

THE SURGICAL TREATMENT OF PEPTIC ULCERATION

B. J. V. R. DREYER, CH.M., M.D. (CAPE TOWN), F.R.C.S. (EDIN.), *Surgeon, Cape Town, and Lecturer in Surgery, University of Stellenbosch*

In treating patients suffering from peptic ulceration uncertainty about the type of patient who has to be referred for surgery, as well as about the type of surgery which should be done, still exists. The time must come, and is perhaps not too far away, when peptic ulceration will be completely controlled with conservative treatment without great inconvenience to the patient. The answer will probably lie in the use of preparations that will inhibit the acid-peptic secretion of the stomach reliably. In the meantime, however, we must make use of the treatment available today, and this is often surgical. It is our duty to select the best form of treatment for each individual patient.

Surgical treatment must always tend to be conservative — one can never replace a stomach that has been removed but one can always remove more of a stomach. In doing a sub-total gastrectomy for duodenal ulcer, many surgeons feel unhappy when they have to remove such a large part of a completely normal organ. If such a specimen is sent — usually by accident — to a pathology department, the pathologist shares the surgeon's unhappiness when he examines a normal stomach. It is true that many duodenal ulcer patients do well after a gastrectomy, but it is also true that a few patients are worse off after their operation than before, whereas others remain thin with a lowered resistance to infections such as pulmonary tuberculosis, and without any reserves should a disease process start elsewhere in the body.

I would like to discuss briefly the surgical treatment which I consider is, with our present knowledge, the best available for patients suffering from peptic ulceration. For this purpose it is essential that patients suffering from gastric and duodenal ulceration are dealt with separately.

1. *Treatment of Gastric Ulceration*

It is advantageous to divide this group into two subdivisions:

(a) Conservative therapy is the ideal form of treatment for the patient with a small ulcer niche along the lesser curvature. The chances of complete and permanent cure are good and surgery is practically never indicated. Follow-up barium meal studies till the ulcer has completely healed are important. Conservative treatment consists of bed-rest, hourly or continuous alkali administration, sedatives, and drugs that suppress acid-peptic secretion.

(b) Surgical treatment is indicated in the patient with a large chronic gastric ulcer which penetrates beyond the stomach wall. When such an ulcer is situated anywhere in the stomach, except along the lesser curvature, and especially when it lies in the pre-pyloric part, the danger of a carcinoma that has undergone peptic digestion makes immediate operation necessary. The majority of these ulcers are however situated in the usual position along the lesser curvature. They are benign and their size is no indication that they may be malignant. Such an ulcer will heal radiologically with prolonged and zealous conservative therapy. A thin layer of atrophic epithelium will cover its surface. Because of the depth of the ulcer and the surrounding fibrosis this epithelium tends to break down easily when conservative therapy is slackened and a large ulcer can develop in a comparatively short period. Such a gastric ulcer can be compared with the 'incompetent deep-vein' ulcer of the lower limb where the ulcer heals quickly when the patient is put to bed, but appears again, almost as quickly as it had disappeared, soon after the patient gets up and walks around. It is also the large

penetrating gastric ulcer which is liable to develop complications, of which bleeding is the most common and most important.

Patients suffering from this type of gastric ulcer should be referred for surgery, and I do not think that the age of the patient — within reason — is an important factor. These patients require a gastrectomy and enough stomach should be removed so that the ulcer and the pyloric mucosa do not remain behind. A radical gastrectomy is unnecessary — when an ulcer is situated high-up near the cardia it will be necessary to do a higher resection of the lesser curvature, but a larger part of the greater curvature can then be left. I prefer to do a Billroth I gastrectomy on these patients, since it is a more physiological operation than the Billroth II gastrectomy. It enables the bile and duodenal and pancreatic secretions to mix with the ingested food in a normal physiological way.

2. Treatment of Duodenal Ulceration

In discussing the treatment of duodenal ulceration it is also advantageous to divide this group into two subdivisions:

(a) *Duodenal ulceration with complications.* The important complications of duodenal ulceration are:

(i) *Perforation.* A duodenal ulcer that perforates is often an acute ulcer. Surgery is indicated to close the perforation, although conservative therapy in selected patients gives good results. A large percentage of these ulcers will heal permanently and a more radical operation than simple closure of the perforation as a primary procedure, is unnecessary. The radical operation may, however, be done in exceptional cases, such as when there is associated bleeding or stenosis.

(ii) *Duodenal obstruction.* The presence of duodenal obstruction indicates chronic long-standing ulceration, and it is a definite indication for surgery. In the elderly patient there may be a place for a simple gastro-enterostomy, but the standard operation is a sub-total gastrectomy.

(iii) *Bleeding.* Bleeding is an indication for surgery, either as an emergency operation to control the bleeding or as an elective operation at a later stage to prevent recurrence of the bleeding. The treatment for a bleeding duodenal ulcer is a Billroth II gastrectomy. There is today, however, especially in the United States of America, a tendency to undersew the bleeding point in the duodenum after the duodenum has been opened and to do a pyloroplasty and a vagotomy.^{2,7} Because there is a 10% chance that the ulcer may recur after such a procedure and may bleed again, I prefer to do a Billroth II sub-total gastrectomy for all bleeding duodenal ulcers.

(b) *Uncomplicated duodenal ulceration.* The surgical treatment of uncomplicated duodenal ulceration can only be discussed in the light of the type of operation that should be performed, e.g. the indications for a gastrectomy must be more strict than those for a smaller less radical operation such as a vagotomy and pyloroplasty. The patient who is to undergo a sub-total gastrectomy should have 'deserved' his operation and have suffered a long time. On the other hand, a vagotomy and pyloroplasty may be recommended in the patient who has recurrence of

symptoms after a limited period of intensive conservative therapy in bed, especially if the mental make-up of the patient or the nature of his work makes thorough ambulant therapy impractical.

In treating a patient with an uncomplicated duodenal ulcer, I prefer to do a vagotomy and a pyloroplasty, irrespective of the duration of symptoms. To achieve a good result both these procedures must be done thoroughly.³ Splitting of the lower end of the sternum in the thick-set individual enables the surgeon to do a better dissection of the lower oesophagus and therefore more often a complete vagotomy.⁴ By stimulating the tissues around the lower end of the oesophagus and measuring the effect on the intragastric pressure, the surgeon may detect vagal fibres that have escaped division.¹ However, this test is not completely reliable, and the additional time required to do this test can be better spent in a thorough search for escaped vagal fibres. The pyloroplasty must leave an adequate opening, and I do not think that there is a place for a two-layer closure, which often again narrows the pylorus.⁷ A single-layer closure, covered if necessary by omentum, is perfectly safe and gives a better result.

The operation of vagotomy and pyloroplasty fails to cure 10% of patients suffering from duodenal ulceration if they are followed up for a period of more than 5 years postoperatively.⁸ The reason for failure is a vagotomy which has not been complete.³ This explains why the recurrence rate after a vagotomy combined with other procedures, such as a gastro-enterostomy or an antrectomy, is the same, provided the patients are followed up for a long enough time. Although it may be more sound physiologically to remove the antrum of the stomach when a vagotomy is done, it is a bigger operation than a pyloroplasty with a higher morbidity and mortality.^{5,6}

When the operation of vagotomy and pyloroplasty is suggested to the patient, he should be told that there is a 10% chance that this operation may be unsuccessful. However, the chances of a complete cure are 90%, and the patient will keep his stomach. A vagotomy may also leave the patient with postoperative symptoms, but these are not nearly as troublesome as those that follow a gastrectomy. If the patient is one of the unlucky 10% in whom the ulcer recurs, a Billroth II sub-total gastrectomy can still be done — there is no place for a Billroth I gastrectomy. The risk attached to a second operation is not much greater than the risk of this operation as a primary procedure, provided a pyloroplasty and not an antrectomy accompanied the vagotomy originally. This is another reason why I prefer a pyloroplasty to an antrectomy with a vagotomy. This surgical approach in the treatment of uncomplicated duodenal ulcer means that one out of every 10 patients will undergo an unnecessary first operation, but 9 out of every 10 will be cured of their ulcers without having lost the greater portion of their stomachs and without the postgastrectomy symptoms of which failure to gain weight is the most important one. This approach means that a patient can have surgical treatment for his duodenal ulcer at a much earlier stage and does not first have to suffer for many years to earn his gastrectomy.

The time may come — and it may already be on hand — when a sub-total gastrectomy will be an exceptional and

unusual operation in the surgical treatment of duodenal ulceration.

SUMMARY

1. Conservative therapy is the ideal treatment for a small superficial gastric ulcer, but a large penetrating chronic gastric ulcer requires surgical treatment in the form of a Billroth I gastrectomy.

2. The treatment of duodenal ulceration with the complications of perforation, obstruction and bleeding, is surgical. In the case of a perforated duodenal ulcer, surgical treatment should be conservative.

3. The surgical treatment for uncomplicated duodenal ulcer is a vagotomy and pyloroplasty. This operation fails

to cure 10% of patients, who will have to undergo a Billroth II gastrectomy later. The 90% of patients who are cured after the first operation will have retained their stomachs. This approach means that a duodenal ulcer patient can have surgical treatment at an early stage.

REFERENCES

1. Burge, H. and Vane, J. R. (1958): *Brit. Med. J.*, **1**, 615.
2. Dorton, H. E. and Hyden, W. H. (1961): *Arch. Surg.*, **83**, 428.
3. Dragstedt, L. R. (1959): *Proc. Roy. Soc. Med.*, **52**, 835.
4. Dreyer, B. J. v. R. (1962): *S.Afr. Med. J.*, **36**, 408.
5. Herrington, J. L., Edwards, L. W., Classen, K. L., Carlson, R. I., Edwards, W. H. and Scott, H. W. (1959): *Ann. Surg.*, **150**, 499.
6. Palumbo, L. T., Sharpe, W. S., Lulu, D. J., Bloom, M. H. and Porter, H. R. (1962): *Surgery*, **51**, 289.
7. Weinberg, J. A. (1961): *Amer. J. Surg.*, **102**, 158.
8. Woodward, E. R. (1959): *Surg. Clin. N. Amer.*, **39**, 1195.