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Editorial

New paradigms in the management of complicated peptic ulcers: the final requiem for vagotomy?

The need for elective peptic ulcer surgery has diminished dramatically over the last two decades with the successful prevention of ulcer recurrence by effective *Helicobacter pylori* eradication therapy. *H. pylori* eradication has become the medical equivalent of vagotomy, relegating definitive operations to the history chapters of surgical textbooks. Surgery is also now needed much less often for peptic ulcer complications, and when required operations are directed mainly at treating the complication while relying on *H. pylori* eradication to prevent ulcer recurrence.

Bleeding peptic ulcer

Several controlled trials have shown that endoscopic therapy using a variety of combined techniques significantly reduces the need for blood transfusion and emergency surgical intervention.[1,2] Similar results are reported with acid suppression,[3] especially when gastric pH is kept above 6 by using high-dose proton pump inhibitor (PPI) therapy.[4] Further benefits have been shown when endoscopic therapy is combined with intravenous PPI therapy.[5-7] This combined therapy has now been endorsed by the British Society of Gastroenterology, who have recommended intravenous PPI therapy with an initial dose of 80 mg, followed by a maintenance dose of 8 mg per hour over a 72-hour period.[8] The blanket use of expensive intravenous PPI therapy, however, should be tempered by data from a recent randomised study[9] showing that smaller intravenous doses (20 mg) of omeprazole administered after endoscopic therapy gave results comparable to the recommended high- dose intravenous PPI regimen when rebleeding, surgery and mortality were analysed. However, the cost and availability of intravenous PPI therapy remains a major consideration and as a general rule should be restricted to high-risk patients.[10,11] The benefit of early 'second look' endoscopy and further injection if required has been debated for some time. There is now an increasing body of evidence that this approach does confer benefit by further reducing the incidence of rebleeding.[12,13]

The role of surgery during acute bleeding is now restricted to patients with an exsanguinating bleed or those in whom endoscopic therapy fails for technical reasons, or patients who rebleed after a second endoscopic attempt to control the bleeding.[2,8,14] The preferred operation today for a bleeding duodenal ulcer is to underrun the bleeder (with or without a pyloroplasty), and for bleeding gastric ulcers, a gastrotomy with underruning of the bleeder or, depending on the site, local excision. Gastrectomy is reserved for larger penetrating ulcers or when there is suspicion of a malignant ulcer. The move away from definitive surgery has been vindicated by ulcer cure rates in excess of 90% in patients who have had successful *H. pylori* eradication therapy.[15-17] Patients who require long-term non-steroidal anti-inflammatory drug (NSAID) therapy are advised to take PPI medication or, alternatively, use the safest NSAID available.[2]

Perforated peptic ulcer

A major change in the epidemiological profile of perforated peptic ulcers has occurred over the last century. In Western countries, after a steep increase in the incidence to 25 per 100 000 population in the first half of the 20th century which affected mostly young men, the rate has now dropped to 8 per 100 000.[18] The opposite has happened to the incidence in women; from being an uncommon condition before World War II, it now equals the incidence in men in Western countries. Perforated peptic ulcer has become a disease of the elderly, many of whom take NSAIDs for musculoskeletal disorders.

Conservative treatment

Conservative treatment for perforated peptic ulcer stems from the high surgical mortality of 20% around the period of World War II.[19] This approach was evaluated again in a controlled trial by Crofts *et al.*,[20] who showed that while there was no clear difference in outcome between simple patch closure and conservative treatment, patients in the latter group stayed in hospital longer, there were missed diagnoses of perforated cancers and, importantly, failures were more frequent in the elderly. The place of conservative treatment today should be limited to patients with localised, sealed perforations (as determined by a gastrografin study) and no features of peritonitis or to very ill patients who are unfit for surgery.

Simple patch closure

The long debate about the choice between simple patch closure or definitive surgery has now been settled in favour of patch closure combined with *H. pylori* eradication. There is conclusive evidence that the risk of recurrent ulceration is below 10% with this combination therapy.[21,22] Simple patch closure is also the treatment of choice for NSAID-induced perforations since PPI therapy provides effective ulcer protection in these patients.

Laparoscopic repair

The controversy about the surgical management of perforated peptic ulcers has now shifted to the choice between open or laparoscopic closure. Several laparoscopic techniques have been described, ranging from a simple stitch to the use of fibrin glue. Controlled studies have shown that laparoscopic closure is associated with less postoperative analgesic requirements, a lower incidence of respiratory infection, a lower median hospital stay and earlier return to normal activity.[23,24] However, even in experienced hands,[25] conversion to laparotomy may be required in up to 20% of procedures and the postoperative ulcer leak rate, which may result in serious

morbidity, reaches 16% when fibrin glue is used.[26] Furthermore, gastric ulcers and ulcer perforations larger than 10 mm in diameter are not suitable for laparoscopic repair. The reported series on laparoscopic repair of perforated peptic ulcers comes from specialised centres and is not recommended for general community practice where most of these patients are treated. Open simple patch closure remains the gold standard in the management of perforated peptic ulcers and, when performed through a small midline incision, the outcome should be similar to the laparoscopic approach.

It should be stressed that large perforations may not be suitable for simple patch closure. The leak rate with its attendant morbidity and mortality is high in these patients.[27] To avoid this, the best treatment for large perforated pyloroduodenal ulcers is a limited distal antral resection and for gastric ulcers a standard Billroth I gastrectomy. The appropriate management and correct decision making in these difficult perforations is critical and may require the assistance of an experienced surgeon.

Gastric outlet obstruction

Gastric outlet obstruction (GOO) occurs in 6 - 8% of patients with duodenal ulcer disease. Before the *H. pylori* era most patients with outlet obstruction required surgical intervention, including those who underwent endoscopic balloon dilatation.[28-30] The prevalence of *H. pylori* varies widely (33 - 91%) in reported series on GOO[31] and the association appears to be less established when compared with the other complications.

Several reports have now shown that *H. pylori* eradication with or without balloon dilatation can successfully overcome GOO in the short to medium term,[31] including patients who have an associated fibrotic stricture.[32] However, not all reports are favourable[33-36] and there is increasing evidence that NSAID users are less likely to respond. More data are required to assess the efficacy of combining *H. pylori* eradication and endoscopic balloon dilatation of stenoses but, at present, it would seem reasonable to try balloon dilatation before considering surgery.

The conventional surgical treatment for GOO was vagotomy and a drainage procedure or alternatively vagotomy and antrectomy. As with bleeding and perforated ulcers, in this situation definitive operations have also become obsolete and addressing the obstruction is all that is needed after successful eradication of *H. pylori*. Thus for 'burnt-out ulcers' with residual fibrotic strictures a pyloroplasty or Jaboulay gastroduodenostomy is all that is required. A more difficult question is what to offer patients with persistent or recalcitrant penetrating ulcers despite successful *H. pylori* eradication. The reason why these ulcers fail to heal remains uncertain but an impaired local healing process may play an important role. Nevertheless, a limited distal resection with excision or exclusion of the ulcer should be performed in these situations.

Conclusion

In an editorial in the *BMJ* in 1991, appropriately entitled 'A requiem for vagotomy, despite the last ditch efforts of surgeons',[37] John Alexander-Williams predicted that 'vagotomy for ulcer will soon go the way of vagotomy for tabes, made obsolete by the conquest of spiral organisms'. These prophetic words have now become a reality. Surgeons should graciously accept their diminishing role in the management of peptic ulcer disease, a role now confined, in the main, to conservative surgery for complications — which ultimately is to the benefit of our patients.

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