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A requiem for vagotomy

SIR,—We fear that like so many who have contributed to the debate about the long term management of duodenal ulcer disease Professor J Alexander-Williams¹ has missed the point. The problem with duodenal ulcers is not how to heal acute exacerbations (a task readily accomplished by medical treatment) but how to prevent them from recurring.

None of the currently available medical treatments, including tripotassium dicitratobismuthate, alter the clinical course of duodenal ulcer disease. (The lower than expected relapse rate of ulcers treated with tripotassium dicitratobismuthate seen in the first year after healing does not seem to be maintained at two years, by which time almost 90% of ulcers are likely to have recurred.) Furthermore, the 12 month recurrence rate of about 25% reported in a recent meta-analysis of studies advocating continuous maintenance treatment with H₂ receptor antagonists³ can hardly be described as satisfactory. Relapse rates associated with maintenance treatment with tripotassium dicitratobismuthate⁴ or omeprazole⁵ are even more disappointing (31% at one year and 23-27% at six months, respectively).

Surgery is usually reserved for patients with "refractory" ulcers, in whom even full dose maintenance treatment (800 mg cimetidine at night) is singularly unsuccessful, with a 50% recurrence rate at one year.⁶ Against this background, a highly selective vagotomy can offer 87-95% of patients with duodenal ulcers ulcer free remission for at least five years,^{7,11} particularly when the operation is performed by a surgeon who has received specialist training in the technique. A dispassionate look at the available facts clearly indicates that highly selective vagotomy is an attractive alternative in highly selected patients for whom medical maintenance treatment proves inadequate. As only a small proportion of patients with duodenal ulcers require surgery we suggest that the excellent results that highly selective vagotomy can offer may best be maintained by referring suitable patients to specialist centres.

DAVID KERRIGAN
ALAN JOHNSON

University Department of Surgery,
Royal Hallamshire Hospital,
Sheffield S10 2JF

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SIR,—Although the incidence of peptic ulceration and hence elective surgery has declined greatly in the past two decades, the number of emergency admissions for perforation, bleeding, and stenosis has remained almost constant. Many patients could have avoided these complications by earlier referral for surgery. Unduly prolonged maintenance treatment with drugs to control acidity risks complications, invites poor compliance, and is costly. Professor John Alexander-Williams's article¹ ignores the fact that even on maintenance treatment a fifth of patients have a recurrence of symptoms within five years with a 5% risk of bleeding. A further fifth get asymptomatic ulcers, and we know that recurrent ulceration and subsequent healing can lead to gradual stenosis, as illustrated by Hansell *et al*, who put 55 patients considered suitable for elective duodenal ulcer surgery on maintenance treatment with cimetidine.² Ten years later only 41 of the patients were available for follow up and 20 of these had required surgery, five because of pyloric stenosis and two because of bleeding.

Late referral with complications often precludes the best operation—namely, proximal gastric vagotomy. Compliance with a long term maintenance programme is unlikely to be better than the 68% obtained by Penston and Wormsley.³ In underdeveloped countries compliance will be vastly less, partly owing to the prohibitive cost—£1500 to £2000 over a five year period. "Eradication of *Helicobacter pylori*" is far from being a reality even with the use of triple therapy, which carries its own appreciable morbidity. Even the "conquest of spiral organisms" does not ensure cure of the ulcer diathesis.

In British reports the recurrence rates after proximal gastric vagotomy are around 10% at 10 years, rising to 15% at 15 years; recurrence after 15 years is uncommon. These results have been obtained in patients when non-surgical treatment had already failed. Ulcers that recur after surgery are usually relatively benign and respond easily to medical treatment; the risk of bleeding and perforation after recurrence is less than 5%. In a 20 year experience of proximal gastric vagotomy we had only one operative death in 600 elective operations, and currently over 90% of patients are Visick class I and II.⁴ Sonnenberg estimated that at 20 years premature death is twice as likely in medically treated patients as in surgically treated ones.⁵

Proximal gastric vagotomy is not dead and should not be buried.

FRED J MULLAN
E F A SPENCER
GEORGE W JOHNSTON

Royal Victoria Hospital,
Belfast BT12 6BA

1 Alexander-Williams J. A requiem for vagotomy. *BMJ* 1991;302:547-8. (9 March.)

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SIR,—The requiem for vagotomy discussed by Professor J Alexander-Williams¹ can take place only in the West. It has been made possible by long term maintenance with H₂ blockers and the

possibility of eradicating gastric *Helicobacter pylori* infection, thereby greatly reducing the rate of ulcer recurrence.

For most people in the developing world neither of these is possible. Maintenance treatment with H₂ blockers, if available, is too expensive, while the infection profile of *H pylori* makes its eradication impractical. Over 70% of the adult population have antibodies to *H pylori*,² as do 60% of children.³ Patients often live in a large extended family and if *H pylori* was eradicated the chance of reinfection would be very high.⁴

Effective medical prevention is impossible for most ulcers in the developing world. Intermittent treatment of ulcer recurrence is difficult to recommend when patients may live several days away from appropriate medical care, and those with a recurrence heralded by a perforation or large upper gastrointestinal bleed are unlikely to reach hospital.

Vagotomy remains a safe and effective treatment for duodenal ulcer, and for most of the world's population, who live in the developing world, it is probably the best treatment.

CHRIS HOLCOMBE

Department of Surgery,
Charing Cross Hospital,
London W6 8RF

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Multiple sclerosis: nature or nurture

SIR,—The idea that the frequency of multiple sclerosis is related to latitude forms the cornerstone of epidemiological thinking. This is illustrated by Professor D C G Skegg, who comments, "For decades doctors have been mapping the distribution of multiple sclerosis, fired by a conviction that the latitude effect must hold the key to the original of the commonest disabling illness that affects adults in their prime."¹ Sutherland, reporting on the prevalence of multiple sclerosis in northern Scotland, suggested it was more common in Scotland than elsewhere in the United Kingdom,² thereby supporting the idea of a latitudinal gradient within Britain.

We suggest that the evidence supporting Limburgh's latitudinal hypothesis within Britain is not as clear as some would suppose. Two points need to be considered in interpreting British surveys of prevalence. Firstly, repeat surveys of the same geographical area invariably produce higher rates because they are likely to have more complete ascertainment; therefore, to be meaningful, geographical comparisons should be made between first surveys of an area. Secondly, surveys since the 1970s have consistently produced higher rates than earlier surveys due to better diagnostic techniques, increased awareness of the less severe forms of the disease, improved survival, and better methods of ascertainment.³

The table presents first surveys for two periods. In the 1950s the rate in Cornwall was not significantly different from that in northern Scotland but higher than those in Northern Ireland and Durham and Northumberland.^{2,4,6} An examination of the four modern surveys showed little evidence of a north-south gradient: the rate in south London was not significantly different from that in north east Scotland.^{7,10} The Southampton survey recorded an unusually low proportion (7%) of possible cases compared with north east Scotland (17%), which may mean that the researchers

Area	Year	Prevalence per 100 000 population (95% confidence intervals)	
		All cases	Probable cases*
1950-60:			
Northern Ireland ^d	1951	51 (47 to 55)	41 (37 to 44)
Northern Scotland ^e	1954	67 (56 to 77)	55 (45 to 65)
Cornwall ^f	1958	63 (54 to 72)	Not available
Durham and Northumberland ^g	1959	50 (47 to 53)	42 (39 to 44)
1970-87:			
North east Scotland ^h	1970	127 (116 to 137)	105 (96 to 115)
Sutton (south London) ⁱ	1985	115 (99 to 131)	104 (89 to 119)
South east Wales ^j	1985	117 (106 to 128)	84 (75 to 93)
Southampton ^k	1987	99 (89 to 109)	92 (83 to 101)

*Includes early probable and latent.

ascertained fewer of the less definite cases than did the Scottish researchers. The Southampton rate of "probable cases" and south east Wales rate of "all cases" is not significantly different from the north east Scotland rate. Although the second and third survey of north east Scotland produced higher rates, the potential bias in comparing repeat and first surveys is well known.

An examination of British mortality data over 30 years (1953-83) showed that the standardised mortality ratio in Scotland, which was almost double that for England at the start of the period, had declined substantially over three decades. The English ratio had declined more gradually, leading to a diminished gradient between Scotland and England. There was no evidence of a latitude gradient south of the Scottish border when English regions were compared.¹¹

We contend that to date the evidence provided by British surveys for a north-south gradient in the prevalence of multiple sclerosis is less than convincing and agree with Roberts *et al*¹⁰ that the way to resolve the question of a north-south gradient in the United Kingdom is to carry out concurrent morbidity surveys using common diagnostic criteria.

E S WILLIAMS

Department of Public Health Medicine,
Croydon Health Authority,
Croydon, Surrey

R O MCKERAN

Department of Neurology,
Atkinson Morley's Hospital,
London SW20

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Laparoscopic cholecystectomy

SIR,—Professor C Wastell marred his analysis by a simplistic approach to determining the likely savings to the NHS.¹ Before his assertion that a

saving of £21m is possible becomes medical folklore it is worthwhile considering the following points.

Firstly, it is extremely unlikely that 100% of patients will have their gall bladders removed by laparoscopy. Apart from the fact that training all surgeons in this technique will take many years, some patients will inevitably be unsuitable for this approach.

Secondly, although no workings are given by Professor Wastell, he has assumed a saving of £700 for each cholecystectomy. Laparoscopic cholecystectomy may reduce costs through reducing the length of stay and lowering the average cost of bed days. A reduced stay will not, however, reduce overall costs if other patients are admitted to the vacated beds. An increased patient throughput, representing increased productivity, can actually increase total costs. Lower average bed day costs may occur due to reduced intensity of nursing care or less need for dressings, analgesics, transfusions, etc. These are primarily variable costs rather than fixed costs, and the overall effect may not be great.

A comprehensive analysis of costs and benefits would need to take into account costs of training and equipment and any changes in morbidity or mortality. Not only might there be increased complications, at least during the early part of the learning curve, but some patients may require additional procedures such as endoscopic retrograde cholangiopancreatography. Other costs may be due to increased use of theatre time for this procedure. Costs and benefits for patients should also be considered.

As a new technology, laparoscopic cholecystectomy should undergo a proper cost-benefit analysis including a randomised controlled trial. The NHS should take the opportunity to sponsor such research before the technology becomes widespread, just as it has done with gall bladder lithotripsy.² All new technologies, not just those requiring expensive capital equipment, should be treated in this way if the most productive use of resources is to be achieved.

MICHAEL P STANFORD

BHP Co Ltd,
Melbourne 3000, Australia

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SIR,—Lord Smith is right to question the feasibility of laparoscopic cholecystectomy in the presence of severe pathological inflammatory change,¹ especially as all the published accounts of the technique rely on dissection and display of the cystic artery and duct before double clipping and division.² We agree that even moderate inflammatory distortion may render the procedure dangerous: Cheslyn-Curtis and Russell found it necessary to convert to open operation in seven of 74 cases largely because of these problems.³

A safe technique when the anatomy is obscured is to divide the vascular connections to the gall bladder in the plane immediately adjacent to its wall and always on its surface; formal identification or division of the cystic artery becomes unnecessary. As the gall bladder is progressively separated from the liver bed a point is reached where its neck narrows to the cystic duct and the dissection is complete. At no time has direct exploration in Calot's triangle been required. In open operation close dissection is conducted from the fundus down,⁴ but this is not easy with laparoscopy.

We have devised a modification to suit the requirements of laparoscopic cholecystectomy: close dissection begins on the lower third of the gall bladder and is carried across Hartmann's pouch to the neck and thence down to the cystic duct, which is doubly clipped. Because all the small branches of the artery are carefully sealed by diathermy before division the field is kept bloodless throughout.

Avoiding initial exposure of a tubal structure greatly reduces the risk of a major duct injury.

Using this technique we have now completed 64 consecutive operations without conversion or significant complication. All elective and emergency patients presenting with symptomatic disease or complications other than choledocholithiasis have been included. The only deviation from our previously established policy for emergencies has been to adopt the delayed operation (at three to six weeks) rather than the early one during the same admission for acute cholecystitis. In difficult cases with empyema or gross fibrosis, aspiration decompression and in situ piecemeal excision have been helpful. We believe that our close dissection method gives the surgeon the best opportunity to complete laparoscopic cholecystectomy safely under most circumstances of inflammatory change.

H J ESPINER
W K ELTRINGHAM
A ROWE
R MILLER

Royal Infirmary,
Bristol BS2 8HW

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SIR,—Mr M W R Reed and colleagues¹ described Professor C Wastell's conclusion that laparoscopic cholecystectomy "will inevitably become the only method for routine cholecystectomy"² as "extraordinary." They state without justification that laparoscopic cholecystectomy is contraindicated in patients with previous upper abdominal surgery and "difficult and dangerous" in those with thick walled gall bladders. Their letter was read to me by my anaesthetist while I was performing uneventfully a laparoscopic cholecystectomy on a patient with a thick walled gall bladder who had had a previous vagotomy and pyloroplasty for a perforated duodenal ulcer.

The laparoscope can safely be introduced into the abdomen in patients with previous surgery by using a cut down at the umbilicus under direct vision. Adhesions may then be divided under laparoscopic vision. A thick walled gall bladder does not render cholecystectomy dangerous. The use of a 1 cm trocar in the right iliac fossa allows even the most thick walled gall bladder to be grasped with large toothed forceps. We use a close dissection technique as demonstrated to us by Mr Espiner in Bristol (Society of Minimally Invasive Surgeons meeting, February 1991).

Dissection is begun by using fine diathermy forceps at the point where the gall bladder leaves the liver bed to form Hartmann's pouch. Keeping dissection on the gall bladder wall the anterior and posterior leaves of the peritoneum are divided separately to create a window between Hartmann's pouch and the contents of Calot's triangle, thereby creating the same "safe plane" as is found in traditional fundus first open cholecystectomy. Dissection close to the gall bladder is then continued, using diathermy, until the cystic duct is clearly defined. In this technique the cystic artery is not sought and blood loss is minimal.

Both Mr Espiner's unit and our own take all comers, including patients with acute cholecystitis and empyema. After 85 cases we have not yet had to abandon a procedure, and blood loss has never exceeded 30 ml. Laparoscopic cholecystectomy, like open surgery, can be dangerous if basic principles are violated. There may be rare occasions when laparoscopic cholecystectomy is best avoided or needs to be abandoned, but Professor Wastell's conclusion remains valid.

Mr Reed chooses to compare hospital stay for