernia constituted only 8.5 per cent. of the acute abdominal operations (slightly less than the proportion of perforations of the stomach or duodenum), and the radical cure only 18.8 per cent. of the chronic, while together hernia accounted for only 14.2 per cent. of all abdominal surgery.

Acute Appendicitis.

The outstanding feature of the 1924 list is the enormous proportion of operations for appendicitis—44.3 per cent. of all the abdominal operations; acute appendicitis accounted for 64.3 per cent. of all the operations for acute abdominal conditions, and quiescent appendicitis for 31.7 per cent. of those of a chronic type. In 1900 there were 14 operations for acute appendicitis—all for either appendicular abscess or peritonitis, there being no case of removal of an acutely inflamed appendix prior to abscess or peritonitis; the appendix was removed as an "interval" operation on 24 occasions. In 1924 there were 798 operations for acute appendicitis, with a mortality of 5.1 per cent., and 575 appendicectomies for quiescent cases, with a mortality of 1.4 per cent.

TABLE II.—Operations for Acute Appendicitis in 1924.

	Condition and Operation.	No. of Operations.	Mortality per cent.
Group 1 ...	Removal of acutely inflamed appendix, without drainage	337	2.07
Group 2 ...	Appendicular abscess, appendicectomy and drainage	360	4.7
Group 3 ...	Appendicular abscess, drainage only	42	16.6
Group 4 ...	Appendicitis with diffuse peritonitis, appendicectomy and drainage	59	16.9
Total ...		798	5.1

Although at the beginning of the present century the rational treatment of acute appendicitis by early operation was being practised both on the Continent and in America, there was considerable delay before any general adoption of its principles in this country. This was mainly due to the strongly adverse attitude towards any operative interference in the acute stages of appendicitis that was taken up by Treves, who at that period was undoubtedly the outstanding figure in British abdominal surgery. Treves taught that operation should not be undertaken unless there was evidence of suppuration, and that even then the surgeon should wait until the abscess had become well localized. Owing to his powerful influence this was recognized as the usual practice in this country, whereas abroad

many surgeons were already beginning to regard an appendicular abscess as a sign of a lost opportunity—the opportunity of preventing it—and were setting up as their ideal the removal of the acutely inflamed appendix while the infection was still limited to it, and before the peritoneum had become involved. So far as Manchester is concerned, I consider the first awakening dates from a meeting of the Manchester Clinical Society on October 4th, 1904, when Mr. (now Sir Charles) Ballance delivered a most instructive and stimulating address entitled “The application of the principles of surgery to the treatment of injury and acute infections when occurring within the abdomen.” It was not, however, until 1907 that the question was brought into local prominence by a discussion at a meeting of this society on March 21st of that year on “The diagnosis and treatment of acute appendicitis”; Dr. Moritz occupied the presidential chair, and the late Professor Dreschfeld and Mr. F. A. Southam introduced the discussion from the medical and surgical aspects respectively. The subsequent speakers were Drs. Arthur Helme, Reynolds, Arnold Lea, and P. McDougall, and Messrs. G. A. Wright, Platt, J. W. Smith, P. R. Wrigley, Stanmore Bishop, and myself. Many local practitioners were present, and from that time onwards a steadily increasing number of cases of acute appendicitis were sent to the Manchester Royal Infirmary for operation before either abscess or peritonitis had developed.

At the beginning of this century it was always the physician who was first called into consultation over a case of acute appendicitis, and only when he considered an operation necessary was his surgical colleague sent for. But the surgeon, whose help was sought only when a large abscess or an extensive degree of peritonitis was already present, soon began to complain that he was not called in early enough, and that valuable time was being lost by what was described as medical treatment; moreover, it soon became obvious that no drug treatment could beneficially affect the course of the disease, and so medical treatment came to be gradually abolished and the part of the physician in acute appendicitis confined to diagnosis. This was the position in 1907, when, at the meeting already referred to, Professor Dreschfeld concluded his introductory remarks by the statement that “as soon as the diagnosis of appendicitis has been made it is time to call in a surgeon.” But as, owing almost entirely to information gained by surgeons at their ever-increasingly earlier operations, the earliest signs of the disease and their interpretations became better known the diagnosis was rendered much simpler for the general practitioner, so that the only remaining function of the physician in this connexion came to be lost, and the cases then passed directly from the practitioner to the surgeon. Thus at every large hospital appendicitis has for many years been admitted directly to the surgical wards, and it has come to be widely recognized, not only by the general practitioner but even by the lay public, that a diagnosis of acute appendicitis necessarily connotes operation—that the onus of proof is on him who advises against operation rather than the reverse.

The decision as to the time at which operation should be performed must still remain the prerogative of the surgeon, though it has come to be the almost universal opinion that, in general, the sooner operation follows diagnosis the better the results. Certainly, so far as concerns cases seen in the early stages, while the infection is still limited to the appendix, all are agreed that operation should be undertaken immediately, and most surgeons (and I include myself among them) would apply the same general rule at all stages of acute appendicitis unless the inflammation is unmistakably subsiding. Of late, however, there has been a reactionary tendency on the part of some surgeons to revert to the “wait and see” policy so far as concerns those cases seen from the third to the fifth day where the infection has obviously already extended to the local peritoneum—a policy long advocated by Ochsner of Chicago. According to this the patient is placed at rest in the Fowler position, nothing except water is allowed by the mouth, salines are introduced continuously by the rectum, gastric lavage is instituted if vomiting be present, and morphine is given hypodermically for the relief of any severe pain. In many cases so treated the inflammation

does undoubtedly subside and the appendix can be subsequently removed at an “interval” operation; only such as fail to respond favourably to it are submitted to operation during the acute stage. This “opportunist” treatment, however, must never be attempted except in a hospital or nursing home where the patient is under the constant supervision of an experienced surgeon, with skilled nursing assistance, and where surgical intervention can at once be instituted should any unfavourable features become manifest. But what the hospitals teach to-day the general practitioner will do to-morrow, and were this expectant treatment to be adopted as the routine method by surgeons generally, and taught as such, I very much fear there would be a strong tendency on the part of the practitioner and patient alike to carry out the “waiting” policy at home, without the skilled nursing, the special appliances, and the constant skilled supervision which it requires, and only when it failed, as under such conditions it frequently would fail, to have the case transferred to hospital. This would be a sad reversion to the state of things of twenty years ago, and much of the progress hardly earned during that period would be in danger of becoming lost. The general rule which we as surgeons must continue to teach our students is that, unless for some very definite reason to the contrary in any particular instance, all cases of acute appendicitis should be submitted to operation as soon as it can be satisfactorily arranged for; only so do I feel that we shall achieve our object of “the greatest good to the greatest number.”

Immediate operation does not, however, necessarily imply immediate appendicectomy; all that is immediately essential is the relief of tension in the inflamed area, and there is still room for the exercise of the surgeon's discretion as to the advisability, in the presence of severe infection, of relieving tension by drainage only, and of postponing the actual removal of the appendix until the stage of acute infection has been safely tided over. Of the 402 appendicular abscesses operated upon in the Manchester Royal Infirmary in 1924, in 360 appendicectomy was carried out in addition to drainage, with a mortality of 4.7 per cent., while in 42 drainage without removal of the appendix was all that was performed, and the mortality was 16.6 per cent.; the higher mortality with the lesser procedure is accounted for by the practice in the Manchester Royal Infirmary of omitting appendicectomy only in the most difficult and serious type of case, where the extra time that would be occupied in finding it and the extra disturbance of infected areas incident to its removal are held to be factors too adverse to justify it.

Other Acute Abdominal Crises.

Another very striking improvement is shown by a comparison of the frequency and results of operations for perforated ulcers of the stomach and duodenum in the years 1900 and 1924 respectively. In 1900 five operations only were performed, all for gastric ulcer, with but one recovery—that is, a mortality of 80 per cent. In 1924 there were 108 such operations, with a mortality of 11.1 per cent.; these included 28 perforated gastric ulcers (mortality 14.2 per cent.) and 80 perforated duodenal ulcers (mortality 10 per cent.).

Acute cholecystitis, for which 56 operations were performed in 1924, is altogether unrepresented in the 1900 list, while in that year only three non-urgent operations were performed upon the biliary passages—all being cholecystostomies for gall stones—as compared with 176 (9.7 per cent. of all non-urgent abdominal operations) in 1924.

Reasons for Improved Operation Results.

A consideration of the immense improvement in the results of our operations for all varieties of acute abdominal crises, as indicated in Table I, naturally leads us to inquire the reason of such a change. No doubt we present-day surgeons of the Manchester Royal Infirmary would like to lay the flattering unction to our souls that, collectively and individually, we are better surgeons than our predecessors of 1900; from a personal knowledge, however, of the staffs of both periods I have no hesitation in saying that the surgical staff of 1900, had they had the same opportunities and the same material to work upon as

have we of the present day, would have shown results at least as gratifying. From the point of view of surgical technical skill and dexterity I do not consider that any Manchester Royal Infirmary surgeon since his day has attained to, much less surpassed, that of my early chief, the late Joseph Collier, whose untimely death was a veritable tragedy for surgery in general and for that of the Manchester Royal Infirmary in particular. No, it is not to better surgical skill that the improved results of to-day are due; such must be ascribed entirely to two factors: (1) the recognition of the great advantages to be gained by the application of surgical principles at the earliest possible stage, and (2) the stimulus thereby given to earlier diagnosis.

Early diagnosis followed up by early operative treatment is the keynote of success.

In the achievement of this earlier diagnosis physicians have undoubtedly played a notable part—one need mention only the names of James Mackenzie and Henry Head; yet it is mainly due to the experience gained by surgeons themselves in correlating the symptoms and signs observed prior to operation with the actual pathological findings at the operation which immediately followed while such symptoms were still fresh in their minds; certainly, for the acquisition of such experience no class of case offers better opportunities than these abdominal crises. Who that has not been present at some of these early operations could ever, otherwise, be brought to realize to what a profound degree morbid changes may advance in the abdomen with so very little in the way of symptoms and physical signs to help in their pre-operative recognition? It is no uncommon experience nowadays to operate within a few hours of the onset of a slight epigastric pain, with a little nausea, and so slight a degree of tenderness in the right iliac fossa that only a very careful comparison between the two sides will elicit it, and with a normal pulse and temperature, and yet to find at operation an appendix tightly distended with the most virulently infective purulent contents, its walls completely gangrenous, and the patient saved from perforative peritonitis merely by the protective wrapping, sometimes thin as tissue paper, afforded by a beneficently adherent omentum. Only when actually seen can such an occurrence be believed in, and yet this is no exaggerated picture, but one that must have fallen to the lot of any surgeon of experience in acute abdominal work.

In the improvement of the diagnosis of abdominal crises certain outstanding factors are worthy of mention as constituting definite stages in the increase of our knowledge.

1. The recognition of the "referred" character of abdominal pain. The viscera themselves are insensitive to touch or pain, so that pain resulting from a lesion of a viscus is felt by the patient, not in that viscus itself, but is "referred" to the peripheral distribution of the spinal nerves arising from those segments of the spinal cord with which that viscus is connected through its sympathetic nerve supply. The site of such reference rarely corresponds to the anatomical situation of that viscus—for example, the initial pain of appendicitis is felt, not in the right iliac fossa, but around the umbilicus.

2. The knowledge, which we owe to Treves, that in all varieties of acute abdominal crises the early symptoms may be identical, since they depend upon the same cause—a sudden shock to the solar plexus, evidenced clinically by pain referred to the mid-line of the abdominal wall, vomiting, and shock. These symptoms were described collectively by Treves under the term "peritonism."

3. The recognition that the initial period of reflex symptoms ("peritonism") is usually merely transitory, and is often followed by a short period of reaction or recovery—a dangerous calm before a renewal of the storm—which may be so complete that it is very difficult for the surgeon to be convinced that a really serious lesion is actually existent within the abdominal cavity. Rutherford Morison has strongly emphasized the three stages of an abdominal emergency—the "triple syndrome":

1. The stage of shock.
2. The stage of reaction.
3. The stage peculiar to each lesion.

If, as so often used to happen, morphine be given to relieve the early reflex pain, the onset of the stage of reaction is assisted, and the difficulties of diagnosis correspondingly increased. Who has not seen the very severe initial shock of a perforated gastric or duodenal ulcer pass away completely after a hypodermic injection of morphine? On this account it has come to be generally admitted that morphine should be withheld in any acute abdominal crisis until the diagnosis, or at any rate the line of treatment, has been decided upon.

4. The great significance of involuntary muscular rigidity of the abdominal wall—the true visceromotor reflex of Mackenzie—and the extreme importance of being able to distinguish it from voluntary rigidity. The latter has no diagnostic significance at all, whereas true involuntary rigidity is absolutely conclusive of a serious underlying lesion, and is, therefore, the strongest single indication for surgical treatment that we possess.

5. That acute abdominal crises can be very closely simulated by acute intrathoracic inflammations—basal pneumonia, diaphragmatic pleurisy, acute pericarditis—especially in young children; and also by the "crises" met with in tabes dorsalis—"gastric," "intestinal," and "renal." Certainly no abdominal operation should ever be performed without previously testing the knee-jerks and pupillary reactions.

Having decided, then, in any given case, that we are really dealing with an acute abdominal crisis, consideration must next be given to the possible causes of this condition. I have for very many years taught my students to classify these cases into five groups:

1. The colics.
2. The perforations.
3. The haemorrhages.
4. The inflammations.
5. The obstructions.

This order represents roughly their average suddenness of onset, and all but the rarer conditions can usually be readily allocated to one or other of these groups, since each group has certain fairly well defined characters.

Speaking of these acute abdominal crises in general it may be said that surgical technique has now reached such a high level of efficiency that further improvement therein cannot be relied upon to better the statistical results of surgical treatment; this can be obtained only by earlier diagnosis on the part of the general practitioner permitting the application of such treatment at an earlier stage. The time that has already elapsed before the abdomen is opened is the real deciding factor in the ultimate issue of any given case—far more so than the skill of the individual surgeon. To the general practitioner who first sees these patients I would say, "Do not expend too much time in making an elaborately exact diagnosis; be content to recognize that a grave lesion has occurred which is far more likely to recover if surgically treated"; and you may rest assured that in a large proportion of cases the diagnosis will not be carried further, with any degree of certainty, until the abdomen has been opened.

NON-URGENT ABDOMINAL SURGERY.

In 1924 the number of non-urgent abdominal operations performed in the Manchester Royal Infirmary was 1,810, as against 184 in 1900—that is, an increase of nearly sixfold, even when allowance is made for the greater number of beds now available. The figures for the four of these operations most frequently performed during 1924 are:

TABLE III.—Operations for Non-urgent Abdominal Conditions, 1924.

	Number of Operations.	Percentage of Total of Non-urgent Operations.	Mortality per cent.
1. Appendix	407	22.3	1.4
2. Hernia	333	18.3	0.3
3. Stomach and duodenum (for chronic ulcer)	250	13.8	4.0
4. Gall bladder and bile ducts	176	9.7	10.2

The appendix still holds its pride of place, though much less outstandingly so than in the "Acute abdominal" list (Table I), constituting 22.3 per cent. only of the non-urgent, as against 64.3 per cent. of the urgent abdominal operations. The percentage of operations for the radical cure of hernia has dropped from 58.6 in 1900 to 18.7 in 1924; 333 such operations were performed in 1924 with but one death, that of a male with a large umbilical hernia, who died of diabetic coma.

Chronic Ulcers of Stomach and Duodenum.

No operation for this condition was performed in 1900, whereas there were 250 in 1924, with a mortality of 4 per cent. These comprised 173 gastro-enterostomies (mortality 2.8 per cent.), 31 partial gastrectomies (mortality 3.2 per cent.), and 46 treated by other procedures. The operation of gastro-enterostomy, first performed by Wölfler in Vienna in 1881 for pyloric obstruction from carcinoma, was for eleven years restricted to cases of actual organic pyloric stenosis. In 1892, however, Doyen applied it successfully to a case of chronic gastric ulcer without organic pyloric stenosis, on the view that the symptoms associated with gastric ulcer were largely due to a spasmodic obstruction at the pylorus induced by the presence of the ulcer. In the following year Codivilla extended its use to chronic duodenal ulcer, again with success, and thereafter it came to be increasingly recognized as a most useful measure in the treatment of chronic gastric and duodenal ulcers; indeed, for many years whenever such ulcers were considered to require operative treatment at all it was the only procedure adopted. Unfortunately, however, its very success in true ulcer led to its abuse as a "cure-all" for all types of dyspepsia, and it is even on record that gastro-enterostomy has been performed for the vomiting of pregnancy, of cerebral tumour, of uraemia, and of locomotor ataxia. Naturally, therefore, the operation fell into some disrepute, from which it was rescued only when it came to be firmly restricted to cases of actual and demonstrable organic lesions in the stomach or duodenum. Even when so restricted it early became apparent that its results, both immediate and remote, were definitely better in duodenal than in gastric ulcer—that whereas it was almost invariably followed by healing of a duodenal ulcer such did not always eventuate in gastric ulcer. For a short period excision of a gastric ulcer without gastro-enterostomy was given a trial, but was soon abandoned, since recurrent ulceration and even perforation occurred.

Essentials in the Operative Treatment of Gastric Ulcer.

It has now come to be recognized that there are two essentials in the surgical treatment of gastric ulcer: (1) the removal of the ulcer itself, either by excision, which to me seems preferable, or by the cautery (Balfour); and (2) the performance of a gastro-enterostomy as a preventive of further ulceration. The ulcer should be removed, not only to rid the patient of its presence, but to anticipate any possible future malignant changes in it. This relation of gastric ulcer to gastric cancer is still a subject of much discussion; on the one hand, the pathologists to the Mayo Clinic, Wilson and MacCarty, make the alarming statement that 71 per cent. of specimens of carcinoma of the stomach removed there showed evidence of preceding ulceration, and that 68 per cent. of ulcers removed under the impression that they were simple ulcers showed early carcinoma at their periphery; on the other hand, Dible and Morley, investigating a series of cases at the request of the Manchester Pathological Society, found that of 126 ulcers removed on a clinical and macroscopic diagnosis of simple ulcer, none showed any microscopic evidence of malignant change, while out of 33 gastric cancers in 2 only (that is, 6 per cent.) did the clinical and histological evidence point to pre-existent ulceration. Most of us will agree, I think, that the latter view much more nearly represents the truth of this question.

Much discussion has taken place as to how gastro-enterostomy exerts its beneficial action—whether by mechanical drainage, or whether by its "physiological" or, as Sherren prefers to call it, its "chemical" effect in allowing the alkaline bile and pancreatic juice to enter

the stomach and thus neutralize the gastric hyperacidity usually, although not invariably, present; the probable truth is that both factors play their part, the mechanical factor being the one at first mainly concerned, and leading to healing of the ulcer by overcoming muscular spasm and by rapidly emptying the stomach, while the chemical factor prevents recurrence by lowering the acidity of the gastric contents.

The two essentials already referred to—the removal of the ulcer and the performance of gastro-enterostomy—can be carried out either as separate procedures (for example, wedge excision of the ulcer *plus* posterior gastro-enterostomy), or they can be combined in the single operation of partial gastrectomy as advised by Sir Berkeley Moynihan. This undoubtedly, in some case, proves a technically easier and shorter operation than the former. As a routine procedure, however, it has the great objection that it entails the loss of a large amount of healthy stomach, often many times greater than the actual ulcer, and unless we are obsessed with the American ideas as to the great frequency with which gastric ulcers become malignant this would seem a quite unnecessary mutilation. The mortality of partial gastrectomy in the Manchester Royal Infirmary in 1924 was 3.2 per cent., as against 2.8 per cent. for gastro-enterostomy—not a great difference; but were partial gastrectomy to become the adopted routine procedure for gastric ulcer by all of those who at the present time are, throughout the country, undertaking abdominal operations I fear the mortality would show a very material increase.

Operative Treatment of Duodenal Ulcer.

The immediate results of gastro-enterostomy in duodenal ulcer are remarkably good, the proportion of cures being returned at the Mayo Clinic as 94 per cent., and it is certainly very rare for a properly performed gastro-enterostomy to fail in bringing about healing of the ulcer. There is a "fly in the ointment," however, and this is the occasional later development of secondary ulceration either at the stoma (gastro-jejunal) or in the jejunum within a short distance of the stoma (jejunal). The frequency of this complication is estimated at 2 per cent. in the Mayo Clinic, and it may develop almost immediately or be postponed for several years. Its cause is the persistence of hyperacidity after gastro-enterostomy, this operation in certain cases not producing a sufficient lowering of the pre-operative gastric acidity, and I certainly consider that its incidence can be minimized by careful attention to diet, together with the administration of alkalis for a long time following the operation. There is too strong a tendency to consider the operation as the end of all treatment—it is really only the commencement of a new period. To avoid this complication some surgeons have recently shown an inclination to replace gastro-enterostomy in the treatment of duodenal ulcer by either, (a) on the one hand, a reversion to such procedures as pyloroplasty with excision of the ulcer, Finney's operation, and gastro-duodenostomy, which are stated to be less liable to be followed by secondary ulcer, though none of them can claim immunity therefrom; or, (b) on the other hand, more radical measures, such as duodenectomy, or partial gastrectomy; these, however, in the presence of duodenal ulceration and cicatrization are difficult operations, and were they to become widely adopted I fear their increased mortality would prove a more serious matter than the 2 per cent. incidence of secondary ulceration they are intended to prevent. Moreover, this complication has been known to have followed partial gastrectomy, and will, sooner or later, follow a duodenectomy, should that operation continue to be performed at all extensively.

The surgical treatment of these chronic ulcerative conditions may, then, be summarized as local excision of the ulcer *plus* gastro-enterostomy for gastric ulcer, gastro-enterostomy *plus* careful after-treatment for duodenal ulcer.

Time will not permit me this afternoon to do more than mention the marked advances that have occurred during the past twenty-five years in the surgery of the biliary passages, of the intestines, and more recently of the spleen, but were I to do so it would be but a repetition of the same tale of steadily continued progress.

New Methods of Diagnosis.

During the period under review important advances have been made in the methods applicable to the investigation of abdominal conditions, and of these may be mentioned, as of special help to the surgeon, the more extended use of the sigmoidoscope, test meals for the estimation of gastric acidity—whether the old single test of Ewald or the more recent “fractional” method—the Einhorn duodenal bucket and its modification for the investigation of the duodenal contents, the Meltzer-Lyon test to determine the physical characters of bile from the various parts of the biliary tract, and the van den Bergh tests for the detection of bilirubin in the blood serum and the differentiation of obstructive from non-obstructive jaundice. Unquestionably, however, by far the greatest debt of the abdominal surgeon of the present day is to the radiologist, who, by his improved technique, and especially by the combination of x rays and opaque (bismuth or barium) meals and enemata, has produced a veritable revolution in abdominal diagnosis. One need only mention the wonderful degree of accuracy of the present-day radiological diagnosis of all types of oesophageal obstruction, of gastric and duodenal ulcers and neoplasms, of hour-glass stomach, and of hair balls in that viscus, of all obstructive conditions of the bowels, and of all diverticula therefrom. But radiology is as yet scarcely out of its infancy, and we confidently look to it for further triumphs; meanwhile we note with satisfaction the gradually increasing frequency with which the radiologist can demonstrate the presence of gall stones, and still more so the promise he holds out to us, by further elaboration of the technique of “cholecystography,” of being able to recognize cholecystitis in its pre-calculus stage.

Improvements in Surgical Methods.

Concurrently with improvements in the diagnosis of abdominal lesions there has been a marked advance in the technique of surgical procedures designed for their relief. So outstanding has this been, in fact, that it is scarcely surprising that in the past the actual performance of the operation has perhaps loomed too largely in the surgeon's eye, to the comparative neglect of other important, even if less dramatic, factors that contribute to success. In recent years, however, there are evidences of betterment in this respect, and a steadily increasing amount of attention is now being paid to the more careful selection of patients that are submitted to operation at all; to the better choice of the operative procedure suitable to their particular case; to a more thorough pre-operative preparation, so that the patient may be brought into the best possible condition to withstand the immediate effects of the operation itself; and to the necessity, in many cases, of a more or less prolonged period of medical after-treatment and observation, so that the fresh start towards a healthy existence which the operation has enabled them to make may not be carelessly jeopardized. Patients who, from the operative point of view, represent poor surgical risks may nevertheless frequently be restored to health by the adoption of the “two-stage” principle; at the first operation nothing more is attempted than the relief of that factor which is immediately threatening death, leaving the radical cure of the condition—the removal of its cause—until such time as the general state of the patient has been sufficiently improved by the preliminary procedure as to render success probable.

This “multi-stage” principle, which has been applied so successfully in the case of growths of the colon associated with any degree of obstruction, and of prostatic patients presenting evidence of renal back pressure, might with advantage, I think, be further extended—as, for instance, to some cases of carcinoma of the stomach with severe obstructive vomiting and consequent ill nutrition, and especially to cases of calculous obstruction of the common bile duct associated with long-standing jaundice. These latter are admittedly extremely poor surgical risks; they are on the verge of both hepatic and renal insufficiency, and in them nothing further should be attempted in the first instance than the relief of the biliary obstruction by the quickest and least disturbing procedure—a rapidly performed cholecystostomy (or choledochostomy if the cystic duct be obstructed)—no attempt being made to remove the calculi from the common duct until, as the result of free

drainage, all trace of “hepatic back pressure” has disappeared.

The comparative ease, safety, and success with which, nowadays, quiescent appendicectomy can be undertaken has led to its performance on a very large scale—often on very insufficient evidence that the appendix is the real cause of the symptoms complained of. I feel very strongly that the steadily increasing number of patients coming into our hospitals and nursing homes with chronic abdominal disease, upon whom a more or less recent appendicectomy has been performed without material relief to the symptoms, constitutes a very serious reproach to abdominal surgery. The appendicectomy *qua* appendicectomy has been skilfully performed, the wound has healed primarily, without complication, and yet, the symptoms not having been relieved, it is obvious that the appendix was not the cause of the trouble, or at any rate not the sole cause. The incision has usually been of the “gridiron” type, but sometimes Battle's or other variety of limited incision has been adopted. The fault lies in the fact that no general examination of the abdominal viscera was made during the operation, nor is such possible through any of these limited incisions; so far as non-urgent conditions are concerned “gridiron” appendicectomy is the curse of abdominal surgery, and there should be but one incision for this type—the “paramedian.” This reproach to our work will never be removed until surgeons generally come to regard every abdominal section for non-urgent conditions as essentially and primarily an exploratory laparotomy, however certain they may feel of their pre-operative diagnosis. It is the opportunity of a lifetime to discover the state, not only of the organs suspected, but of all the other abdominal and pelvic viscera; nor should the abdomen be closed until the surgeon knows the condition of every viscus it contains, at any rate so far as inspection or palpation can reveal it.

This routine examination should be thorough and carried out upon a systematic plan. A good rule, I consider, is to postpone the examination of the suspected viscus until the last, otherwise, should one's pre-operative diagnosis be immediately verified, there may be a tendency rather to scamp the rest of the systematic examination and so to overlook other concomitant, and possibly even more serious, lesions. It has happened to me on six occasions that, with a confident pre-operative diagnosis of chronic gastric ulcer, confirmed by radiography, this preliminary routine examination has disclosed an absolutely unsuspected early carcinoma of the bowel, a well marked gastric ulcer being also present in each case. The futility of treating surgically, however skilfully, a gastric ulcer and leaving behind a carcinoma needs no emphasis. It must be admitted that the prolongation of the operation necessary for this routine examination will slightly increase its risks, but I believe this to be more than counterbalanced by the advantage of not overlooking any other coexistent lesion. The general state of the patient must, of course, be considered, and where this is such that any prolongation whatever is considered unjustifiable, this routine examination should be omitted. In the majority of abdominal sections for non-urgent conditions, however, the general state of the patient is sufficiently good to permit of it, and, if otherwise, I believe it to be better practice to postpone operation for a while and attempt, by medical measures, to improve the general state rather than to operate at once and omit the routine examination.

CONCLUSION.

In concluding this review of the abdominal surgery of the last twenty-five years I feel very strongly that its progress has been such as successfully to stand comparison with that attained in any other branch of the arts and sciences—not even excepting the brilliant achievements of the “wireless.” So great has it been, in fact, that it seems difficult to believe that the next twenty-five years can continue this progress on quite such a dramatic scale. There are unquestionably plenty of problems connected with abdominal surgery still awaiting solution, but these are details of administration and of technique rather than the elucidation of great principles—the consolidation of positions already gained rather than the storming of new

"fortresses." One may almost say that there are no new "fortresses" left to storm, since all the abdominal viscera are now the subject of the surgeon's frequent attention; certainly there can be nothing in the next quarter of a century to compare with the victorious advance made during this in the treatment of acute abdominal crises by the general adoption of early operation.

Having personally witnessed this twenty-five years' progress, as I have, and glorying in it, as I do, I naturally decided to select this as the subject of my presidential address to you, and to illustrate it by reference to the statistics of the Manchester Royal Infirmary—an institution around which the whole of my professional life has revolved, and of which I am, we all are, intensely proud. And if I have failed to arouse in each one of you something of the profound faith and enthusiasm in the progress of abdominal surgery which I myself feel, then I must ask you to ascribe such failure, not to any inherent defect in the theme itself, but to the inadequacy of my descriptive powers to do even the most rudimentary justice to this truly wonderful chapter of surgical progress.

HODGKIN'S DISEASE IN MAN AND ANIMALS.*

BY

SIR HUMPHRY ROLLESTON, BART., K.C.B., M.D.,
REGIUS PROFESSOR OF PHYSIC, UNIVERSITY OF CAMBRIDGE; PRESIDENT
OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON.

Synonyms.—Hodgkin's lymphogranuloma, lymphadenoma, lymphogranulomatosis, or granulomatosis maligna.

Nomenclature has been a stumbling-block, for the terms "lymphosarcoma" (Virchow) and "pseudo-leukaemia" have been applied to what we understand by Hodgkin's disease, whereas quite a distinct and different significance now attaches to these two words. Cohnheim in 1865 employed the term "pseudo-leukaemia" to a condition in which the enlarged lymphatic glands showed the histological structure in leukaemia while the blood did not—in fact, to what would now be called aleukaemic leukaemia, the aleukaemic phase of leukaemia, or probably better aleukaemic lymphadenosis. Lymphadenoma, which in this country is synonymous with Hodgkin's disease, has the disadvantage that in America and France it is sometimes employed for what would be more accurately described as lymphadenosis, since it does not run the inevitably malignant course. Except for the drawback of the change it might be well to adopt the term, used for seventeen years by H. M. Turnbull, and also employed by Ewing, of "Hodgkin's lymphogranuloma."

Incidence.—As the nomenclature is a source of confusion, and the clinical diagnosis, especially from lymphosarcoma, difficult, the Registrar-General's returns may not settle whether the disease is becoming commoner, as some have thought, but they show an increase in the last ten years, from 280 deaths in 1913 to 371 in 1923.

Criterion of Hodgkin's Disease.

As the cause of Hodgkin's lymphogranuloma is unknown, it is necessary to fall back on its histological structure as the only means of defining exactly what is meant by the name; indeed, the diagnosis of a given case can be made with certainty only on its microscopic characters, for the clinical features and the response to treatment, especially to radiations, though strongly suggestive, cannot be regarded as final courts of appeal. The histological appearances, described independently and almost simultaneously by F. W. Andrewes and Dorothy Reed in 1902, are so well known that it is unnecessary to do more than mention them—namely: (1) diffuse alteration of the structural architecture of the gland as a whole, showing (2) a diminished number of lymphocytes; (3) endothelial hyperplasia; (4) "lymphadenoma cells"; and (5) sometimes well marked eosinophilia. The blood changes are not patho-

gnomonic; there is often a leucopenia, especially in the earlier stages and in the cases of predominant splenic enlargement; when the disease is widespread a polymorphonuclear leucocytosis is common, and in rare instances there is a well marked eosinophilia, the significance of which is not clear.

Valuable as microscopical examination of an excised gland is, biopsies are not free from fallacies, for although there is lymphadenoma elsewhere the gland excised may show nothing more than indefinite lymphoid hyperplasia due to simple inflammation or compensatory for the destruction of other lymphatic glands. But Webster found that biopsies gave more positive results in Hodgkin's disease than in cases ultimately proved to be lymphosarcoma.

Nature of Hodgkin's Disease.

Lymphadenoma has been thought to be (1) a neoplasm, (2) a transition between a neoplasm and an inflammatory formation, and (3) as seems most probable, an infective granuloma, though the responsible virus, in spite of the descriptions of the tubercle bacillus (C. Sternberg; Fraenkel and Much), a Gram-positive pleomorphic diphtheroid bacillus (Bunting and Yates), and a spirochaete (White and Proeschner), has not yet been established.

The view that Hodgkin's disease is a neoplasm rests on several considerations, and perhaps chiefly on the assumption that in its early stage it is confined to existing lymphadenoid tissues, and that later it generalizes like sarcoma and invades tissues, such as muscle and bone, which do not contain any lymphoid tissue; this generalization, however, is quite compatible with the characters of the infective granulomas. The second reason is that in the late stages the histological characters may become those of a sarcoma—"Hodgkin's sarcoma," as Ewing (1922) calls it. If and how often this sequence has been actually proved by biopsy and necropsy I do not know; it is said by Ewing to occur often in mediastinal lymphadenoma, but these are just the cases in which a biopsy may be impracticable. Now the various kinds of cells seen in the early stage are much more like the inflammatory changes in the infective granulomas than the structure of a sarcoma, even though a mixed-celled. But Mallory groups together under the term "lymphoblastoma," as true tumours, Hodgkin's disease, lymphoid leukaemia, and lymphocytoma. It is a rather different and difficult question whether Hodgkin's lymphogranuloma becomes transformed during its course into Hodgkin's sarcoma, or whether the condition is sarcomatous from the start and becomes more virulent with the progressive impairment of the patient's resistance. On the analogy of chronic irritation as an antecedent of carcinoma and of the rare occurrence of sarcoma and carcinoma in the same growth, it would be reasonable to believe that a gland originally the site of chronic inflammation may later become sarcomatous, and Ewing (1913) has observed this sequence of events in cases in which repeated operations have shown the elimination of the original granulomatous lesion. But it would appear to be an open question whether the sarcomatous change occurs in the cells of Hodgkin's lymphogranuloma or in the tissues around, the latter process being analogous to the occurrence of a squamous-celled carcinoma in the site of cutaneous lupus.

Situation of the Disease.

The primary site of lymphadenoma is usually regarded as the cervical glands, as shown by the statement that these are first affected in from 50 (Ziegler) to 76 per cent. (Bunting) of the cases. But it does not follow that the glands first palpably enlarged are necessarily those first attacked; on the rather slender basis of fourteen cases Symmers has insisted that primary enlargement starts in the abdominal or in the abdominal and thoracic glands ten times more often than in the cervical, and Ewing confirms this. Its starting-point is of practical importance as determining the extent of the area to be treated by x rays or radium. A remarkable feature of Hodgkin's disease is that, although its first and main site is in the lymphadenoid tissues of the body, including the spleen, the mesenteric and the retroperitoneal lymphatic glands, it very rarely attacks

* An opening paper of a joint discussion of the Sections of Medicine and Comparative Medicine at the Royal Society of Medicine on January 26th, 1926.