PROBLEM OF THE CHRONIC DUODENAL ULCER WITHOUT STENOSIS*

BY

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During the last twenty years the treatment of duodenal ulcer has too often been the subject of a somewhat acrimonious discussion between physicians and surgeons as to whether ulcer should be regarded as a medical or as a surgical disease. Happily this fundamental question is now settled. It is seldom disputed to-day that duodenal ulcer is primarily and essentially a medical disease, and that surgery holds but a secondary place in its treatment. There remains, however, a considerable diversity of opinion as to the exact position held by surgery: by some, operation is advised as soon as a reasonable trial of medical treatment has proved unsuccessful; by others, the benefits of surgery are said to be restricted to cases of old-standing ulcer, where cicatricial stenosis of the pylorus has supervened.

At the two extremes of the condition medicine and surgery hold undoubted sway. The early acute ulcer and the "chronic" ulcer of short standing are essentially the province of the physician, and, with energetic medical treatment, can be cured in the vast majority of cases. At the other end of the scale the late complication of cicatricial stenosis renders medical treatment unavailing. Gastro-enterostomy has shown undisputedly excellent results in this condition, and there is little need to look further for the ideal method of treatment.

Unfortunately, however, the vast majority of cases of duodenal ulcer do not permit of such simple division. It is comparatively rare for either the medical or the surgical specialist to see an ulcer patient in the early stages of the condition. Unless acute emergencies, such as severe haemorrhage or perforation, suddenly establish the diagnosis the condition is usually overlooked, or treated in the early stages as simple dyspepsia. Energetic medical treatment is very seldom employed before the diagnosis is definitely established. The modern necessity of radiological and biochemical facilities, as aids to diagnosis, means that the ulcer patient very rarely receives adequate medical treatment until he is referred to the hospital or to the specialist. Various statistics have been published regarding the duration of symptoms prior to hospitalization. A review of these would indicate that, at a moderate estimate, at least 70 per cent. of patients have symptoms for four years or more before the diagnosis is established and adequate medical treatment commenced. It will be seen, therefore, that although it is well recognized that peptic ulcer, in its early stages, can be cured by medical treatment alone in almost every case, the opportunity rarely occurs where such an ideal can be attained. If we turn to the other extreme, where the decision as to treatment again offers no difficulty, we find that cicatricial pyloric stenosis, that most definite indication for surgery, is present in only a small percentage of the large number of cases with which we are called upon to deal.

The Average Patient: Medicine or Surgery?

Thus, between these two extremes—that of the early acute ulcer, and that of the chronic ulcer with stenosis—is to be found the average ulcer patient as he is referred to the specialist. He has usually had digestive symptoms off and on for years. He has had medical treatment of a kind, from which he has not derived more than

temporary benefit. The diagnosis is confirmed by *x* rays and by gastric analysis; there is no pyloric stenosis. What have we to offer him from medicine and from surgery?

In this country, at the present time, there is unquestionably a strong trend of opinion in favour of prolonged medical treatment of peptic ulcer, no matter in what stage of chronicity the ulcer may be. It has been proved most conclusively by Hurst¹ and other physicians that even the most chronic ulcers can be completely healed by medical treatment alone, and there is considerable support for the belief that if every patient with ulcer were to receive adequate medical treatment the number requiring operation would be very small indeed. While there is no lack of evidence to show that medical treatment alone *can* cure the most chronic of duodenal ulcers, it is justifiable to ask in how many cases it actually does so. The literature is rich in estimates of 60 to 80 per cent. of cures by medical means, but there are comparatively few articles from which accurate conclusions, ascertained from follow-up study in after years, can be obtained. Such statistics as are available indicate that the longer the duration of the ulcer symptoms, and the greater the number of attacks before the patient comes under medical treatment, the more refractory will the ulcer prove to such treatment (Neilson (quoted by Rendle Short²), and Dunlop and Murray-Lyon³).

The determination of cure in duodenal ulcer is of course a matter of the greatest difficulty, as, in many cases, after relief of symptoms, the ulcer persists in a quiescent state. Accordingly, relapse is not infrequent in cases which have been apparently completely cured.

Interesting findings in this respect were obtained by David Smith,⁴ who analysed the medical results in 214 cases of duodenal ulcer. At the time of leaving hospital 67 per cent. of the males and 76 per cent. of the females were pronounced cured. At the end of a five- to fifteen-year period, however, the figures for patients cured had fallen to 29 per cent. for the males and 40 per cent. for the females; 31 per cent. of the male cases and 25 per cent. of the female were regarded as unsatisfactory. Very similar findings were published by Einhorn and Crohn⁵ in 1926. Even in the case of private patients, treated under the best conditions, the results recorded are disappointing. Barford's⁶ figures for cases treated at the New Lodge Clinic were 41 per cent. "satisfactory" and 28 per cent. "fairly good." There was a recurrence in 24 per cent. of patients, and in half of these operation was ultimately performed.

It is pointed out by Hurst and others that these so-called "failures" cannot fairly be regarded as an argument against medical treatment, but should be taken rather as a proof that medical treatment, as usually employed, is totally inadequate. But we cannot judge medical treatment entirely by its potentiality to effect a cure in the cases where it is possible adequately to employ it; we can only judge from its results, immediate and remote, in the average case.

To what extent can we hope for improvement in the future? Earlier diagnosis will no doubt lead to a larger number of ulcers being cured in their early stages, but it can hardly be doubted that the problem of the chronic ulcer will still be with us. In spite of many assertions to the contrary, the healing of a chronic ulcer can never be regarded as a rapid process. Adequate medical treatment is (in the words of Moynihan) not so much a medical problem as a problem in social economics, and, in so many cases in all walks of life, it represents an ideal impossible of attainment. With the realization that in many cases the ulcer patient, whether from economic or other reasons, cannot be promised a cure from medical treatment we have to consider what we have to offer him from surgery.

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Much has been written in condemnation of the futility of drawing any conclusions from a statistical race between medicine and surgery for priority in the treatment of duodenal ulcer, but it is only by comparing the after-results of sufficiently large groups of cases that one can determine just what one is justified in promising the ulcer patient, and also which offers the best prospect for relief or cure—medicine or surgery.

The Case for Surgery

Gastro-enterostomy must be regarded both as the original operation for duodenal ulcer and the one which the majority of surgeons still favour at the present time. Statistics regarding the results of this operation are legion, and need not be referred to in detail. All combine to show between 60 and 90 per cent. of satisfactory results (Moynihan,⁷ Balfour,⁸ Gaither,⁹ Gatewood,¹⁰ Horseley,¹¹ Walton,¹² Woolsey¹³).

Several physicians have maintained that the statistics of individual surgeons are somewhat misleading, as they present in most cases the work of acknowledged experts, and it is suggested that such figures do not represent the results obtained by the surgical community as a whole. In this respect the collective investigation carried out by the British Medical Association¹⁴ some four years ago has a special value, because it shows the results of the operation of gastro-enterostomy as performed by no fewer than eighty-six surgeons. The results were classified as "very good" in 67.2 per cent. of cases and "good" in 22.3 per cent., thus giving a total "satisfactory" result in approximately 90 per cent. of cases.

In spite of the abundance of material from which conclusions as to the results of gastro-enterostomy can be drawn, we find little agreement between physicians and surgeons as to the benefit that is likely to be obtained from this operation. Ogilvie¹⁵ has suggested that although the literature is full of statistics showing satisfactory results in about 80 per cent. of cases, the other 20 per cent. vary "from unsatisfactory to dreadful," and Hurst¹ has drawn a gloomy picture of the victims of surgery whose lives have been made wretched by the development of jejunal ulcer and gastro-jejuno-colic fistula.

As Ryle¹⁶ points out, the reason for this controversy is not far to seek, when one remembers the obvious inclination of medical failures to drift to the surgeon, and of surgical failures to drift to the physician—with the result that each remains uncertain as to the results of his treatment in regard to the proportion of successes and failures. Wilkie¹⁷ has suggested that the arguments of the ultra-conservative school against operative treatment are based on their experience with the "surgical derelicts"—the very few with regurgitant vomiting and the rather larger number with secondary jejunal ulcer, who admittedly constitute a small minority of the cases operated on. "Medical derelicts" are no less common: these are the cases which, after years of unavailing medical treatment, are referred to the surgeon only as a last resource. Many of the "surgical derelicts" present with us to-day are a sad legacy from the early days of gastro-enterostomy—the first two decades of this century, which Hurst¹ has described as the surgical era in the treatment of duodenal ulcer. The majority of cases of duodenal ulcer were then referred to the surgeon without having had anything approaching adequate medical treatment, and in some cases the anastomosis was carried out even where no ulcer was demonstrable, in the belief that it would relieve ulcer-like symptoms. Happily this state of affairs is now long past, but the result of the injudicious selection of cases in the early days of gastro-enterostomy has unjustly prejudiced the reputation of this operation at the

present time. Fortunately, however, it has served to bring about a more just discrimination in the selection of cases for surgery and a higher standard of medical treatment and after-care.

Jejunal Ulcer

When we examine to-day the evidence against gastro-enterostomy we find little more than the liability to post-operative jejunal ulcer. While this is undoubtedly a much-dreaded complication, and one which has caused much suffering and distress, we have still to be convinced that it occurs with such frequency as to constitute a grave objection. The incidence of jejunal ulcer following gastro-enterostomy is variously stated by different workers, but there is little doubt that with the more careful selection of cases for surgery, and with the recognition of the essential importance of post-operative medical treatment, this complication is becoming more and more infrequent. The alarmist statistics of certain American surgeons are discounted by Luff's¹⁴ analysis of the collective investigation carried out by the British Medical Association. In this large series of gastro-enterostomies jejunal ulcer was reported in only 2.8 per cent. of cases.

From the evidence available it would appear to be sufficiently well established that gastro-enterostomy is attended by a successful result in the great majority of cases of duodenal ulcer.

Balfour's⁸ statistics of the result of this operation on medical men are particularly illuminating, as they indicate the results which can be obtained by surgical measures when the cases are judiciously selected and the operation is followed by careful post-operative treatment. These doctors undoubtedly constituted ideal subjects for surgery, in that they were aware of the limitations of the operation, and recognized the importance of post-operative medical treatment.

Physicians would seem to have every justification for their claim that if all cases of peptic ulcer were to receive adequate medical treatment there would be little need for surgery. But there still remains the insuperable problem of how this adequate treatment may be brought within reach of the average ulcer patient. Until this ideal becomes a reality surgery will continue to hold a very definite place in the treatment of duodenal ulcer. With the increasingly careful selection of cases for surgery, and with the recognition of the essential importance of post-operative medical treatment, there is every reason to believe that the successful results will increase in number, and the failures grow less.

Nature and Scope of Investigation

Numerous writers have seen reason to doubt the value of a direct comparison between the results of medical and surgical treatment of duodenal ulcer in determining the choice of procedure in the individual case. It is pointed out that statistics of the after-results of surgical treatment as a whole are apt to be misleading in that, in a definite proportion of cases, they are concerned with the chronic ulcer with cicatricial stenosis, where the results of gastro-enterostomy are undisputedly excellent. Medical treatment is, as a rule, employed primarily in cases which are quite unselected, and it has been suggested that the results in such cases cannot fairly be compared with those of surgical treatment, where the cases have, in many instances, been selected as being essentially suitable for operation. In this investigation an attempt has been made to compare the results of medical and surgical treatment in a series of cases where such a criticism cannot be applied. As pyloric stenosis must be regarded as the indication *par excellence* for operation, and therefore as the most important factor in the selection of cases for surgery, no case where this complication was present is included in the series of cases investigated. The after-

histories have, therefore, only been studied in that type of ulcer where the decision as to treatment presents the greatest problem—the chronic ulcer without stenosis.

By the kind permission of members of the honorary staff of the Royal Infirmary of Edinburgh, I have been privileged to investigate the after-histories of 480 cases of duodenal ulcer, treated between January, 1924, and June, 1931, inclusive. For the investigation of the results of medical treatment 200 cases were taken where the patient had been treated in a medical ward. In the great majority of these the diagnosis was confirmed by radiological or biochemical findings. In each of the cases the immediate response to treatment was satisfactory, and the patient was discharged without symptoms. No case where the patient was at the time referred to a surgeon is included in the series. For the study of the surgical results the after-histories were investigated in 200 patients who had had gastro-enterostomy performed for duodenal ulcer. Patients in whom definite pyloric stenosis had been observed at operation were excluded from the series. An additional series of eighty cases, where the operation of gastro-duodenostomy had been carried out, was also studied for the purposes of further comparison.

Results

Two Hundred Medical Cases.—The average duration of ulcer symptoms prior to adequate medical treatment was 5.8 years. Thirteen per cent. of patients had a history of less than one year's duration, and 34 per cent. one of less than three years. Thirty-eight per cent. had had symptoms for five to ten years, and 19 per cent. for over ten years. Fifteen per cent. of patients had been in hospital twice on account of the same condition. Of the series of 200 cases thirty-four had undergone operation for the ulcer condition since their discharge from the medical ward. The results of medical treatment in the remaining 166 cases are classified below.

Two Hundred Cases of Gastro-enterostomy.—The average duration of symptoms prior to operation was 7.5 years. Only 12 per cent. of patients had a history of less than three years' duration, and 24 per cent. had had symptoms for ten years or more. Thirty-one per cent. had received previous medical treatment in hospital. The results of medical and surgical treatment are compared in the following table.

Classification of Cases	Treatment	
	Medical	Surgical
A. Completely cured. Can eat anything. No pain. Able for full work ...	15.3 %	48.3 %
B. Greatly improved. Occasional slight pain or discomfort. Able for full work ...	43.2 %	25.2 %
C. Improved, but have frequent attacks of indigestion, and have always to be careful with diet. Able for light work ...	32.2 %	21.6 %
D. Constantly troubled with indigestion, and can eat very little. Unable for work ...	9.3 %	4.9 %

Effect of Chronicity on Results

In both medical and surgical series the average duration of symptoms prior to treatment bears a striking relation to the results obtained. It will be seen from the following table that the best results (Class A) of both medical and surgical treatment were obtained in those cases which had a relatively short history of ulcer symptoms. In the cases completely cured by medical means the average duration of symptoms prior to treatment was two and three-quarter years, while the figure for the surgical successes was four and a half years. In the case of the "fair" results (Class C) the average duration of symptoms was six and a half years in the medical, and eight and a half years in the surgical, series. The figures for Class B and Class D are seen to correlate to a marked extent.

Results	Average duration of symptoms prior to treatment	
	Medical	Surgical
Class A. Very good ...	2½ years	4½ years
Class B. Satisfactory ...	5½ "	6 "
Class C. Fair ...	6½ "	8½ "
Class D. Poor ...	11 "	9½ "

Return to Work.—In the medical series the average time between discharge from hospital and resumption of work was three and three-quarter weeks. (Periods of over three months were regarded as being due to some outside cause, and were not considered.) In the surgical series the average time was two and three-quarter months. (Periods of over six months were not considered.) Since returning to work 17 per cent. of the medical cases and 12 per cent. of the surgical cases have been "off" again, on account of digestive symptoms.

Post-operative Medical Treatment.—Investigation into the duration of post-operative medical treatment has yielded some interesting information. In the cases in Class A the average duration of such treatment was five and three-quarter months. Thirty-seven per cent. returned to normal diet within three months, and 61 per cent. within six months. Eight patients continued treatment for two years. In Class B the average duration of treatment was six and a half months. Thirty-four per cent. returned to normal diet within three months, 62 per cent. within six months, and 90 per cent. within one year. In Class C 24 per cent. gave up treatment within three months, 60 per cent. within six months, and 78 per cent. within the year. Of the eight cases in Class D five gave up treatment within six months.

Two points stand out in contrast from the above investigation. First, by eight of the patients in Class A post-operative medical treatment was employed for two years before a cure was claimed. Secondly, in the case of the doubtful results (Class C) and the failures (Class D) 60 to 80 per cent. of the patients abandoned all medical treatment within six months of operation, and 80 to 90 per cent. within the year.

Gastro-duodenostomy

In eighty cases where this operation had been performed the after-results in this series were classified as follows:

Class A. Very good ...	28 per cent.
Class B. Satisfactory ...	44 "
Class C. Fair ...	22 "
Class D. Poor ...	6 "

Summary and Conclusions

In general, the treatment of the chronic duodenal ulcer, whether by medical or by surgical means, must be regarded as somewhat disappointing.

Confirmation is found of the view, frequently expressed, that the longer the duration of symptoms the more refractory will the condition prove to conservative treatment. A study of the operative results in this series suggests that this is a factor of almost equal importance in the case of surgical treatment. The average duration of symptoms in the case of patients "completely cured" by operation was four and a half years: in cases where symptoms had been present for seven years or more the results became proportionately less satisfactory, indicating that operation promises the best chance of cure in those cases where the chronicity of the condition is not too far advanced.

Besides the customary plea for early diagnosis and more adequate medical treatment in the initial stages of duodenal ulcer, it would seem justifiable to suggest that earlier recourse should be had to surgery in the cases unrelieved by a thorough trial of medical treatment. The benefits to be obtained from gastro-enterostomy are by no means confined to the cases where pyloric obstruction is present. In the case of the chronic ulcer without stenosis, which has

formed the subject of the investigation, the results of this operation compare very favourably with those obtained under conservative treatment alone. Forty-eight per cent. of the surgical cases were completely cured and 25 per cent. were greatly improved. The figures for the medical cases are 15 per cent. cured and 43 per cent. greatly improved.

The value of these results may be criticized, in that some of the cases are too recent for a complete cure to be claimed. The same doubt exists, however, in regard to both the medical and the surgical cases, and does not affect the pertinence of the comparison. Furthermore, while some of the more recent patients who now regard themselves as cured may possibly suffer relapse later, there are doubtless others, now classified as "improved," who will claim a complete cure at a later date.

No definite conclusions may be drawn from a comparison of the number of failures of medical and surgical treatment in this series. The "derelicts" appear to be about equally divided. The clause "unable for work," in Class D, doubtless drew to this class several patients whose unfitness was due to some outside cause. In five cases information to this effect was supplied by the patient.

In the small series of cases investigated where gastroduodenostomy had been performed, the results of this operation could not be shown to equal those of gastroenterostomy.

In 65 per cent. of the cases investigated post-operative treatment, in the form of restricted diet and alkaline medication, was abandoned within six months of the operation. While very little guidance is available as to what may be regarded as the necessary duration of such treatment, six months cannot be looked upon as an error on the side of safety. It seems reasonable to suggest that, if treatment had been continued over a more prolonged period, the number of unsatisfactory results recorded would have been considerably less.

I am indebted to Dr. Alexander Goodall of Edinburgh for his help and advice in the carrying out of the investigation.

REFERENCES

- ¹ Hurst, A. F., and Stewart, M. J.: *Gastric and Duodenal Ulcer*, London, 1929.
- ² Short, A. Rendle: *British Medical Journal*, 1931, i, 437.
- ³ Dunlop, D. M., and Murray-Lyon, R. M.: *Edinburgh Med. Journ.*, 1932, xxxix, 571.
- ⁴ Smith, David: *British Medical Journal*, 1928, ii, 293.
- ⁵ Einhorn, M., and Crohn, B. B.: *Amer. Journ. Med. Sci.*, 1926, clxxii, 691.
- ⁶ Barford, L. J.: *Guy's Hospital Reports*, 1928, lxxviii, 127.
- ⁷ Moynihan, B. G. A.: *British Medical Journal*, 1923, i, 221; *ibid.*, 1930, i, 448; *ibid.*, 1932, i, 1.
- ⁸ Balfour, D. C.: *Journ. Amer. Med. Assoc.*, 1924, lxxxi, 603.
- ⁹ Gaither, E. H.: *Ibid.*, 1933, c, 966.
- ¹⁰ Gatewood: *Ann. of Surg.*, 1930, xcii, 554.
- ¹¹ Horseley, J. S.: *Ibid.*, 1930, xcii, 545.
- ¹² Walton, A. J.: *British Medical Journal*, 1928, ii, 794; *Lancet*, 1934, i, 893.
- ¹³ Woolsey, G.: *Surg., Gynecol. and Obstet.*, 1926, xlii, 90.
- ¹⁴ Luff, A. P.: *British Medical Journal*, 1929, ii, 1074.
- ¹⁵ Ogilvie, W. H.: *Guy's Hospital Reports*, 1930, lxxx, 483.
- ¹⁶ Ryle, J. A.: *Lancet*, 1932, i, 327; *ibid.*, 1934, i, 890.
- ¹⁷ Wilkie, D. P. D.: *British Medical Journal*, 1929, i, 535; *ibid.*, 1933, i, 771.

J. A. Burgess (*Urol. and Cut. Rev.*, December, 1934, p. 867) records his experience of evipan anaesthesia in twenty-five minor genital operations, such as cauterization of venereal warts, dilatation of stricture, urethroscopic cauterization of follicles, meatotomy, and incision of bubo. The drug is injected intravenously at the rate of about 1 c.cm. in 15 seconds. When 2 to 3 c.cm. have been injected the patient becomes unconscious and the operation can be commenced at once. In a healthy adult 3 c.cm. produce anaesthesia for about five minutes. The patient must rest fifteen minutes after regaining consciousness, and may then go home. The ease of administration, the rapidity and pleasantness of induction, and the freedom from after-effects render evipan a useful drug to the venereologist.

ENDOSCOPIC RESECTION OF THE PROSTATE

A CRITICAL SURVEY OF 150 CASES

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This report is based on an investigation of 156 consecutive cases of bladder-neck obstruction treated by endoscopic resection at All Saints' Hospital for Genito-urinary Diseases, London. In this inquiry we have determined the mortality rate of the operation and the complications that occurred, and have attempted to assess its efficiency as regards (1) *Relief of symptoms*, (2) *Anatomical results*, (3) *Permanence*, by re-examination of those patients surviving the operation for more than one year.

We have carried out a personal inquiry as regards their symptoms and general health, and have submitted them to a cystoscopic and urethroscopic examination wherever possible in order to observe the anatomical results and compare them with the symptomatic improvement. We have excluded from the late results of the series all those in which the operation has been performed less than one year before our examination.

There remain 120 cases with a post-operative period of over that duration. In this group all types of bladder-neck obstruction were treated, irrespective of the general condition, and thus the uses and limitations of the method were determined from the results in many greatly differing local and general conditions. This paper describes the dangers of the operation and the complications which occurred before the present comparatively safe technique was developed by experience gained in the early cases. We have included all patients from the first operated upon in October, 1931.

Technique

In all cases the instrument used was the McCarthy resectoscope or the Ryall-Millin modification of it. In the earlier operations the current was supplied through the "complex oscillator radiovalve" unit, but while the cutting was excellent the coagulation was poor. During the last two and a half years the current has been supplied through a spark-gap type of generator. The result aimed at is the production of a "gutter" by the removal of the posterior commissure, middle lobe, or bar flush with the trigone of the bladder, and by undercutting the lateral lobes when present. This canalizes the supramontine prostatic urethra. It is left with a shelving floor from the trigone to the prostatic urethra. The retroprostatic pouch is eliminated. No attempt has been made to remove the greater part of the lateral lobes within the capsule, as appears to be the practice of certain American urologists. A 24 F.G.E. catheter is tied for three or four days to drain the bladder after the operation. When the catheter is removed the patient micturates normally. Daily catheterization is necessary to remove residual urine when present, and for bladder lavage in the presence of sepsis.

Although the usual time for the indwelling catheter is three days, this varies somewhat according to the type of obstruction and the progress of the case. Thus, where only a small amount of tissue has been removed, as in fibrous prostates, small median lobes, or post-prostatectomy bars, twenty-four hours is ample. In more extensive resections after removal of the catheter the patient may be unable to micturate because of bladder-neck oedema.