Review of general surgery 1978

HAROLD ELLIS
D.M., M.Ch., F.R.C.S.

Professor of Surgery, Westminster Hospital, London, SW1

Introduction

This year the subjects that have caught my eye have been some of the major problems in cardiovascular surgery, particularly the epidemic of coronary bypass operations which are now being performed, some of the controversial topics which surround management of patients with breast cancer and a number of interesting papers concerning patients with acute abdominal pain. I must then confess that I have been taken up very much by the gastrointestinal tract in this review. There have been many interesting publications in the field of peptic ulcer management, both on medical and surgical lines, and leading on from this I consider the related topic of gastrointestinal haemorrhage. Cancer of the gastrointestinal tract remains a terrible problem and the numerous papers which appear on this theme mirror the concern of clinicians with the poor results of the management of such cases, particularly in advanced disease. The papers quoted in this review are almost entirely those published in 1978.

Vascular surgery

Coronary bypass surgery

Undoubtedly the most extraordinary phenomenon in the field of vascular surgery has been the amazing expansion in the number of coronary artery bypass operations that have been performed in the last few years. This is particularly so in the U.S.A. where more than 70 000 such operations were performed in 1977. Coronary heart disease is, of course, a major health problem and cause of death throughout the Western world. In the majority of cases severe ischaemic heart disease results from substantial narrowing or occlusion of the major branches of the coronary artery. The narrowing of the lumen by more than 50% often impedes the blood supply of the affected myocardium to such an extent that clinical symptoms of ischaemia develop. The physiological principle behind a coronary bypass is therefore sound; bypassing the narrowed segment with implantation of a saphenous vein graft or, less often, a mammary artery graft should re-establish the circulation and blood supply of the affected part of the heart. There is no doubt that bypass surgery is

followed by improvement of angina pectoris in about 90% of the patients surviving operation and in about two-thirds the angina disappears completely (Robinson *et al.*, 1978). In patients with severe angina, the degree of symptomatic improvement and increase of exercise tolerance is usually far greater than can be observed with any other form of treatment available to date. However, the degree of symptomatic improvement declines with time (Leading Article, 1978).

Unfortunately, in spite of the vast numbers of patients submitted to surgery, not all the questions that one might ask can yet be answered. We particularly need to know about the protective effect of surgery against future myocardial infarction and on life span. Most attempts at comparisons of medical and surgical treatment have used as the medical treatment group patients studied before the availability of coronary artery surgery. Yet both medical and surgical techniques are evolving and only extensive, simultaneous, controlled trials with sufficient follow-up will provide the answer to this question.

Published hospital mortality figures for bypass surgery vary between 0.8 and 12%. This varies with the experience of the surgical team, pre-operative cardiac function and the extent and severity of the coronary artery disease. Myocardial infarction in the peri-operative period occurs with a frequency of between 5 and 10%. The short- and long-term effects of this on cardiovascular function and prognosis are not yet well documented.

A most useful recent report prepared by the World Health Organization (Working Group, 1978) gives a sober account of the present situation. This points out that significant improvement in survival has been shown for left main stem disease in the Veterans Association Cooperative Study with a small number of symptomatic patients but the few randomized studies reported to date have demonstrated no differences in survival between operated and unoperated patients with other types of lesion, although a longer follow-up period may be required to evaluate the data fully (Read *et al.*, 1978). Two large controlled studies are at present in progress, the

European Coronary Surgery Study and another collaborative investigation sponsored by the U.S. National Institute of Health but no data are yet available for determining the effect of bypass surgery on the long-term incidence of myocardial infarction. The report sums up the situation as follows 'Coronary bypass surgery improves the quality of life in the majority of properly selected patients, but there is no evidence, except for that provided by a small controlled study of patients with left main stem disease, that it favourably influences longevity. The procedure is associated with mortality which has been reduced in low-risk patients. Peri-operative complications have decreased although the true frequency and consequences of peri-operative infarction have still to be established. Long-term postoperative follow-up of all patients is necessary because coronary bypass surgery is not a curative procedure for coronary arteriosclerosis. Appropriate medical management (correction of risk indicators, etc.) should continue after bypass surgery, since such measures may have a favourable influence on postoperative results'.

Aortic aneurysms

The progress which has been made in the surgery of aortic aneurysm has been truly remarkable. Up to 25 years ago, surgeons might occasionally have tried to induce a thrombosis within the aneurysm by the insertion of wire or by wrapping the aneurysm itself in cellophane. In the majority of cases, however, large aneurysms were simply left alone, with a high risk of rupture and certain death. It was only in 1952 that Dubost, Allary and Deconomas (1952) were able to report the first successful resection of an aneurysm of the abdominal aorta. Yet today graft replacement of infrarenal aortic aneurysms is a routine procedure in district hospitals throughout the country and patients with ruptured aortic aneurysm can now be operated on successfully, even though they still present a formidable surgical emergency problem, with a mortality varying from 34 to 83% in different series (Gordon-Smith *et al.*, 1978; Fitzgerald, Stillman and Powers, 1978). The sort of results that can be expected can be judged from a report by Gardner and his colleagues (1978) from the West Virginia University Medical Center. In a 15-year experience from 1960 to 1975, 277 abdominal aortic aneurysms were submitted to surgery. Of these, 193 were intact and the operative mortality was 8.8%. The mortality rose sharply to 66.7% in the 84 patients with ruptured aneurysms.

Rupture is not the only complication of aortic aneurysm. In an interesting report, Olcott and his colleagues (1978) review the unusual manifestations they encountered among 254 infrarenal aneurysms of the aorta operated upon over a 6-year period in

their unit in San Francisco. Six had fistulated into the small bowel and 3 into the inferior vena cava. Six had given rise to peripheral emboli, 2 had undergone massive thrombosis and one had ruptured into the retroperitoneal tissues. A further 18 had undergone sterile inflammatory change resulting in dense adherence of adjacent intestine. Thus, no less than 12% of their patients had one or other of these unusual problems, perhaps reflecting the fact that the authors were working at an internationally known referral centre.

Fistula into the cava has been reported in about 100 cases since James Syme's original description in 1831. Johnson and Wood (1978) in reporting 5 such cases (3 with fatal outcome), give a good clinical review of this condition. Examples of aneurysm of aorta have been reported in which surgery has been made even more difficult by the association of a horseshoe kidney crossing the front of the sac (Lobe *et al.*, 1978). Landes, Trumbull and Nicoloff (1978) report their very unusual experience of a patient who was unfortunate enough to present with both these unusual complications. Sadly, he died of renal failure and sepsis following surgery. Doty and his colleagues (1978) report 2 successful cases of aorto-caval fistula in which the aneurysmal sac was opened after obtaining control above and below, the fistula controlled from within the aneurysm by digital pressure and then sutured under direct vision. In both cases the massive blood loss was replaced by auto-transfusion, a technique which perhaps we should be using more widely.

Neglen and his colleagues (1978) describe 3 cases of this emergency situation with 2 survivals. Ultrasonography was used as a useful non-invasive technique to confirm the presence and extent of the aneurysm. They note that the operative mortality for this emergency in patients who live long enough to reach the operating theatre is 55%. Solheim and his colleagues (1978) report a further 2 cases. The first, a man aged 55 years, had a concomitant retroperitoneal rupture of the aneurysm and survived surgery. The second, aged 73 years, was in renal failure and died one month after surgery. The prognosis in patients over the age of 70 years is particularly bad. These authors point out that the classical syndrome of high output failure with the discovery of an expansile abdominal mass with a thrill and bruit should make clinical diagnosis possible. In both their cases the clinical diagnosis was confirmed pre-operatively by aortography but they stress that this procedure can represent a dangerous delay of definitive therapy and that surgery may be performed without this investigation when the classical symptoms are present. It is seldom possible to demonstrate the specific site of the fistula by aortography, although aorto-caval communication can be

identified in the aortogram by the simultaneous contrast filling of the inferior vena cava.

An unusual presentation of aortic aneurysm is described by Gertner, Hargrove and Roberts (1978). This was a 65-year-old man who presented with oedema of the legs extending up to the hips who then became anuric. Surgical exploration revealed a ruptured aortic aneurysm which gave rise to an enormous retroperitoneal haematoma compressing the inferior vena cava, renal veins and ureters. Although the aneurysm was grafted, the patient developed 3 of the well recognized complications of this type of surgery – acalculous gangrenous cholecystitis, uraemia and massive gastrointestinal bleeding. He died 17 days after resection of the aneurysm and 8 days after the emergency cholecystectomy.

The massive gastrointestinal haemorrhage which results from aorto-enteric fistulation was first described by Salmon in 1843 and remains one of the most lethal complications of this condition (Graeber *et al.*, 1978). The patient has often all but exsanguinated by the time he reaches surgery and even if haemorrhage is controlled and the aneurysm resected, the fact that the bowel has of necessity been opened often leads to infection which may, in turn, lead to further haemorrhage, either from recurrence of the fistula (as reported by Mehta, McDowell and James, 1978) or into the abdominal cavity or retroperitoneal tissues.

In some instances the surgeon may really feel that an aortic aneurysm is quite beyond surgical repair. One reason for this would be if the aneurysm was embedded in a mass of retroperitoneal malignant lymphoma. Great surgical ingenuity was therefore exhibited by Berguer, Schneider and Wilner (1978) when they had to deal with just this situation in a 57-year-old male patient. They carried out a bypass procedure between the axillary artery and both common femorals. The aneurysmal sac outflow was occluded by balloon catheters and the aneurysm thrombosed by means of thrombin delivered into the sac *via* a transaxillary catheter. The patient was then treated with chlorambucil (having previously received radiotherapy and quadruple chemotherapy) and was alive, well and at full employment 18 months later!

Intermittent claudication

Intermittent claudication is a common and disabling manifestation of atherosclerosis and was found to be present in about 2% of men and 1% of women aged between 45 and 69 years in a study of some 3000 patients on the lists of 2 general practices in Oxfordshire (Hughson *et al.*, 1978b). In this study, a comparison of patients with and without intermittent claudication showed that smoking was

the factor most strongly associated with the development of this symptom. The risk of having intermittent claudication was about 9 times greater among those who smoked more than 15 cigarettes per day than among non-smokers. Among the men, the risk of developing claudication was 15 times greater for smokers than for those who had never smoked whereas among the women smokers the risk was increased 7-fold. However, hypertension and the concentrations of triglyceride, urate and fibrinogen were all significantly higher among the patients with intermittent claudication than the controls. It is interesting that cholesterol was not associated with an increased risk of this symptom.

The malign effects of smoking on limb circulation has been demonstrated in another study, this time concerned with the late patency rates of arterial reconstructions performed for ischaemia of the legs (Myers *et al.*, 1978). In this retrospective investigation of 217 patients, it was found that those who had stopped smoking or who smoked no more than 5 cigarettes/day after the operation had late patency rates of approximately 90% for aorto-femoral reconstructions and 80% for femoro-popliteal vein grafts. However, patients who continued to smoke more than 5 cigarettes/day were approximately 3 times more likely to block an aorto-femoral reconstruction and 4 times more likely to occlude a femoro-popliteal vein graft. The results were similar for males and females, for various age groups, and for patients with both claudication and severe ischaemia.

Smoking is the only correctable risk factor with an appreciable effect on prognosis. If patients can be persuaded to stop or reduce their cigarette smoking after referral, their prognosis can be much improved. Thus, even after the diagnosis of intermittent claudication, it is extremely important that patients should be encouraged to stop smoking, since this correctable factor appears to be of greater importance in determining the outcome than other medical risk factors for the disease that are less amenable to treatment (Hughson, Mann and Garrod, 1978a).

There is very little glamour in advising a patient with claudication to stop smoking and I am continually amazed at seeing patients with this problem who may have consulted several doctors already and who have not had this advice forcibly impressed upon them. However, vast numbers of patients with major arterial blocks are given vasodilator drugs. Anyone who has seen an arteriosclerotic femoral artery completely plugged with thrombus either at operation or in the post-mortem room will realize the impossibility of restoring blood flow in such a limb by attempting to dilate small vessels. Moreover, the general vasodilatation produced by such drugs may actually have a 'steal' effect in shunting

blood away from the affected and occluded limb. A recent study (Mashiah *et al.*, 1978) using plethysmography and radioactive xenon washout, demonstrated no change in the rate of flow into the affected leg of patients with intermittent claudication, with 3 of the latest vasodilators, Bradilan, Trental, and Sturgeron.

Ekroth and his colleagues (1978), in Sweden, have treated 148 patients with claudication by means of supervised physical training. Nineteen could not complete the 6-month course (because of associated cardiac disease, rapid progression of leg ischaemia, etc.) but the great majority who could persevere showed improvement and no less than 40% were able to walk one kilometre or more after this treatment – results that compare very favourably with arterial surgery. The authors were unable to detect increased calf flow, so the improvement could not result from dilated collateral vessels; they suggest that the effect might be explained by an increased metabolic capacity of the calf muscles.

In evaluating patients with peripheral vascular disease, a knowledge of the distribution and extent of the atheroma is important when reconstructive arterial surgery is planned. At present, this can only be carried out with a high degree of accuracy by means of arteriography, but this is an uncomfortable 'invasive' investigation and is certainly not without its own morbidity and even mortality. There is thus considerable interest in the development of less invasive techniques but these must inevitably be compared against the yard stick of conventional arteriography. Hurlow, Chandler and Strachan (1978b), at the Queen Elizabeth Hospital, Birmingham, have reported their experience of static isotope angiography in the assessment of aorto-iliac arterial disease. Following the injection of radioactive technetium by rapid intravenous bolus, gamma camera scanning was carried out and the radioactivity image enhanced by computer processing which subtracted low background counts and doubled high counts. A few days after the isotope scan, routine contrast angiography was performed by either the translumbar or the retrograde femoral route. A total of 48 patients with claudication were studied. The overall correlation between the 2 techniques was 80%, it being possible to detect 87% of patent segments and 76% of those which were occluded. Unfortunately, assessment of the severity of non-occlusive disease was poor and the authors conclude that static isotope angiography cannot yet replace arteriography in the anatomical assessment of non-occlusive disease in the aorto-iliac arteries.

The same group (Hurlow *et al.*, 1978a) have also studied the use of intravenous isotope calf scanning with technetium in the assessment of intermittent claudication. The technique was found to be useful

in the initial assessment of patients with claudication, and when combined with ankle pressure measurements it could provide objective flow and pressure data for evaluation of the progression of disease in conservatively managed patients with claudication and for the assessment of the results of surgical reconstruction.

Carcinoma of the breast

There is no doubt that breast cancer is to-day's most emotive subject among the major malignancies. Vital questions still remain to be answered by the numerous, extensive and often multi-centred trials that are in progress. We still need to know whether screening programmes for breast cancer and adjuvant therapy from cytotoxic drugs or hormones are actually going to affect mortality rates and we still need to know the 'best buy' therapy for so-called early cases. Hughes and Forbes (1978b) have brilliantly reviewed these problems. At present, some 20 000 women undergo mastectomy in this country each year and many times that number have surgery for removal of benign lesions of the breast. This represents an enormous pool of patients who undergo a profound and frightening emotional disturbance which spills over on to other members of the family and circle of friends. Until recently, little interest was taken by the medical profession as a whole into the cosmetic and psychological consequences of surgery for breast cancer. Not unnaturally, we were more concerned with attempt at 'curing' this commonest cause of death from cancer in women. But now we have come to realize that the psychological and social consequences of breast cancer surgery require the careful attention of medical practitioners, nursing staff, marriage guidance counsellors and other concerned parties.

An interesting report of a symposium held in Brussels (Brand and van Keep, 1978) of surgeons, psychologists and sociologists concerned with mastectomy patients reached conclusions which were interesting but also altogether predictable. Women are deeply upset by mastectomy and so are their husbands. Many are depressed or anxious after the operation and in a quarter of the patients the depression is still present one year later. They appreciate the support and encouragement of volunteers who have had the operation. Interestingly enough, it is among the lowest and highest social classes that women tend not to participate in screening programmes and the factors which lead to delay in treatment are complex and not entirely due to fear and ignorance. On the practical side, more and more books and pamphlets as well as mastectomy societies are helping with the practical problems of rehabilitation of mastectomy patients. A useful handbook on this subject has recently appeared from the

Regional Cancer Registry in Birmingham (Marchant, 1978).

The emotional aspects of breast cancer were brought home quite forcibly to me when earlier this year I was asked to write an article entitled 'If my wife had cancer of the breast' (Ellis, 1978). Certainly even contemplating the possibility of this situation in the preparation of the paper was found to be most unpleasant but what was really impressive was the flood of letters I received after the publication of the article from doctors and patients (both medical and non-medical) telling me of their own profound psychological disturbances consequent upon the diagnosis and treatment of this condition.

Breast screening

Since prevention of breast cancer still eludes us, the simplistic view of reducing the present high mortality from this disease rests in early detection. If breast cancer is found and treated when localized, and the disease completely removed at a time when immunocompetence is intact, the cure rate is high. Screening programmes based on clinical examination and mammography undoubtedly yield a crop of small breast tumours of which the patients are unaware. However, to date, the actual salvage in lives has been disappointing. The most massive survey of all, which was the Health Insurance Plan Study in New York, comprised 62 000 women aged between 40 and 64 years who were randomly selected as 31 000 pairs, carefully matched and divided into a control group and a study group. Only two-thirds of the study group responded and these were invited to undergo examinations which consisted of palpation and mammography. Examinations were carried out initially and in 3 annual studies. The follow-up now extends over a period of 9 years. Strax (1978), in his latest report, notes that 128 deaths have occurred from breast cancer in the control group and 91 in the study group. There is thus a one-third reduction in mortality in a 9-year period of follow-up. It is important to note that the entire reduction in mortality was concentrated in women over the age of 50 years; those under 50 years showed no improvement.

A number of centres in the United Kingdom are now investigating the feasibility of screening for breast cancer. A paper from Edinburgh (Edinburgh Breast Screening Clinic, 1978) reports on nearly 4000 women between the ages of 40 and 59 years screened once or more over 2 years. Not all women invited to attend will so do, and this group represented 82% of those invited by a personal letter from their General Practitioner. Each subject underwent mammography, 2 clinical examinations and usually thermography. Altogether 125 women (137 breasts) had lesions detected which were considered worthy of

biopsy and 18 were found to have cancer, a cancer rate of 2.8/1000 on initial screening. Fifteen of the 18 cancers were invasive and 6 also affected the axillary nodes. Of the 3 non-invasive cancers, 2 were impalpable and intraduct histologically and the third was a lobular carcinoma *in situ*. Screening was expensive; each cancer detected cost about £6000 but this excluded data processing and the costs of surgery and pathology. Baum (1978a), commenting on these figures, points out that in order to assess the cost-effectiveness of screening for breast cancer, it is not sufficient to quote the cost for each cancer detected. The only meaningful figure is that calculated for each life saved as a result of the screening programme. Until hard data are available from mortality statistics of these studies, he points out that 'anyone who takes a position either for or against screening for carcinoma of the breast is being ruled by his heart rather than his head'.

The search for more accurate non-invasive techniques of diagnosis continues. Best and his colleagues (1978) report the use of computerized tomography of the breast in 50 women presenting with a discrete breast mass (of whom 37 had cancer). This was compared with conventional mammography and in each case the diagnosis established by biopsy. Mammography detected 35 out of the 37 malignant lesions, but computerized tomography detected only 22 of these cases and was thus far less successful. In particular, computerized tomography cannot detect microcalcification and cannot therefore be used in routine breast screening. However, the technique may be of value in distinguishing metastases from benign bone disease picked up on bone scanning.

Treatment of the early case

Most surgeons in this country to-day practise total mastectomy with axillary biopsy or clearance in the treatment of so-called early cases of cancer of the breast (Baum, 1978b, c). Axillary biopsy is of importance, particularly from the point of view of giving prognosis, and it is well recognized that if 4 or more of the axillary nodes are found to be involved then the prognosis is extremely grave, with less than 20% of patients surviving 10 years. Few surgeons in this country now practise radical mastectomy as a routine since there is no evidence that this improves survival and it carries with it an increased morbidity. More conservative treatment, merely excision of the tumour itself, unless supplemented by radiotherapy is associated with a very high rate of local recurrence and cannot be defended (Hughes and Forbes, 1978a). Montgomery, Greening and Levene (1978) report 31 patients with small tumours treated by wide local excision at the Marsden Hospital with no less than a 28% local or

axillary recurrence rate at 3 years. At 5 years, 5 of the 15 patients available for follow-up had local recurrent disease. Tagart (1978) abandoned his trial of local excision when 14 out of 38 patients (37%) developed local recurrences in a period of between 6 and 41 months after operation. In all but one, the recurrence lay in or immediately deep to the operation scar.

Since so many women are undergoing mastectomy, obviously surgeons should be paying great attention to the details of surgical technique. Budd and his colleagues (1978) carefully record the surgical morbidity that may follow mastectomy. In their series of 146 patients undergoing total or radical mastectomies at the Naval Medical Center at Bethesda (the surgery being performed by Senior Residents), 25% of the patients developed post-operative seromas. No less than 19% had partial or total necrosis of the wound edges, there was a 9% infection rate and 9% of the patients developed haematomas which required further surgery. Lymphoedema followed 2.7% of the operations and there was one example of a brachial plexus palsy and one of axillary contracture. At present we are engaged in a careful prospective trial of a number of techniques of wound closure which are being accurately documented and we hope to provide information on measures to reduce the morbidity of this operation to a minimum.

Breast reconstruction following mastectomy by means of a prosthesis implant is becoming increasingly popular in the U.S.A. (Lazaro, Rush and Swaminathan, 1978; Lynch, Madden and Franklin, 1978) but, perhaps fortunately, the demand for this procedure in this country is not high. It is interesting that in my own practice, only one patient has actually mentioned this to me although, on discussion, she decided to take the matter no further.

Adjuvant therapy

The reason for the frequent failure of local therapy to eradicate apparently localized disease is because undetectable metastases are present at the time of primary diagnosis. This suggests that if the prognosis of operable breast cancer is to be improved, some form of adjuvant therapy, either with cytotoxic drugs or by altering the hormonal environment of the tumour, may be needed as a part of the primary management. The first problem is to define those patients with 'early' tumours who have already developed occult spread of the tumour and the second is to determine whether or not adjuvant therapy is of value in these cases.

Bone scans, usually employing radioactive technetium phosphate derivatives, are being used increasingly for detecting skeletal metastases that are not radiologically demonstrable in women with

primary breast cancer and some surgeons are acting on the results of these scans to determine the best form of primary treatment. The British Breast Group (1978) have reviewed the results of bone scans in 8 centres in Britain. The percentage of patients with positive scans varied from 1.9% to 20.2% in different centres with an overall incidence of 10.1%. The wide variation in positive scans among the centres could not be explained, but as the progress of these patients is reviewed, the group hope to be able to assess the accuracy of these techniques in defining occult metastatic disease in bone. McKillop and his colleagues (1978) at the Royal Infirmary, Glasgow, point out that patients with evidence of metastases on bone scan, either at the time of presentation or during follow-up, have a significantly higher mortality and morbidity rate than those with persistently negative scans. They consider that patients with unequivocally positive scans are inadequately treated by simple removal of the primary tumour in spite of the fact that these patients are asymptomatic from their metastatic disease. Their current plan of treatment is to carry out bilateral oophorectomy at the same time as mastectomy in pre-menopausal and peri-menopausal women with unequivocally positive bone scans. If no response is obtained or if the response is inadequate the patient will be given chemotherapy. Post-menopausal women with positive scans will be given hormonal supplements (stilboestrol in the first instance) and chemotherapy used if no tumour response is found. Scans are to be repeated at 6-monthly intervals in all patients and those whose scans convert from negative to positive will commence treatment under this regime. Obviously the results of this important trial will be awaited with interest.

Liver scans appear to be of little value in the pre-operative assessment of patients with breast cancer. Wiener and Sachs (1978) report on 234 patients undergoing technetium sulphur colloid liver scans on initial admission with breast cancer. Two of these patients had abnormal scans but were also found to have extensive deposits in lungs and bones on routine radiological screening. There were 8 false positive scans and only one patient in the whole series had a positive confirmed scan with no other evidence of tumour dissemination. The authors conclude that liver scanning is of no help in routine pre-operative assessment of operable breast cancer.

To date, there is no doubt that the histological examination of the axillary lymph nodes, as we have already mentioned above, is the most accurate guide to prognosis and the best indication that dissemination has probably occurred. This prognostic guide applies even more sharply in those rather unusual cases – cancers of the male breast. Heller and his

colleagues (1978), studying 97 men at the Memorial Hospital, New York, found a 79% 10-year survival in lymph node negative patients compared with an 11% survival in those with node involvement. It is on this basis that recent trials of adjuvant chemotherapy have been based and these have been well reviewed by Rubens (1978) and Hughes and Forbes (1978b). The trial organized by Bernard Fisher randomized women with involved axillary lymph nodes after mastectomy to receive either a placebo or L-phenylalanine mustard orally for 5 days every 6 weeks for 2 years postoperatively. The preliminary results of this trial showed that pre-menopausal women had a treatment failure rate of 30% in the placebo group and 3% in the treated group. A similar trend was observed in post-menopausal patients but the difference was not statistically significant. Another randomized controlled trial by Bonadonna and his group using cyclophosphamide, methotrexate and 5-fluorouracil gave a similar result. The results so far available have shown that adjuvant chemotherapy causes a prolongation of the post-operative disease-free interval in pre-menopausal patients only, which suggests that the effect might be mediated by suppression of ovarian function. The trials are of insufficient duration to give valid information on survival. Clearly, in the present state of our knowledge, adjuvant chemotherapy should be administered only in controlled clinical trials designed to assess its contribution and many such studies are in active progress. One such trial (Murray *et al.*, 1978) involves 70 centres in the British Isles and compares a control group with patients receiving oral melphalan and methotrexate. The particular advantage of this regime is its low toxicity. At the time of reporting, 484 courses had been given to 102 patients. Two had refused oral treatment and one stopped treatment after experiencing nausea with one tablet. In 68 (14%) the dosage had to be halved temporarily because of transient toxicity. No patient needed a wig because of post-cytotoxic alopecia.

Future controlled trials of adjuvant sex hormone or oestrogen antagonist therapy, and perhaps of immunotherapy must obviously be planned and subjected to careful assessment.

Disseminated disease

There is no doubt that recent years has seen a swing away from radical therapy in patients with disseminated mammary carcinoma (adrenalectomy and hypophysectomy) in favour of either combination chemotherapy or milder forms of hormonal manipulation. Ward and his colleagues (1978) from Birmingham present an important report on the use of tamoxifen in patients with either very advanced primary carcinoma of the breast, recurrence on the chest wall or distant metastases. Tamoxifen is a

potent anti-oestrogen and the tumour control achieved with this drug is as good as that obtained with other anti-oestrogens but the side effects are less serious than with nafoxidine. A dose of 20 mg twice daily was found to be optimal and on this regime 72% of patients showed some response, 10% for more than 2 years. Relief of bone pain was obtained in 8 out of 19 patients (42%). There was slight response in 2 out of 6 pre-menopausal women and it seems reasonable not to treat pre-menopausal women with tamoxifen unless they have refused ovarian ablation. Women who were 5 years or more post-menopausal experienced a better tumour response than those less than 5 years after the menopause. The drug is effective even in elderly patients and the authors believe the explanation for this is that in these women there is still a low level of oestrogen which is sufficient to maintain tumour growth. This is easier to block with anti-oestrogen than is the higher level present in a woman only recently post-menopausal. It is interesting that tamoxifen is now being studied as an adjuvant agent in the initial treatment of breast cancer in the National Surgical Adjuvant Breast Project in the U.S.A.

The search for some effective way of predicting which patients might respond to hormonal therapy continues. Various sex steroid hormones are known to bind to receptors in the tumour tissue of some patients with breast cancer. Receptors for oestrogen, progesterone and androgen have been identified in human breast cancer by various assay procedures but results vary considerably from one centre to another. Thus the proportion of breast cancers that contain oestrogen receptors varies in reported series from 35 to 85% (Leading Article, 1978). Indeed, there may even be disagreement in the findings between multiple simultaneous biopsies of the same tumour (Webster, Bronn and Minton, 1978). About 60% of patients with oestrogen receptor positive breast tumours have been shown to respond to treatment by hormonal manipulation, in contrast to only 8–16% of oestrogen receptor negative patients submitted to similar treatment. There seems little doubt that development of a cheap and reliable assay will play a useful part in selection of patients for hormone treatment and a future possibility is the use of cytotoxic agents linked to sex-steroid hormones. The complexity as well as the efficacy of modern cytotoxic therapy in this condition is reflected by an interesting paper from Belgrade by Bugarski and his colleagues (1978). They report on 37 patients with hepatic metastases from breast cancer treated with a combination of prednisone, testosterone propionate and the cytotoxic combination of cyclophosphamide, methotrexate and fluorouracil. Only patients who were moribund were

excluded from this consecutive series. Major remissions were obtained in 21 of the patients (57%) with a mean survival of 12 months and partial remission was obtained in a further 8 patients. These authors report that side effects were relatively mild and that remarkable responses were seen even in patients with extensive disease.

'The acute abdomen'

The acute abdomen remains the last great bastion of clinical medicine. Its particular fascination stems from the fact that the diagnosis made by the clinician on the spot really does matter, indeed it may be a life and death decision. Laboratory investigations are only of minimal help and it is the clinical diagnosis that counts. Moreover, new and fascinating syndromes seem constantly to be appearing and even old established friends show alterations in their natural history. It is indeed a fascinating and ever changing topic for review. Last year, for example, we discussed sclerosing peritonitis in patients receiving the β -adrenergic blocking drug, practolol (Ellis, 1978) in which the small intestine is found matted together, shortened, and encased in a white fibrous membrane. Foo and his colleagues (1978) from Singapore now report 10 cases of small intestinal obstruction seen over a 6-year period in young girls within the narrow age range of 13–18 years in which the obstruction was due to a membrane encasing the small intestine in the manner of a cocoon. In one of the patients was there a previous history of abdominal operation, peritonitis or prolonged drug-taking and certainly there was no question of the ingestion of practolol. The aetiology remains a mystery although the peculiar age and sex distribution of this condition led the authors to postulate that retrograde menstruation might have occurred, producing a chemical peritonitis with a superimposed viral infection.

Müller-Schoop and his colleagues (1978) describe a group of 11 young women with acute peritonitis proved by laparoscopy, 7 of whom also had perihepatitis. Nine of these were found to have serological evidence of recent infection with *Chlamydia trachomatis*.

Five of these 9 patients had no laboratory evidence of gonococcal infection while the other 4 had evidence of simultaneous gonococcal infection. *Chlamydiae* are increasingly being found to be responsible for various non-gonococcal sexually transmitted diseases in men and women. The tetracyclines are fortunately effective in treatment, and no doubt further examples will be encountered in today's promiscuous society.

Acute appendicitis, of course, remains the commonest surgical cause of acute abdominal pain. With an ageing population, more and more examples are

being encountered in elderly patients. Andersson and Bergdahl (1978) report 68 cases of appendicitis in the over-60 age group; 50% had perforated at the time of admission. Owens and Hamit (1978) review 69 appendicectomies carried out in patients whose ages ranged from 65 to 99 years in whom a diagnosis of acute appendicitis had been made. Four of the appendices were normal, the rest were 'true bill'. No less than 74% had ruptured by the time the patient came to operation, usually owing to delay in treatment and no less than 21 of the patients had delays of 48 hr or more before surgical consultation was obtained. Almost invariably the fault lay with the patient rather than the doctor. Six of the patients died, all of whom had a perforated gangrenous appendix.

Among the population as a whole, improved health education means that less examples of late appendicitis are being seen. Bradley and Isaacs (1978) found that only 2% of more than 2600 patients with acute appendicitis in Atlanta presented with an appendix abscess. In these cases, the average duration of symptoms was 9 days. Except in the elderly, the usual advice is to recommend an interval appendicectomy and the results of these authors would appear to bear out the reasonability of this advice. Of the 69 patients with appendix abscess, 61 underwent surgical drainage on admission. Thirteen of the patients had the appendix removed during this initial drainage operation. Forty-two patients had a subsequent interval appendicectomy and in 2 of these a recurrent abscess has already occurred. In the whole series, 13 patients did not have a subsequent interval appendicectomy. All these were 50 years of age or more. At review, 2 had experienced occasional abdominal pain, 2 had been lost to follow-up and one had had a recurrent abscess; the remainder were apparently free of further trouble. Foran, Berne and Rosoff (1978) report that at least 4 out of 26 patients with an appendix abscess returned with further attacks of appendicitis.

Very rarely a perforated appendix will develop a fistula; about 80 case reports have been published of appendico-vesical fistula and about 30 examples exist of a fistula between the appendix and the intestine. Hedner, Jansson and Lindberg (1978) report an unusual case of an old lady of 76 years who presented with an abscess in the right buttock. This was drained, but the patient developed a faecal fistula which was cured by removing her inflamed appendix.

Most patients undergo appendicectomy on a purely clinical diagnosis and are not subjected to abdominal radiology. Some authorities state that free gas in the peritoneal cavity excludes a diagnosis of acute appendicitis and points to the probability

of a perforation of stomach, duodenum or colon. Saebo (1978), however, reports 3 cases of pneumoperitoneum associated with perforated appendicitis and stresses that the finding of free gas in the peritoneal cavity, although unusual, certainly does not exclude a diagnosis of perforated appendicitis. While discussing pneumoperitoneum, we can note that Hill and his colleagues (1978) X-rayed the abdomens of 70 patients on the eighth day after routine laparotomy; no less than 17 (25.7%) had free gas, so this finding must certainly be interpreted cautiously in the postoperative period.

Intestinal obstruction complicated by strangulation and gangrene is associated with a high mortality and many reports place this as high as 20%. Stewardson, Bombeck and Nyhus (1978) stress that there is no single clinical feature which suggests that strangulation is complicating small bowel intestinal obstruction. However, a combination of leucocytosis, fever, tachycardia and localized tenderness make urgent surgery mandatory. In a series of 28 cases of gangrenous bowel in a group of 238 examples of small bowel obstruction, this aggressive policy was accompanied by only 2 deaths (a mortality of 4.5%). Neither of these cases was in fact operated upon; one was a premature baby with volvulus neonatorum and the other was a woman of 28 years diagnosed as a pulmonary abscess who was found at post-mortem to have a loop of gangrenous gut in a strangulated diaphragmatic hernia. The breakdown of aetiological factors in these 238 patients with small bowel obstruction is interesting. Adhesions accounted for 64%, strangulated hernias for 24%, neoplasm for 7%, volvulus for 3% and intussusception and Crohn's disease each accounted for 1% of cases. In modern 'civilised' communities, more and more people have been subjected to abdominal surgery in the past and therefore the incidence of intestinal obstruction due to adhesions is steadily increasing. In contrast, most patients have the sense to come along and have their hernias repaired before the onset of strangulation and so there is a progressive fall in the incidence of this cause of intestinal obstruction.

Today's shifts of population must be taken into consideration especially when we encounter abdominal emergencies in the immigrant population. Croker, Record and Wright (1978) report 4 patients with ileo-caecal tuberculosis encountered in a 6-month period at the London Hospital; one was a Ugandan Asian and the 3 others came from the Indian subcontinent. Khoury, Payne and Harvey (1978) describe 30 patients with tuberculous peritonitis presenting at the West Middlesex Hospital in 10 years. Most presented as 'acute abdomens'. Six of the patients were European, 20 of Asian origin, 3 were from the West Indies and one was Maltese.

Although politicians talk glibly of transferring funds from the acute sector of the National Health Service to geriatric hospitals, they should be continually reminded that a great deal of acute surgery is, in fact, the surgery of geriatric patients. They should be advised to read the interesting report by Thompson (1978) from Exeter. No less than 36 out of 89 patients with perforated duodenal ulcer admitted over a 6-year period were over the age of 70 years. The mortality in this elderly group was 35% compared with only 4% in the patients less than 70 years of age. Perforations in these elderly patients were especially dangerous where there was a history of chronic duodenal ulceration.

It is interesting to watch the rise and fall of drugs put forward as being of value in cases of acute pancreatitis. Durr and his colleagues (1978) report a double-blind trial on the use of glucagon. In a series of 69 cases, 10 required laparotomy. The remaining 59 were randomized between those receiving placebo and those receiving glucagon. No differences were noted between the 2 groups.

Peptic ulcer

The histamine H_2 -antagonist, cimetidine, was released for general use in the United Kingdom more than 2 years ago as a potent suppressor of gastric acid secretion. There is no doubt about the value of this drug for healing acute duodenal ulcers and for relieving symptoms since this has been demonstrated in many controlled trials compared with a placebo. What remains to be seen is how long its effects will last and how the clinician should best use the drug in managing patients with chronic ulcers (Blackwood, Maudgal and Northfield, 1978; Leading Article, 1978). From the surgical point of view, the introduction of the drug has certainly reduced the number of patients coming to surgery with uncomplicated chronic duodenal ulcers, especially poor risk cases. The results of cimetidine treatment of gastric ulcer are also encouraging. However, a word of warning is sounded by Taylor and his colleagues (1978b). They record 4 patients with apparently benign gastric ulcers on initial biopsy and brush cytology which healed on cimetidine, relapsed on cessation of treatment and were then found to be malignant. Two were picked up on subsequent biopsy or brushing but 2 were still negative until histological examination of the excised specimen.

For those patients with duodenal ulcer who do require surgery, the choice in this country lies between a truncal vagotomy combined with some sort of drainage, usually a pyloroplasty but sometimes a gastro-jejunostomy, or a highly selective vagotomy which preserves the nerve supply to the gastric antrum and which can therefore be employed

without a concomitant drainage operation. Now that long-term results are well established in both groups, it is obvious that in competent hands, good results are obtained by both operations (Stoddard, Vassilakis and Duthie, 1978). The highly selective vagotomy has the advantage of a very low incidence of the dumping syndrome and of diarrhoea but is accompanied by an increased risk of recurrent ulceration. There is also the rare but potentially lethal complication of necrosis of the lesser curve of the stomach (Cuilleret *et al.*, 1978). Total vagotomy with drainage carries with it less of a risk of stomal ulceration but is accompanied by higher incidence of dumping and diarrhoea. Both operations carry a negligible mortality. Goligher and his colleagues (1978) present an important review of 316 male patients submitted to highly selective vagotomy of which 117 have now been followed-up from 5 to 8 years in Leeds. In this latter group, symptoms of recurrence are present in 15.4% but confirmed only in 4.3% of the patients. Dumping is virtually absent and diarrhoea significantly less than in patients treated on the same Unit with truncal vagotomy and either pyloroplasty or antrectomy. Ostick and Kaufmann (1978), in Manchester, have carried out a prospective randomized trial of total vagotomy and pyloroplasty in 76 patients compared with highly selective vagotomy in 77 cases. There were 3 recurrences in the former and 9 in the latter during a follow-up of one to 4 years. There was a slightly lower incidence of diarrhoea in the highly selective vagotomy group but this did not reach statistical significance so the trial does not demonstrate clear superiority for either operation.

There is no doubt that technically highly selective vagotomy is the more difficult technical procedure of the 2 (Collopy and Ryan, 1978) and it is interesting that Hill and Barker (1978) have devised a simplified procedure in which the highly selective vagotomy is confined to the anterior trunk of the vagus, preserving the anterior nerve of Latarjet to supply the antrum, and a total posterior truncal vagotomy. This operation was performed on 20 consecutive patients in Leeds with satisfactory results and the authors propose that cautious trials should be made of this simplified operation.

Until recently, surgeons have naturally hesitated to treat patients with established pyloric stenosis by any procedure which does not include adequate drainage of the obstructed stomach but there now seems little doubt that pyloric stenosis can be treated quite satisfactorily by a highly selective vagotomy accompanied by simple dilatation of the stenosis or a simple duodenoplasty. Dunn (1978) reports 18 patients with pyloric stenosis treated by highly selective vagotomy and dilatation of the stricture through a small gastrotomy incision. There have been no recurrences and 17 of the patients have

achieved a perfect result. Delaney (1978) notes good results in 11 patients thus treated and followed-up for periods of up to 3 years. Repeat barium meal examinations were done at 3, 6 and 12 months post-operatively. While a marked improvement in the size of the stomach and the rate of gastric emptying was seen at 3 and 6 months, it was not until 12 months that the films showed a complete reversal to normal. At this stage the stomach had regained a normal size and, on screening, gastric emptying and the movements of the antrum and pyloroduodenal canal were normal. White and his colleagues (1978) give an account of 12 such cases, in which the highly selective vagotomy was accompanied by a duodenoplasty or, if this was not technically possible, by retrograde dilatation of the stricture through a duodenotomy. Two of the patients had transient gastric stasis but all 12 patients were draining satisfactorily 3 months postoperatively and measurement of gastric emptying was the same in this group of patients as in 18 uncomplicated duodenal ulcer patients treated by highly selective vagotomy.

Post-vagotomy symptoms

Although most patients, after vagotomy (with or without drainage) are satisfied, so many have been subjected to these operations that even a small percentage of cases with post-vagotomy symptoms of various sorts will amount to a considerable pool of such patients in the community.

Recurrent peptic ulceration following vagotomy may result from gastric stasis, inadequate vagotomy, the Zollinger-Elison syndrome, hyperplasia of G cells or the presence of non-absorbable sutures (Green, Spencer and Kennedy, 1978). Careful investigation should therefore be carried out to try to define the cause of surgical failure. Re-operation is far from invariably required. Thus Jensen and Amdrup (1978), in reporting 9 recurrent ulcers developing in 100 patients after highly selective vagotomy, found that 3 might have been related to abuse of salicylates, tobacco and possibly to mental stress. These ulcers healed in response to non-surgical treatment and the patients then remained symptom-free for several years. In the remaining 6 patients, antrectomy was required. Cimetidine is under active evaluation in this situation. Encouraging results are reported by Hoare, Jones and Hawkins (1978) but in the trial conducted by Kennedy and Spencer (1978) there was only a trend favouring cimetidine.

Post-vagotomy symptoms may, in fact, be more the result of the associated drainage procedure (pyloroplasty or gastro-jejunostomy) than the vagotomy itself (Wastell and Ellis, 1978). The diarrhoea, in many cases at least, may be the result of rapid entry

of bile salts into the intestine and indeed this symptom may respond to the ion exchange resin cholestyramine (Taylor, Lambert and Torrance, 1978b). Recently there has been much interest in the excellent results which often follow closure of the gastrojejunostomy or reversal of the pyloroplasty. Thus McMahon and his colleagues (1978) report that 8 out of 9 cases were improved by closure of the gastroenterostomy and Green, Spencer and Kennedy (1978) note that 12 of their 13 cases thus treated were cured or improved. These authors point out that no stasis followed removal of the drainage procedure and advise leaving the patient at least one year after the original operation. During this time, no doubt, the vagotomized stomach regains its intrinsic tone.

Gastrointestinal haemorrhage

Severe haemorrhage from the gastrointestinal tract remains a common, dangerous and clinically fascinating emergency. High mortality is particularly associated with a number of well recognized situations. Thus, the most important single factor in patients undergoing surgery for bleeding duodenal ulcer was, once again, shown to be the age of the patient by Stone and his colleagues (1978) in New York. In their study of 137 private patients there was an operative mortality of 3.4% in patients less than 70 years of age compared with a mortality of 33.3% (6 out of 18 patients) in patients above this age. This difference was highly significant. It is an interesting reflection on the social scene that none of these patients had associated drug or alcohol over-use compared with the usual series reported from municipal institutions or Veterans Administration hospitals in the U.S.A. Koransky and his colleagues (1978) present an interesting report on mortality in patients with bleeding oesophageal varices treated under optimum conditions in a private university hospital. There were 77 bleeding episodes among 62 patients with 20 deaths (32%) and 6 of the deaths occurred in the first bleeding episode. Of the 20 deaths, 14 were a direct result of haemorrhage and the remaining 6 died in hepatic coma after the bleeding had stopped; 4 of these 6 patients also had the hepato-renal syndrome. Thirty-eight of the patients had alcoholic cirrhosis with or without alcoholic hepatitis and 15 of these patients (39%) died. The mortality was significantly higher for those patients who had ascites, jaundice, albumin < 30 g/l, prolonged prothrombin time or who had received blood transfusions of more than 5 litres. Although these mortality figures are high, the authors point out that recent figures from American city hospitals, mainly dealing with indigent patients, report mortality rates in the region of 60 to 84%.

There is a high mortality from haemorrhage from

stress-induced gastric erosions which may occur in critically ill patients with severe burns, head injuries and postoperative respiratory failure (Leading Article, 1978a). The erosions are usually seen in the body and fundus of the stomach and probably result from mucosal ischaemia with disruption of the gastric mucosal barrier and increased back-diffusion of acid. Paralytic ileus, with reflux of duodenal contents into the stomach, may occur in any severe illness and, experimentally, reflux has been shown to increase both the incidence and the severity of stress erosions.

Among the rarities we review above in the section on arterial surgery, one of the most fulminating and lethal causes of gastrointestinal haemorrhage is rupture of an aortic aneurysm into the alimentary canal, usually the duodenum. Another rare but often fatal entity is haemobilia, the haemorrhage occurring into the biliary system and thence into the duodenum. This usually results from liver trauma (including rupture of a hepatic aneurysm) but may also occur in association with biliary stone, vascular abnormalities and tumour. Taylor and Dawson (1978) review 4 such cases at King's College Hospital. Arteriography is useful in localizing the source of the haemorrhage, and then the appropriate right or left hepatic artery can be ligated, a safer procedure than partial hepatectomy. Lower gastrointestinal bleeding from vascular malformations of the intestine has, until recently, proved to be a difficult diagnostic problem, especially in patients who are virtually asymptomatic except for the presence of melaena and iron-deficiency anaemia. The introduction of selective coeliac angiography has become a most important diagnostic milestone in the evaluation of these patients. Richardson and his colleagues (1977) report 39 patients with these lesions. Thirty-eight were subjected to arteriography, which proved to be diagnostic in no less than 35 cases. The most common site of bleeding was the caecum (21 patients), followed by the proximal small intestine (8 patients), terminal ileum (7 patients) and ascending colon (5 patients). These authors point out that the second diagnostic manoeuvre of benefit is colonoscopy. This was attempted in 29 patients and the lesion was visible on 12 occasions in the caecum or the first few centimetres of the ascending colon.

Perhaps the most unusual cause of gastrointestinal haemorrhage to be reported appears in a paper by Carney and Brozovic (1978). They reviewed 8 psychiatrically referred patients with bruises and bleeding in whom self-injury was admitted in 2 cases and the means of self-injury were discovered in the remaining 6. All the patients were fairly young, single or unhappily married females, with unresolved emotional problems. Among these was a nurse aged 30 years admitted after a haematemesis and with a

haemoglobin of 9 g/dl. She was found to have been taking warfarin and analgesics illicitly after these had previously been prescribed for a deep vein thrombosis 2 years before. Interestingly enough, she had been admitted repeatedly to hospital previously for other bleeding phenomena – menorrhagia, epistaxis, bleeding skin lesions and severe anaemia. She had been repeatedly transfused and had had 16 abdominal operations. Naturally one always enquires about anticoagulant drugs in taking a history of any patient with gastrointestinal bleeding but it is evident from this case report that, on occasion, a very careful anamnesis may be required.

Treatment

About three-quarters of patients admitted with acute gastrointestinal bleeding settle down in hospital on conservative treatment. The indication for surgical intervention is bleeding which persists or recurs while the patient is in hospital. Under such circumstances early intervention is required since a patient is unlikely to be in good condition after he has been repeatedly resuscitated with multiple blood transfusions, particularly if he is elderly (Paton, 1978).

In the management of this condition, 3 topics are under active current assessment. The first is the use of relatively conservative surgical procedures in the control of haemorrhage, the second is the role of fiberoptic endoscopy and the third is the place of cimetidine in the treatment of acute bleeding from peptic ulceration.

Hedenstedt and Lundquist (1978) from Sweden point out that the continuous increase in the number of elderly patients with massive ulcer bleeding makes it particularly desirable to find an early conservative and effective method when operation is required. In a series of 41 patients with massive ulcer bleeding (38 with duodenal and 3 with gastric ulcers) haemorrhage was controlled as a first step. In the patients with gastric ulcer, access was obtained by means of a gastrotomy and after preliminary biopsy of the ulcer, bleeding was arrested by oversewing. For bleeding duodenal ulcer, an incision 5 cm long was made through the anterior wall of the duodenum without cutting the pylorus, the ulcer oversewn and the duodenum closed. Highly selective vagotomy was then carried out. There were 4 deaths in the series (9.8%) and it is interesting that the mean age of these 4 patients was 51 years. All had concurrent disease and the direct cause of death was cardiac failure in 3 and bronchopneumonia in one. Of the remainder, one patient re-bled and one subsequently developed a gastric ulcer but the functional results were otherwise excellent.

The surgical management of acutely bleeding oesophageal varices is particularly worrying. Most

surgeons are disenchanted with the results of emergency porto-caval shunts (Champault, 1978); there is a high mortality, rather poor control of bleeding and a high risk of encephalopathy. Trans-thoracic transection of the varices is a major procedure in these often very sick patients. Johnston (1978) reports a simplified oesophageal transection using a special stapling device (the SPTU gun) introduced through a small gastrotomy incision. Thirty patients were thus treated, all of whom were considered to be too ill for any form of shunt procedure. Three patients died and 3 had recurrent bleeding but these results, in such unpromising patients, are encouraging.

The introduction of fiberoptic endoscopy has undoubtedly improved the accuracy of diagnosis of the source of gastrointestinal bleeding. For example, HIMAL, Perrault and Mzabi (1978), at the Royal Victoria Hospital, Montreal, note that only 100 out of 630 patients (16%) had endoscopy to establish the site of haemorrhage between 1963 and 1971, whereas from then until 1976, 254 of 334 patients (76%) had an endoscopic examination carried out. In the first group, 85 of 212 patients operated upon (40%) did not have the site of haemorrhage established before laparotomy, whereas in the second group only 19 of 120 patients (14%) requiring surgery had a diagnostic laparotomy without a confident pre-operative diagnosis. In recent years, however, increased accuracy of diagnosis has not necessarily been followed by any improvement in survival but, as Venables (1978) notes, 'endoscopy cannot affect the outcome unless it modifies management'. Foster, Miloszewski and Losowsky (1978), from Leeds, point out that endoscopy should be used not only to make a diagnosis but also as a valuable aid for prognosis to predict re-bleeding and the need for emergency surgery. Endoscopy should be carried out as soon as possible after admission and a lesion accepted as the source of bleeding only when one or more of the following stigmata are observed: fresh bleeding from the lesion, fresh or altered blood clot or black slough adherent to the lesion, or a vessel protruding from the base of an ulcer. In a study of 277 consecutive episodes of suspected upper gastrointestinal bleeding, stigmata were found by endoscopy in 47%; 33% of patients had lesions without stigmata and in a further 19% no lesions were seen. In the absence of stigmata only one patient with a duodenal ulcer and none with gastric ulcers had further haemorrhage and none required emergency surgery. However, when stigmata were present, about 50% of the patients required emergency operation.

It may well be that further studies will show that the endoscope has a useful part to play in predicting those patients who are likely to respond to

conservative treatment, for example, acute erosions, ulcers that have already stopped bleeding and Mallory-Weiss tears (Leading Article, 1978b), and those likely to continue to bleed, particularly deep and penetrating ulcers containing blood clot. Bubrick and his colleagues (1978) present an interesting paper in which preliminary endoscopy was used to exclude brisk arterial bleeding requiring emergency surgery. Having eliminated such cases, these authors treated 34 patients with gastroduodenal haemorrhage by means of intravenous cimetidine. There were 16 patients with primary peptic ulcer and 14 of these had no further bleeding and of 18 examples of stress ulcer, 13 had no further bleeding on this regime. Although there are some encouraging reports of the use of cimetidine in gastro-intestinal haemorrhage, its role has certainly not yet been defined. Thus Brooy and his colleagues (1978) report a trial of cimetidine in non-stressed patients with gastro-intestinal haemorrhage in a multicentre prospective double-blind controlled study. One hundred and one patients were randomized between cimetidine given orally over a 7-day period and a placebo. Diagnosis was established endoscopically within 12 hr of admission. Treatment with cimetidine had no significant effect on the outcome of the haemorrhage and the recurrence rate showed no improvement on comparison with studies on untreated patients. These authors suggest that cimetidine has no part to play in the prevention of re-bleeding in acute upper gastrointestinal haemorrhage in unstressed patients. An interesting report from Jones and his colleagues (1978) concerns the prophylactic effect of cimetidine in stressed patients; this was in patients undergoing renal transplantation who are well known to have a high incidence of peptic ulceration, haemorrhage and perforation. Thirty patients who received prophylactic cimetidine suffered no episodes of upper gastrointestinal haemorrhage compared with 6 of the 33 patients who did not receive this drug given over a 4- to 6-week period commenced immediately post-operatively. Treatment with antacids will also reduce the incidence of gastrointestinal bleeding in stressed patients with burns, trauma, sepsis and acute respiratory failure. Cimetidine may prove equally effective but further studies are still needed in this important field.

Still at the experimental stage but of considerable interest, is the possibility of laser photocoagulation of the bleeding vessel through the endoscope. Brown and his colleagues (1978) report encouraging results using experimentally induced bleeding peptic ulcers in dogs.

Cancer of the gastrointestinal canal

Carcinomas of the gastrointestinal canal are second only to lung cancer as the commonest killing

malignancies of the Western world. It is tempting to suppose that dietary factors might be identified as precipitating factors or that nutritional deficiencies or excesses might be involved. Epidemiological studies try to identify areas or populations of unusually high or low incidence, or of changing incidence, so that their diets can be thoroughly investigated. McConnell (1978) points out that, in general, death rates from cancer of the colon are highest in industrialized societies, with the notable exception of Japan, whereas in contrast cancer of the stomach is more frequent in developing countries, again with the exception of Japan. The rates of colon and stomach cancers are inversely related to each other, suggesting opposing aetiological factors. Death rates for pancreatic cancer parallel those of colon cancer, indicating the possibility of similar aetiology. Variations in death rates from country to country are greatest of all for oesophageal cancer, varying from 3/100 000 in Scandinavia to more than 100/100 000 in areas of East and South Africa, in Iran and in China. Jansson (1978) points out that the incidence of colorectal cancer varies more than 10-fold between low and high regions of incidence. Faeces of persons on high fat, high meat diet excrete more mutagens and thus probably also more carcinogens than patients on a low fat low meat diet, perhaps related to bacterial degradation of cholesterol and bile acid metabolites. A high incidence of colorectal cancer has been noted in the U.S.A. associated with selenium deficiency. One theory is that selenium has anti-oxidative properties which interfere with metabolic transformation of a pre-carcinogen into a carcinogen. There is also an increased risk of this disease in asbestos insulation workers and in textile workers. There is a recent report of a cluster of cases of colorectal cancer in a synthetic carpet factory in Canada with multi-centric, anaplastic tumours occurring in relatively young patients (Vobecky, Devroede and Lacaille, 1978). The perplexities of the epidemiology of cancer are well shown by a recent report from Johannesburg. Whereas squamous carcinoma of the oesophagus has an annual incidence of 24/100 000 in black males, the incidence of carcinoma of the stomach is extremely low, at 1.7/100 000 and carcinoma of the colon is extremely rare, with an incidence of only 0.85/100 000 (Isaacson *et al.*, 1978).

Another epidemiological approach is that of Enker and Dragacevic (1978) who investigated multiple carcinomas of the large bowel. In 3842 cases at University of Chicago Registry there were 121 examples of multiple tumour (3.1%), of which 68 were synchronous and 53 metachronous. With rather tenuous argument, they postulate that removal of the right colon might enable unabsorbed bile acids to pass into the left colon and precipitate

a second carcinoma there. Greenstein and his colleagues (1978) present further examples of carcinoma occurring in the excluded small bowel in patients with long-standing Crohn's disease; in their series there were 7 examples in 132 patients undergoing bypass surgery (5.3%). All had metastatic spread and all were dead within 2 years of diagnosis.

The mass of unexplained epidemiological variations has led experimentalists to turn to animal models to study the effects of environment on the development of gastrointestinal cancer. A useful model is the rodent colon, where multiple cancers can readily be induced by dimethylhydrazine. Chen, Patchefsky and Goldsmith (1978) compared mice on a normal diet with those given a high roughage diet containing wheat bran who were submitted to this carcinogen. They note that a smaller number of adenomas and fewer invasive tumours were found in the high fibre compared with the control group.

Treatment

Oncologists are far from complacent concerning the results of therapy of gastrointestinal cancers. Attempts to improve results include earlier diagnosis, the place of adjuvant chemotherapy and the early diagnosis of metastatic disease by means of tumour markers.

For some time now papers from Japan have stressed the good prognosis in so-called 'early gastric cancer' but this appeared to result from earlier diagnosis rather than any difference between the pathology of gastric cancer in the Japanese and in Westerners. Evans and his colleagues (1978) point out that before the introduction of endoscopy only 4 out of 720 gastric cancers in their Unit were diagnosed before the muscularis propria was breached (0.5%). Using endoscopy and biopsy, 10 out of 101 cases have been thus diagnosed (10%). Earlier recourse to endoscopy and biopsy on any clinical suspicion is obviously of importance. Cohn (1978) points out the depressing results of surgery for gastric cancer. At the Charity Hospital in New Orleans a survey of nearly 1500 cases showed that the resectability rate was only 48%. The mean survival of all cases was 12.3 months. Those undergoing exploratory laparotomy only survived a mean of 4 months, total gastrectomies 17.5 months and partial gastrectomies a mean of 2 years.

In an important paper, Gill and Morris (1978) point out that the results obtained in a regional centre for colorectal cancer are far less favourable than the encouraging results reported from specialist hospitals such as St Mark's. In Oxford, the crude and corrected 5-year survival rates after curative resection were 37.3 and 53.8% respectively. With the exception of stage A lesions, who had a 5-year survival of 100%, survival figures were poor; 58%

for stage B, 27% for stage C and 5.5% for stage D. Patients who presented with either intestinal obstruction or perforation of their carcinoma had a significantly worse prognosis than those who did not. These authors point out that results are unlikely to improve markedly until either effective adjuvant programmes of chemotherapy and/or immunotherapy have been established by randomized clinical trials, or a method of much earlier diagnosis is found.

The concept of adjuvant chemotherapy is an attractive one (Bush, 1978) but much remains to find out about the use of effective agents in an optimal pharmacokinetic manner. To date, the published trials of adjuvant chemotherapy in gastrointestinal cancer have not been very encouraging; thus Lawrence and his colleagues (1978) found no difference in their random trial between control patients and those receiving adjuvant 5-fluorouracil for colorectal cancer. Further work is obviously needed with combination chemotherapy and even adjuvant immunotherapy in this important field.

Although early hopes that carcinoembryonic antigen (CEA) might enable screening for, and early detection of, colorectal cancer have not been realized, there is increasing interest in the use of serial CEA estimations in the early detection of recurrent disease. Wood and his colleagues (1978a) in Glasgow carried out serial CEA estimations in 190 consecutive patients followed-up after 'curative' colorectal cancer surgery. Forty-one of these patients developed 2 consecutive raised CEA estimations. In 5 of these no recurrence was detected, in one clinical detection occurred before the CEA level rose, in 3 the rise corresponded to clinical detection of the recurrent disease and in 32 recurrence was only detected after a lag period of 2 to 28 months (with a median of 4 months) after the raised CEA titre was detected. A number of centres are now advocating 'second look surgery' purely as a result of persistent elevated CEA levels after curative surgery (Bone, Koch and McPherson, 1978; Minton *et al.*, 1978; Wanebo, Stearns and Schwartz, 1978a). Although in some cases operable recurrences have been found and resected, it is still too early to assess long-term results on patient salvage by what may be an important therapeutic advance. The search for other tumour markers continues. Wood and his colleagues (1978b) have studied the value of pregnancy-associated α_2 -glycoprotein in patients with colorectal cancer. This is a high molecular weight protein found in high serum concentration in pregnancy but only in small amounts in normal patients. This was measured serially in a series of 67 patients with colorectal cancer. The levels remained stationary or fell in patients undergoing curative resection, usually rose progressively in those undergoing palliative resection or with distant metastases and stayed level

in patients receiving cytotoxic therapy. These authors suggest that concomitant measurement of 2 tumour markers might decrease the numbers of false positive and false negative results.

In the face of recurrent disease, the best possible results are those obtained when further resection is possible. Welch and Donaldson (1978) studied 1193 curative colorectal resections carried out at the Massachusetts General Hospital in Boston over a 10-year period. There were 177 recurrences of which 23 were amenable to curative re-section. This group demonstrated a 33-month average survival compared with only 6 to 8 months in those patients where only palliative resection, colostomy or chemotherapy could be employed. From the same institution, Wilkins, Head and Burke (1978) present 142 patients who underwent pulmonary resection for metastatic neoplasms in the lung (35 of these had the primary site in the large bowel, 28 in the kidney, 14 in the testis and 9 in the breast). There were only 2 hospital deaths and the cumulative 5-year survival was 30%, rather better than the results of resection of primary lung cancer.

Occasional worth-while survivals have been reported from resection of liver metastases either at the time or following removal of primary colorectal tumours (Foster, 1978; Wanebo *et al.*, 1978b). The results of cytotoxic perfusion for liver metastases are not very encouraging. Taylor (1978) reports a small controlled trial based on only 24 cases randomized between no treatment, umbilical vein perfusion with 5-fluorouracil, hepatic artery ligation and perfusion, and the combination of umbilical vein perfusion and hepatic artery ligation. Only this last regime gave some improved survival but obviously further studies are required.

Once the gastrointestinal cancer is widely disseminated, the outlook for the patient remains almost as grim as it has ever been. Kingston and his colleagues (1978) in Birmingham, for example, report on the West Midlands gastric carcinoma chemotherapy trial. 5-Fluorouracil with methyl CCNU was compared against untreated controls in patients with unresectable gastric cancer. In a total of 193 cases, no difference could be found in overall survival or quality of life between the 2 groups, although it should be noted that only 41% of the treatment group could receive the full course of both drugs. The results of single agent therapy in advanced gastrointestinal cancer is not encouraging although rather better results are reported with combination chemotherapy (Priestman, 1978).

However, in this pessimistic scene, I always stress the importance of remembering that occasionally benign lesions can mimic recurrent or metastatic disease and it is a good rule not to attribute everything that happens to a patient after he has had a

malignant tumour removed to the development of disseminated cancer (Ellis, 1978a, b). Cahan, Shah and Castro (1978), from the Sloane Kettering Cancer Center, reinforce my plea. They note that exploration of a solitary lung lesion in patients known to have a primary cancer was carried out in over 200 cases. In 196, solitary metastases were found but in 11 of these patients, completely benign lesions were encountered. These comprised 5 hamartomas, 2 granulomas and solitary examples of a neurilemmoma, a fat pad, bronchogenic cyst and a dermoid cyst. While there is life, there is always hope.

References

Vascular surgery

- BERGUER, R., SCHNEIDER, J. & WILNER, H.T. (1978) Induced thrombosis of inoperable abdominal aortic aneurysm. *Surgery*, **84**, 425.
- DOTY, D.B., WRIGHT, C.B., LAMBERTH, W.C., SPOTO, G., GARRETT, W.V. & CRAM, A.E. (1978) Aortocaval fistula associated with aneurysm of the abdominal aorta: current management using auto transfusion techniques. *Surgery*, **84**, 250.
- DUBOST, C., ALLARY, M. & DECONOMAS, N. (1952) Resection of an aneurysm of the abdominal aorta. *Archives of Surgery*, **64**, 405.
- EKROTH, R., DAHLLOF, A.G., GUNDEVALL, B., HOLM, J. & SCHERSTER, T. (1978) Physical training of patients with claudication. *Surgery*, **84**, 640.
- FITZGERALD, J.F., STILLMAN, R.M. & POWERS, J.C. (1978) A suggested classification and reappraisal of mortality statistics for ruptured atherosclerotic infrarenal aortic aneurysms. *Surgery Gynecology and Obstetrics*, **146**, 344.
- GARDNER, R.J., GARDNER, N.L., TARNAY, T.J., WARDEN, H.E., JAMES, E.C. & WATNE, A.L. (1978) The surgical experience and a one to sixteen year follow-up of 277 abdominal aortic aneurysms. *American Journal of Surgery*, **135**, 226.
- GERTNER, M.H., HARGROVE, C. & ROBERTS, B. (1978) A ruptured abdominal aortic aneurysm presenting as inferior vena caval obstruction. *Surgery*, **83**, 605.
- GORDON-SMITH, I.C., TAYLOR, E.W., NICOLAIDES, A.N., GOLCMAN, L., KENYON, J.R. & EASTCOTT, H.H.G. (1978) Management of aortic aneurysms. *British Journal of Surgery*, **65**, 834.
- GRAEBER, G.M., BREDEBERG, C.E., GREGG, R.O., PARKER, R.B. & WEBB, W.R. (1978) Diagnosis and management of spontaneous aortoenteric fistulas. *American Journal of Surgery*, **136**, 269.
- HUGHSON, W.G., MANN, J.I. & GARROD, A. (1978a) Intermittent claudication: prevalence and risk factors. *British Medical Journal*, **1**, 1379.
- HUGHSON, W.G., MANN, J.I., TIBBS, D.J., WOODS, H.F. & WALTON, I. (1978b) Intermittent claudication: factors determining. *British Medical Journal*, **1**, 13.
- HURLOW, R.A., CHANDLER, S.T., HARDMAN, J. & STRACHAN, C.J.L. (1978a) Intravenous isotope calf scanning in the assessment of intermittent claudication. *British Journal of Surgery*, **65**, 619.
- HURLOW, R.A., CHANDLER, S.T. & STRACHAN, C.J.L. (1978b) The assessment of aorto-iliac disease by static isotope angiography. *British Journal of Surgery*, **65**, 263.
- JOHNSON, J.M. & WOOD, M. (1978) Arteriovenous fistula secondary to rupture of atherosclerotic abdominal aortic aneurysm. Report of 5 cases. *American Journal of Surgery*, **136**, 171.

- LANDES, R.G., TRUMBULL, H.R. & NICOLOFF, D.M. (1978) Abdominal aortic aneurysm with rupture into the inferior vena cava associated with horseshoe kidney. *Annals of Surgery*, **187**, 329.
- LEADING ARTICLE (1978) Surgery for coronary artery disease. *British Medical Journal*, **1**, 597.
- LOBE, T.E., MARTIN, E.W., COOPERMAN, M., VASKO, J. & EVANS, W.E. (1978) Abdominal aortic surgery in the presence of a horseshoe kidney. *Annals of Surgery*, **188**, 71.
- MASHIAH, A., PATEL, P., SCHRAIBMAN, I.G. & CHARLESWORTH, D. (1978) Drug therapy in intermittent claudication: an objective assessment of the effects of three drugs on patients with intermittent claudication. *British Journal of Surgery*, **65**, 342.
- MEHTA, A.I., McDOWELL, D.E. & JAMES, E.C. (1978) Treatment of massive gastrointestinal haemorrhage from aorto-enteric fistula. *Surgery Gynecology and Obstetrics*, **146**, 59.
- MYERS, K.A., KING, R.B., SCOTT, D.F., JOHNSON, N. & MORRIS, P.J. (1978) The effects of smoking on the late patency of arterial reconstructions in the legs. *British Journal of Surgery*, **65**, 267.
- NEGLEN, P., BOOK, K., EKLUND, A.E., EKLOF, B. & KARP, W. (1978) Rupture of abdominal aneurysms into the vena cava. Nature's aid to the surgeon? *Scandinavian Journal of Thoracic and Cardiovascular Surgery*, **12**, 65.
- OLCOTT, C., HOLCROFT, J.W., STONEY, R.J. & WYLIE, E.J. (1978) Unusual problems of abdominal aortic aneurysms. *American Journal of Surgery*, **135**, 426.
- READ, R.C., MURPHY, M.L., HULTGREN, H.M. & TAKARO, T. (1978) Survival of men treated for chronic stable angina pectoris: a cooperative randomised study. *Journal of Thoracic and Cardiovascular Surgery*, **75**, 1.
- ROBINSON, P.S., COLTART, D.J., JENKINS, B.S., WEBB-PEPLOE, M.M., BRAIMBRIDGE, M.V. & WILLIAMS, B.T. (1978) Coronary artery surgery: indications and recent experience. *Postgraduate Medical Journal*, **54**, 649.
- SOLHEIM, K., EVENSEN, K.A., HOIVIK, B., KARLSEN, S. & ROSSELAND, A.R. (1978) Aorto-caval fistula due to rupture of abdominal aneurysm. *Scandinavian Journal of Thoracic and Cardiovascular Surgery*, **12**, 61.
- WORKING GROUP, W.H.O. (1978) *The Long-Term Effects of Coronary Bypass Surgery*. Regional Office for Europe, W.H.O., Copenhagen.
- Carcinoma of the breast*
- BAUM, M. (1978a) Screening for breast cancer. *British Medical Journal*, **2**, 431.
- BAUM, M. (1978b) Simple mastectomy for carcinoma of the breast. *British Journal of Hospital Medicine*, **19**, 325.
- BAUM, M. (1978c) The role of local treatment for primary carcinoma of the breast. *Annals of the Royal College of Surgeons of England*, **60**, 479.
- BEST, J.J.K., ISHERWOOD, I., ASBURY, D.L., HARTLYE, G., GEORGE, W.D. & SELLWOOD, R.A. (1978) Computed tomography of the breast. *Clinical Oncology*, **4**, 173.
- BRAND, P.C. & VAN KEEP, P.A. (1978) *Breast Cancer: Psycho-Social Aspects of Early Detection and Treatment*. M.T.P. Press Ltd, Lancaster.
- BRITISH BREAST GROUP (1978) Bone scanning in breast cancer. *British Medical Journal*, **2**, 180.
- BUDD, D.C., COCHRAN, R.C., STURTZ, D.L. & FOUTY, W.J. (1978) Surgical morbidity after mastectomy operations. *American Journal of Surgery*, **135**, 218.
- BUGARSKI, M., VULETIC, L., BOBERIC, J., MILOSAVJEVIC, A., DILPARIC, S., TOMIN, R. & NAUMOVIC, P. (1978) Treatment of hepatic metastases from breast cancer. *Clinical Oncology*, **4**, 167.
- EDINBURGH BREAST SCREENING CLINIC (1978) Screening for breast cancer. *British Medical Journal*, **2**, 175.
- ELLIS, H. (1978) If my wife had cancer of the breast. *British Medical Journal*, **1**, 896.
- HELLER, K.S., ROSEN, P.P., SCHOTTENFELD, D., ASHIKARI, R. & KINNE, D.W. (1978) Male breast cancer: a clinicopathologic study of 97 cases. *Annals of Surgery*, **188**, 60.
- HUGHES, L.E. & FORBES, J.F. (1978a) Early breast cancer: part I: surgical pathology and pre-operative assessment. *British Journal of Surgery*, **65**, 753.
- HUGHES, L.E. & FORBES, J.F. (1978b) Early breast cancer: part II: management. *British Journal of Surgery*, **65**, 764.
- LAZARO, E.J., RUSH, B.F. & SWAMINATHAN, A.P. (1978) Changing attitudes in the management of cancer of the breast. *Surgery*, **84**, 441.
- LEADING ARTICLE (1978) Hormone receptors in breast cancer. *British Medical Journal*, **2**, 77.
- LYNCH, J.B., MADDEN, J.J. & FRANKLIN, J.D. (1978) Breast reconstruction following mastectomy for cancer. *Annals of Surgery*, **187**, 490.
- McKILLOP, J.H., BLUMGART, L.H., WOOD, C.B., FOGELMAN, I., FURNIVAL, C.M., GREIG, W.R. & CITRIN, D.L. (1978) The prognostic and therapeutic implications of the positive radionuclide bone scan in clinically early breast cancer. *British Journal of Surgery*, **65**, 649.
- MARCHANT, J. (1978) *Rehabilitation of Mastectomy Patients*. Heinemann Medical Books Ltd, London.
- MONTGOMERY, A.C.V., GREENING, W.P. & LEVENE, A.L. (1978) Clinical study of recurrence rate and survival time of patients with carcinoma of the breast treated by biopsy excision without any other therapy. *Journal of the Royal Society of Medicine*, **71**, 339.
- MURRAY, J.G., MACINTYRE, J., LEIBERMAN, D.P. & LEAPER, D.J. (1978) Toxicity of oral adjuvant chemotherapy in breast cancer. *British Medical Journal*, **1**, 408.
- RUBENS, R.D. (1978) The current status of adjuvant chemotherapy. *Surgical Clinics of North America*, **58**, 789.
- STRAX, P. (1978) Evaluation of screening programs for the early diagnosis of breast cancer. *Surgical Clinics of North America*, **58**, 667.
- TAGART, R.E.B. (1978) Partial mastectomy for breast cancer. *British Medical Journal*, **2**, 1268.
- WARD, H.W.C., ARTHUR, K., BANKS, A.J., BOND, W.H., BROWN, I., FREEMAN, W.E., HOLME, G.M., JONES, W.G., NEWSHOLME, G.A. & OSTROWSKI, M.J. (1978) Anti-oestrogen therapy for breast cancer—a report on 300 patients treated with tamoxifen. *Clinical Oncology*, **4**, 11.
- WEBSTER, D.T., BRONN, D.G. & MINTON, J.P. (1978) Estrogen receptor levels in multiple biopsies from patients with breast cancer. *American Journal of Surgery*, **136**, 337.
- WIENER, S.N. & SACHS, S.H. (1978) An assessment of routine liver scanning in patients with breast cancer. *Archives of Surgery*, **113**, 126.
- The acute abdomen*
- ANDERSSON, A. & BERGDAHL, L. (1978) Acute appendicitis in patients over sixty. *American Surgeon*, **44**, 445.
- BRADLEY, E.L. & ISAACS, J. (1978) Appendiceal abscess revisited. *Archives of Surgery*, **113**, 130.
- CROKER, J., RECORD, C.O. & WRIGHT, J.T. (1978) Ileo-caecal tuberculosis in immigrants. *Postgraduate Medical Journal*, **54**, 410.
- DURR, H.K., MAROSKE, D., ZELDER, O. & BODE, J.C. (1978) Glucagon therapy in acute pancreatitis; report of a double blind trial. *Gut*, **19**, 175.
- ELLIS, H. (1978) Review of general surgery 1977. *Postgraduate Medical Journal*, **54**, 367.
- FOO, K.T., NG, K.C., RAUFF, A., FOONG, W.C. & SINNAH, R. (1978) Unusual small intestinal obstruction in adolescent girls: the abdominal cocoon. *British Journal of Surgery*, **65**, 427.
- FORAN, B., BERNE, T.V. & ROSOFF, L. (1978) Management of the appendiceal mass. *Archives of Surgery*, **113**, 1144.
- HEDNER, J., JANSSON, R. & LINDBERG, B. (1978) Appendicocutaneous fistula. *Acta chirurgica scandinavica*, **144**, 123.

- HILL, H.F., BUNTING, J., WOOD, R.D. & TEMPLE, J.G. (1978) The significance of radiological pneumoperitoneum in the diagnosis of post-operative peritonitis. *Journal of the Royal College of Surgeons of Edinburgh*, **23**, 303.
- KHOURY, G.A., PAYNE, C.R. & HARVEY, D.R. (1978) Tuberculosis of the peritoneal cavity. *British Journal of Surgery*, **65**, 808.
- MÜLLER-SCHOOP, J.W., WANG, S.P., MUNZIGER, J., SCHLÄPFER, H.V., KNOBLAUCH, M. & AMMANN, R.W. (1978) *Chlamydia trachomatis* as possible cause of peritonitis and perihepatitis in young women. *British Medical Journal*, **1**, 1022.
- OWENS, B.J. & HAMIT, H.F. (1978) Appendicitis in the elderly. *Annals of Surgery*, **187**, 392.
- SAEBO, A. (1978) Pneumoperitoneum associated with perforated appendicitis. *Acta chirurgica scandinavica*, **144**, 115.
- STEWARTSON, R.H., BOMBECK, T. & NYHUS, L.M. (1978) Critical operative management of a small bowel obstruction. *Annals of Surgery*, **187**, 189.
- THOMPSON, M.R. (1978) Perforation of duodenal ulcers in the elderly. *Gut*, **19**, 976.
- Peptic ulcer*
- BLACKWOOD, W.S., MAUDGAL, D.P. & NORTHFIELD, T.C. (1978) Prevention by bedtime cimetidine of duodenal ulcer relapse. *Lancet*, **i**, 626.
- COLLOPY, B. & RYAN, P. (1978) The present status of proximal gastric vagotomy. *Australian and New Zealand Journal of Surgery*, **48**, 132.
- CUILLERET, J., PICQ, P., DAMME, J.V., ETAIX, J.P., MARION, M.C. & REGAIREZ, C. (1978) Les complications ischémiques de la vagotomie hypersélective. *Lyon chirurgical*, **74**, 324.
- DELANEY, P. (1978) Peroperative grading of pyloric stenosis: a long term clinical and radiological follow-up of patients with severe pyloric stenosis treated by highly selective vagotomy and dilatation of the stricture. *British Journal of Surgery*, **65**, 157.
- DUNN, D.C. (1978) Highly selective vagotomy and pyloric dilatation for duodenal ulcer and stenosis. *European Surgical Research*, **10** (suppl. 1), 34.
- GOLIGHER, J.C., HILL, G.L., KENNY, T.E. & NUTTER, E. (1978) Proximal gastric vagotomy without drainage for duodenal ulcer: results after 5-8 years. *British Journal of Surgery*, **65**, 145.
- GREEN, W.E.R., KENNEDY, T., HASSARD, T. & SPENCER, E.F.A. (1978) Management of recurrent peptic ulceration. *British Journal of Surgery*, **65**, 422.
- GREEN, R., SPENCER, A. & KENNEDY, T. (1978) Closure of gastrojejunostomy for the relief of post-vagotomy symptoms. *British Journal of Surgery*, **65**, 161.
- HILL, G.L. & BARKER, M.C.J. (1978) Anterior highly selective vagotomy with posterior truncal vagotomy. *British Journal of Surgery*, **65**, 702.
- HOARE, A.M., JONES, E.L. & HAWKINS, C.F. (1978) Cimetidine for ulcers recurring after gastric surgery. *British Medical Journal*, **1**, 1325.
- JENSEN, H.E. & AMDRUP, E. (1978) Follow-up of 100 patients 5-8 years after parietal cell vagotomy. *World Journal of Medicine*, **2**, 525.
- KENNEDY, T. & SPENCER, A. (1978) Cimetidine for recurrent ulcer after vagotomy or gastrojejunostomy: a randomised controlled trial. *British Medical Journal*, **1**, 1242.
- LEADING ARTICLE (1978) Cimetidine for ever (and ever and ever). *British Medical Journal*, **1**, 1435.
- McMAHON, M.J., JOHNSTON, D., HILL, G.L. & GOLIGHER, J.C. (1978) Treatment of severe side effects after vagotomy and gastro-enterostomy by closure of gastro-enterostomy without pyloroplasty. *British Medical Journal*, **1**, 7.
- OSTICK, D.G. & KAUFMANN, C.G. (1978) A prospective randomised trial of vagotomy in uncomplicated duodenal ulceration. *European Surgical Research*, **10** (Suppl. 1), 33.
- STODDARD, C.J., VASSILAKIS, J.S. & DUTHIE, H.L. (1978) Highly selective vagotomy or truncal vagotomy and pyloroplasty for chronic duodenal ulceration: a randomised prospective clinical study. *British Journal of Surgery*, **65**, 793.
- TAYLOR, T.V., LAMBERT, M.E. & TORRANCE, H.B. (1978a) Value of bile-acid binding agents in post-vagotomy diarrhoea. *Lancet*, **i**, 635.
- TAYLOR, R.H., MENZIES-GOW, N., LOVELL, D., LA BROOY, S.J. & MISIEWICZ, J.J. (1978b) Misleading response of malignant gastric ulcers to cimetidine. *Lancet*, **i**, 686.
- WASTELL, C. & ELLIS, H. (1978) Effect of various pyloroplasties on fecal fat excretion in dogs and humans. *American Journal of Digestive Diseases*, **23**, 45.
- WHITE, C.M., HARDING, L.K., KEIGHLEY, M.R.B., DORRICO, N.J. & ALEXANDER-WILLIAMS, J. (1978) Gastric emptying after treatment of stenosis secondary to duodenal ulceration by proximal gastric vagotomy and duodenoplasty or pyloric dilatation. *Gut*, **19**, 783.
- Gastrointestinal haemorrhage*
- BROOY, S.L., MISIEWICZ, J.J., EDWARDS, J., SMITH, P.M., HAGGIE, S.J., LIBMAN, L., SARNER, M., WHYLLIE, J.H., CROKER, J. & COTTON, P. (1978) Is there a role for cimetidine in the management of acute upper gastrointestinal bleeding? *Gut*, **19**, 447.
- BROWN, S.G., SALMON, P.R., KELLY, D., CALDER, B.M. & READ, A.E. (1978) Laser photocoagulation for upper gastrointestinal haemorrhage. *Gut*, **19**, 956.
- BUBBRICK, M.P., WETHERILLE, R.E., ONSTAD, G.R., ANDERSEN, R.C. & HITCHCOCK, C.R. (1978) Control of acute gastroduodenal hemorrhage with cimetidine. *Surgery*, **84**, 510.
- CARNEY, M.W.P. & BROZOVIC, M. (1978) Self-inflicted bleeding and bruising. *Lancet*, **i**, 924.
- CHAMPAULT, G. (1978) Les hémorragies de l'hypertension portale. *Journal de Chirurgie*, **115**, 47.
- FOSTER, D.N., MILOSZEWSKI, K.J.A. & LOSOWSKY, M.S. (1978) Stigmata of recent haemorrhage in diagnosis and prognosis of upper gastrointestinal bleeding. *British Medical Journal*, **1**, 1173.
- HEDENSTEDT, S. & LUNDQUIST, G. (1978) Selective proximal vagotomy as an emergency and definitive operation for massive ulcerous bleeding. *Acta chirurgica scandinavica*, **144**, 241.
- HIMAL, H.S., PERRAULT, C. & MZABI, R. (1978) Upper gastrointestinal hemorrhage: aggressive management decreases mortality. *Surgery*, **84**, 448.
- JOHNSTON, G.W. (1978) Simplified oesophageal transection for bleeding varices. *British Medical Journal*, **1**, 1388.
- JONES, R.H., RUDGE, C.J., BEWICK, M., PARSONS, V. & WESTON, M.J. (1978) Cimetidine: prophylaxis against upper gastrointestinal bleeding after renal transplantation. *British Medical Journal*, **1**, 398.
- KORANSKY, J.R., GALAMBOS, J.T., HERSH, T. & WARREN, W.D. (1978) The mortality of bleeding esophageal varices in a private university hospital. *American Journal of Surgery*, **136**, 339.
- LEADING ARTICLE (1978a) Gastrointestinal bleeding in acute respiratory failure. *British Medical Journal*, **1**, 531.
- LEADING ARTICLE (1978b) Mallory Weiss through the endoscope. *Lancet*, **i**, 1294.
- PATON, A. (1978) If I had a melaena. *British Medical Journal*, **1**, 1400.
- RICHARDSON, J.D., MAX, M.H., FLINT, L.M., SCHWEISINGER, W., HOWARD, M. & AUST, J.B. (1978) Bleeding vascular malformations of the intestine. *Surgery*, **84**, 430.

- STONE, A.M., STEIN, T., MCCARTHY, K. & WISE, L. (1978) Surgery for bleeding duodenal ulcer. *American Journal of Surgery*, **136**, 306.
- TAYLOR, S.A. & DAWSON, J.L. (1978) The treatment of haemobilia. *British Journal of Surgery*, **65**, 252.
- VENABLES, C.W. (1978) Why do patients die after surgical treatment for peptic ulcer haemorrhage? *Gut*, **19**, 978.
- Cancer of the gastrointestinal tract*
- BONE, G., KOCH, M. & MCPHERSON, T.A. (1978) The role of carcinoembryonic antigen (CEA) as a predictor of early recurrence in colorectal cancer. *Clinical Oncology*, **4**, 107.
- BUSH, H. (1978) Adjuvant chemotherapy. An approach to the management of malignant disease. *British Journal of Hospital Medicine*, **20**, 260.
- CAHAN, W.G., SHAH, J.P. & CASTRO, E.B. (1978) Benign solitary lung lesions in patients with cancer. *Annals of Surgery*, **187**, 241.
- CHEN, W., PATCHEFSKY, A.S. & GOLDSMITH, H.S. (1978) Colonic protection from dimethylhydrazine by a high fiber diet. *Surgery, Gynecology and Obstetrics*, **147**, 503.
- COHN, I. (1978) Gastrointestinal cancer. Surgical survey of abdominal tragedy. *American Journal of Surgery*, **135**, 3.
- ELLIS, H. (1978a) Advanced abdominal malignant disease. In: *Current Surgical Practice* (Ed. by Hadfield, J. & Hobsley, M.) vol. 2. Edward Arnold, London.
- ELLIS, H. (1978b) Surgical treatment of advanced intra-abdominal cancer. *Postgraduate Doctor*, June, 198.
- ENKER, W.E. & DRAGACEVIC, S. (1978) Multiple carcinomas of the large bowel: a natural experiment in etiology and pathogenesis. *Annals of Surgery*, **187**, 8.
- EVANS, D.M.D., CRAVEN, L., MURPHY, F. & CLEARY, B.K. (1978) Comparison of "early gastric cancer" in Britain and Japan. *Gut*, **19**, 1.
- FOSTER, J.H. (1978) Survival after liver resection for secondary tumours. *American Journal of Surgery*, **135**, 389.
- GILL, P.G. & MORRIS, P.J. (1978) The survival of patients with colorectal cancer in a regional hospital. *British Journal of Surgery*, **65**, 17.
- GREENSTEIN, A.J., SACHAR, D., PUCILLO, A., KREEL, I., GELLER, S., JANOVITZ, H.D. & AUFSER, A. (1978) Cancer in Crohn's disease after diversionary surgery: a report of seven carcinomas occurring in excluded bowel. *American Journal of Surgery*, **135**, 86.
- ISAACSON, C., SELZER, G., KAYE, V. & GREENBERG, M. (1978) Cancer in the urban blacks of South Africa. *South African Cancer Bulletin*, **22**, 49.
- JANSSON, B. (1978) Colorectal cancer – an occupational disease? *Gastroenterology*, **75**, 321.
- KINGSTON, R.D., ELLIS, D.J., POWELL, J., BROOKES, V.S., WATERHOUSE, J.A.H., HURST, M.D. & SMITH, J.A. (1978) The West Midlands gastric carcinoma chemotherapy trial: planning and results. *Clinical Oncology*, **4**, 55.
- LAWRENCE, W., TERZ, J.T., HORSLEY, S., BROWN, P.W. & ROMERO, C. (1978) Chemotherapy as an adjuvant to surgery for colorectal cancer. *Archives of Surgery*, **113**, 164.
- MCCONNELL, R.B. (1978) Epidemiology of gastrointestinal tumours: a review. *Journal of the Royal Society of Medicine*, **71**, 278.
- MINTON, J.P., JAMES, K.K., HURTUBISE, P.E., RINKER, L., JOYCE, S. & MARTIN, E.W. (1978) The use of serial carcinoembryonic antigen determinations to predict recurrence of carcinoma of the colon and the time for a second-look operation. *Surgery, Gynecology and Obstetrics*, **147**, 208.
- PRIESTMAN, T.J. (1978) Recent advances in cytotoxic therapy for gastrointestinal carcinoma: a review. *Journal of the Royal Society of Medicine*, **71**, 195.
- TAYLOR, I. (1978) Cytotoxic perfusion for colorectal liver metastases. *British Journal of Surgery*, **65**, 109.
- VOBECKY, J., DEVROEDC, G. & LACAILLE, J. (1978) An occupational group with a high risk of large bowel cancer. *Gastroenterology*, **75**, 221.
- WANEBO, H.J., STEARNS, M. & SCHWARTZ, M.K. (1978a) Use of CEA as an indicator of early recurrence and as a guide to a selected second-look procedure in patients with colorectal cancer. *Annals of Surgery*, **188**, 481.
- WANEBO, H.J., SEMOGLOW, C., ATTIEH, F. & STEARNS, M.J. (1978b) Surgical management of patients with primary operable colorectal cancer and synchronous liver metastases. *American Journal of Surgery*, **135**, 80.
- WELCH, J.P. & DONALDSON, G.A. (1978) Detection and treatment of recurrent cancer of the colon and rectum. *American Journal of Surgery*, **135**, 505.
- WILKINS, E.W., HEAD, J.M. & BURKE, J.F. (1978) Pulmonary resection for metastatic neoplasms in the lung. Experience at the Massachusetts General Hospital. *American Journal of Surgery*, **135**, 480.
- WOOD, C.B., BURT, R.W., RATCLIFFE, J.G., MALCOLM, A.J.H. & BLUMGART, L.H. (1978a) Pattern of change in carcinoembryonic antigen (CEA) in patients developing recurrent colorectal cancer. *Gut*, **19**, 988.
- WOOD, C.B., HORNE, C.H.W., TOWLER, C.M., BOHN, H. & BLUMGART, L.H. (1978b) The value of pregnancy-associated α_2 -glycoprotein in patients with colorectal cancer. *British Journal of Surgery*, **65**, 653.