OPERATIONS COMBINED WITH VAGOTOMY IN THE TREATMENT OF DUODENAL ULCER

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The past 20 years have marked a new stage in the surgery of ulcers. Regardless of the good results after gastric resection, some of its shortcomings such as postresection discomfort, comparatively heavy operative trauma, rather significant operative lethality (2—4 and even 6.3 per cent according to Kuzin) and the like have compelled surgeons to look for new, improved methods of operative management of ulcers, duodenal ulcer in particular. Truncus vagotomy, proposed by Dragstedt, and its modifications by Franksoon and Jackson (selective vagotomy), Smithwick and Edwards (vagotomy with antrostomy), and Griffith and Harkins (supraselective vagotomy) are all new procedures relied upon by surgeons in the strive to achieve a more effective cure of duodenal ulcer. The adequate pathophysiological conditions, the organ sparing character and technical simplicity of the operation are the chief factors warranting its widely spread application in practice. Despite the comparatively rich experience on a world wide scale accumulated thus far, the issue of the value and indications of vagotomy in the treatment of duodenal ulcer is still awaiting solution. A great number of authors emphasize that operations combined with vagotomy (selective or truncus) yield better results and therefore should be preferable over gastric resection (Palumbo (4), Edwards (3), Kuzin (1), Norkunas (2). Another group, including Schreiber (7), Price and co-authors (5) etc., are in the opinion that combined operations are by no means superior over gastric resection in terms of the results ensuing, and therefore, the latter should be given priority. Insofar as supraselective vagotomy is concerned, experience had hitherto is still quite limited to enable a more accurate assessment of its possibilities. It is recognized that vagotomy and its variants have extended the therapeutical armamentarium of surgeons in the treatment of duodenal ulcer, but the indications for using either of the methods in individual cases are by no means definitely established.

After a 7—8 years long experience, it is time to reassess the results of operations combined with vagotomy, in order to outline the future policy in the operative management of duodenal ulcers. With regard to gastric ulcer, we are fully in favour of the universally accepted resection after Billroth I or Billroth II.

Over the period 1967 through 1973, a series of 317 ulcer patients were operated on, with operations combined with vagotomy being performed in 156 duodenal ulcer patients, and 161 gastric resections after Billroth I and Billroth II for the treatment both of gastric and duodenal ulcer. Hence, during the period under review, most of the duodenal ulcers were operated with vagotomy.

The choice of operation depended on the following factors: 1) degree of gastric acidity, estimated according to the method of Key; 2) character of pathomorphological changes due to the ulcer; 3) degree of operative risk depending on the condition and age of the patients; 4) the surgeon's skill and his personal attitude to vagotomy. Often, the definitive decision about the type of intervention (vagotomy or resection) was taken on the operating table.

Vagotomy with draining operations or antrostomy were carried out both as planned operations, and in emergency ulcerous complications. This is better illustrated by the table attached:

1. in perforated duodenal ulcers	— 38
2. in bleeding at the peak of a heavy hemorrhage	— 4
3. in bleeding ulcers after hemostasis	— 19
4. patients admitted and operated on according to schedule	— 95
total	156

Out of the patients subjected to routine (planned) operations, 30 had varying degrees pyloric stenosis. Among the patients with hemorrhage, hardly lending itself to control, along with pyloroplasty and vagotomy, a suture to the bottom of the bleeding ulcer and vessel was also applied.

According to type of vagotomy, the patients are distributed as follows:

bilateral truncus vagotomy	— 142
anterior selective+posterior truncus vagotomy	— 10
anterior truncus vagotomy	— 4

In four instances the vagotomy was incomplete because the operator was not sufficiently skilled, and therefore unable to identify the right vagus.

Mainly pyloroplasty according to Mikulicz and Finney were used as draining operations. Invariably, the endeavour has been to excise the ulcer whenever possible — both in anterior and anteroposterior localization of the same.

The type of operations combined with vagotomy, depending on the draining operation, is illustrated in the following able:

1. Vagotomy with pyloroplasty after Mikulicz	— 66
2. Vagotomy with pyloroplasty after Finney	— 48
3. Vagotomy with gastroduodenostomy	— 4
4. Vagotomy with posterior gastroduodenostomy	— 4
5. Vagotomy with antrostomy	— 24
6. Vagotomy with gastric resection after B-II F.	— 7
7. Vagotomy with gastric resection in ulcerous recurrence	— 3

Pyloroplasty according to Mikulicz was resorted to mainly in perforated ulcers. In ulcers rather distant from the pylorus and in postbulbar ulcers, as a rule, Finney's method was preferred as easier and producing

less deformity in the pyloro-bulbar zone. Posterior gastroenterostomy was employed in patients in rather advanced age, with pyloric stenosis, and, it should be pointed out, invariably with an excellent outcome. Gastroduodenostomy was not performed except for four cases in the earlier period, owing to the insatisfactory long-term results ensuing. In instances of elevated gastric acidity — exceeding 37 mEq/h according to Key, at maximal stimulation of gastric secretion, vagotomy was done in conjunction with antrostomy, totalling 24 interventions.

The age of the patients ranged from 15 to 75 years:

Age	Patients
0—20	5
21—30	38
31—40	40
41—50	50
51—60	22
61—70	9
above 70	3
Total	156

As a rule, after the operation a duodenal probe was inserted into the stomach until restoration of peristalsis, usually achieved within two to three days.

The immediate results in vagotomized patients are very good, with a zero per cent operative lethality. No postoperative complications are observed except for the rather prolonged and heavy atonia of the stomach, lasting for one week in two of the patients. Gastric motility is studied by X-rays (roentgenoscopy, roentgenography, as well as cinematoradiographically in one series of patients) at 14—15 days after the operation, at the end of the first postoperative month, and six months thereafter. The data in the immediate postoperative period show a moderate gastric dilatation, lowered tone, weakened peristalsis and slight retardation of evacuation. At the end of the first month the tone, peristalsis and evacuation are within normal limits.

The long-term results of the operation are studied in 134 patients with a follow-up period ranging from one to seven years. Of the total number, 109 patients (81.4 per cent) are with good outcome and free of any complaints, 16 (11.9 per cent) are with unsatisfactory result reporting a variety of complaints, and in 9 patients (6.7 per cent) the result is poor, with evidence of recurrence of the ulcerous disease. Five of the latter group underwent re-operation — gastric resection.

A total of 25 operated patients, or 18.6 per cent of those subjected to vagotomy have late postoperative complaints, namely:

1. pains — 22
2. acidity of the stomach (brash) — 11
3. regurgitations — 12
4. vomiting — 5
5. transient diarrheas — 8
6. dumping syndrome — 12

7. X-ray data showing ulcer recurrence — 8
8. hemorrhages — 3
9. weight loss — 9
10. biliary complaints — 1
11. reflux esophagitis — 1.

However, it should be emphasized that heavy diarrheas were not observed in our series, and also that dumping syndrome manifestations were of milder form.

The long-term results according to type of operation, and more precisely, depending on the draining operation, are illustrated in the following table:

	No of patients	Results		
		good	unsatisfactory	poor
Vagotomy+pyloroplasty according to Mikulicz	52	41	7	4
Vagotomy+pyloroplasty according to Finney	47	38	5	4
Vagotomy+gastroduodenostomy	4	2	1	1
Vagotomy+gastroenterostomy	3	3	—	—
Vagotomy+antrostomy	20	19	1	—
Vagotomy+res. venter — Billroth II	6	5	1	—
Vagotomy+resection	2	1	1	
Total	134	109	16	9

Discussion

The data obtained show that operations combined with truncus vagotomy are well tolerated by the patients and yield nil operative mortality. On the other hand, the percentage of patients with complaints after the intervention is considerable — 18.6 per cent. No worthwhile difference attributable to the type of vagotomy and pyloroplasty is established. However, the absence of poor results among the patients subjected to vagotomy and antrostomy deserves special attention. In the latter group the incidence of complaints is lower than in combination with pyloroplasty. We support the opinion of authors as Smithwick (6), Edwards (3) and others according to which the combination of a selective vagotomy with antrostomy is the operation for duodenal ulcer theoretically optimally justified from pathogenetic and pathophysiological points of view. In the last few years our endeavours have been to perform this particular type of operation whenever possible. Pyloroplasty with excision of the ulcer remains the draining operation of choice only in perforated ulcers. In patients in poor general condition and in elder individuals with pronounced pyloric stenosis, associated with low gastric acidity, preference is given to posterior gastroenterostomy as a draining operation. The performing of vagotomy in the series reviewed enabled a more frequent resorting to operations of

the Billroth — I type, with the restricted extensiveness of resection being compensated for by vagotomy. Since our experience with truncus vagotomy is rather limited, we are not in a position to make a comparison between truncus and selective vagotomy.

The many year experience accumulated thus far demonstrates in a definite way that vagotomy is by no means a simple intervention, that it should not be undertaken indiscriminately, inadvertently and without beforehand gastric acidity evaluation.

Conclusions

1. Operations combined with vagotomy, performed with caution and in the presence of adequate indications, are well tolerated by the patients, and yield a high percentage of cures.
2. Introduction of the operation described in the treatment of perforated duodenal ulcers has considerably extended our possibilities for a more radical surgical management of these patients.
3. Without discarding gastric resection, the operations combined with vagotomy are indicated in cases with milder pathomorphological changes due to the ulcer, in patients with mean hyperacidity values, in elder and exhausted patients.
4. In cases with high acidity, provided the anatomical conditions allow, it is most expedient to perform vagotomy with antrostomy.
5. The carrying out of a classical gastric resection in duodenal ulcer is never mistaken, while the performing of a vagotomy with drainage may be contra-indicated if the functional and anatomical conditions have not been accurately estimated in advance.

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КОМБИНИРОВАННЫЕ С ВАГОТОМИЕЙ ОПЕРАЦИИ ПРИ ЛЕЧЕНИИ ЯЗВЫ ДВЕНАДЦАТИПЕРСТНОЙ КИШКИ

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РЕЗЮМЕ

В клинике, за период 1968—1973 год, оперировано 156 больных с желудочно-дуоденальной язвой, из которых была сделана трункусная ваготомия с антрумэктомией и гемирезекцией желудка у 24 больных и с пластикой привратника — у 132 больных. Не было ни одного случая смертельного исхода. Больные проконтролированы клинически, лабораторно и рентгенологически в течение от 1 до 5 лет после операции. По поводу рецидива заболевания реоперированы 5 больных после ваготомии и пластики привратника. Реоперированным больным была сделана резекция желудка. У больных с ваготомией и резекцией желудка рецидив не был установлен.