

Advances in the surgical treatment of peptic ulcer

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THE SURGICAL TREATMENT of peptic ulcer remains controversial. An attempt is made here to review briefly current literature on operative procedures for duodenal and gastric ulcer treated electively as well as for haemorrhage, perforation and gastric outlet obstruction.

Elective operations for duodenal ulcer

Much of the vast literature on the treatment of duodenal ulcer lacks scientific merit and valid comparison of operations are available only from controlled prospective randomised trials. These have been performed in recent years on vagotomy-drainage, subtotal gastrectomy and vagotomy-antrectomy by Goligher *et al.* (1968), Cox (1968), Jordan & Condon (1970), Irani *et al.* (1971), Postlethwait (1973), Howard *et al.* (1973) and Sawyers & Scott (1973) and the following conclusions are pertinent:-

1. Overall results of various operations were marginally different and slightly favoured vagotomy-antrectomy.
2. Operative mortality was similar for vagotomy-drainage (0.5%) and gastric resection with or without vagotomy (0.81%).
3. The 2 years recurrence rate was highest for vagotomy-drainage (9.6%) and lowest for vagotomy-antrectomy (2.1%).
4. Diarrhoea was more common after truncal vagotomy while severe diarrhoea was exclusive to truncal vagotomy.

5. Weight loss was slightly more frequent after gastric resections but other nutritional and metabolic problems were little different.
6. 5-10% of patients were dissatisfied after any of these operations.

These trials must however be interpreted in context as each study contained an "escape clause" which permitted a surgeon to exclude patients from randomisation because of age, general condition or operative findings, and the low operative mortality rate of under 1% probably reflected exercise of this surgical judgement. Nevertheless it might be concluded that vagotomy-antrectomy is the best ulcer curative operation and can be safely performed if patients in poor condition or badly inflamed duodenum are excluded. The long term side effects of the various operations are about the same. As approximately 10% of patients are dissatisfied with any of these three procedures the search for the ideal operation goes on.

Proximal Gastric Vagotomy

Proximal gastric vagotomy (parietal cell vagotomy, highly selective vagotomy) without drainage was first performed in patients by Johnston & Wilkinson and Amdrup & Jensen and reported in 1970. This operation preserves the pylorus so that rapid gastric emptying and duodenogastric reflux are prevented resulting in virtual elimination of dumping and diarrhoea, (Johnston, 1972; Humphrey *et al.*, 1972; Jordan, 1976). A second advantage of proximal gastric vagotomy is the very low operative mortality - 0.26% in 4557 patients (Johnston, 1975).

There is however uncertainty as to the frequency of recurrent ulceration. Whilst low recurrence rate of 0–5% have been reported (Goligher, 1974; Amdrup *et al.*, 1974; Johnston, 1975), others have experienced high recurrence rates of 8–22% (Wastell, 1972; Madsen & Krouburg, 1973; Moberg and Hedenstedt, 1973; Liedberg & Oscarson, 1973). It would appear that not all surgeons who have attempted proximal gastric vagotomy have perfected the technique. Recent findings have suggested that differences in operative technique might be significant in that a more extensive skeletonization of the oesophagus reduces the incidence of incomplete vagotomy (Hallenbeck *et al.*, 1976). Nevertheless the true recurrence rate can only be established after a prolonged follow-up. It is thus left to be seen, perhaps in 5 years, whether proximal gastric vagotomy would live up to expectations as the operation of choice for duodenal ulcer.

Elective operations for gastric ulcer

Surgery for gastric ulcer is usually necessary because of unsatisfactory medical treatment as well as a 3–7% incidence of malignancy.

Partial gastrectomy (50% gastric resection with Billroth I anastomosis) remains the standard procedure with an acceptable operative mortality of 0–2.9% and a low recurrence rate of 0–4.4% (Harvey, 1961; Stemmer *et al.*, 1968). A recent study on pylorus-preserving gastrectomy showed a decreased incidence of dumping and ulcer recurrence (Sekine *et al.*, 1975) and it would seem that this operation merits a controlled trial.

The prepyloric ulcer is associated with high acid secretion and it is now known that recurrence rate can be reduced significantly if vagotomy is performed in addition to hemigastrectomy in this special group of gastric ulcer patients (Davies *et al.*, 1977).

Vagotomy-drainage in the elective treatment of gastric ulcer has its advocates but is associated with a high recurrence rate, 14.3%–35.7% (Kraft *et al.*, 1971; Duthie, 1970). Its use would thus be best limited to patients in poor general condition with a high lesser curve ulcer in whom near total/total gastrectomy would be hazardous.

Preliminary attempts with proximal gastric vagotomy for gastric ulcer have been reported to be encouraging (Johnston, 1973; Hedenstedt, 1973).

Surgical treatment of complications of peptic ulcer

(a) Bleeding Peptic Ulcer

Routine emergency gastric resection for bleeding duodenal ulcer has a high operative mortality, 13%–

30% (Palumbo and Sharpe, 1961; Foster *et al.*, 1965; Cocks *et al.*, 1972). Proponents of vagotomy-drainage have in most series demonstrated a decrease in mortality without significant increase in rebleeding. (Dorton *et al.*, 1961; Schiller *et al.*, 1970; Hegarty *et al.*, 1973). The results of controlled randomised studies are however not available, but our own experience suggest that resection with or without vagotomy is safe in fit patients and would in fact be preferable in view of a lower ulcer recurrence rate (Ti, 1976).

The standard operation for bleeding gastric ulcer continues to be gastric resection though good immediate results were obtained when small ulcers with a diameter of 2 cm or less were treated by vagotomy-drainage and suture ligation (Hegarty *et al.*, 1973).

Proximal gastric vagotomy is also on trial in the treatment of bleeding peptic ulcer (Johnston *et al.*, 1973).

(b) Perforated Peptic Ulcer

As the majority of patients suffer ulcer recurrence after simple suture of perforated peptic ulcer, emergency definitive ulcer curative procedures have been performed with increasing frequency on good risk patients. These definitive procedures have included proximal gastric vagotomy in recent years (Johnston, 1973; Jordan & Korompai, 1973).

(c) Stenotic Duodenal Ulcer

Proximal gastric vagotomy is also on trial in the treatment of the stenotic duodenal ulcer. Johnston (1973) dilated the stenosed duodenal segment but frequently encountered perforation. To overcome this difficulty Kennedy (1976) devised a technique of duodenoplasty which he has used successfully with proximal gastric vagotomy for the stenotic duodenal ulcer.

Conclusion

A concluding remark on proximal gastric vagotomy might be relevant. As the present time proximal gastric vagotomy should still somewhat be considered an experimental project and its use should be confined to University centres and those engaged in prospective randomised studies.

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