

to be hoped that the lesson of these tests will be learned and generally applied.

## Technique and Survival in Cancer Surgery

Carcinoma of the large bowel is the second commonest fatal cancer in England and Wales, where each year about 8,500 patients die of colonic and another 5,500 of rectal neoplasms. Most of these patients have had an attempt at surgical cure; for example, E. M. Oxley and H. Ellis<sup>1</sup> found that of 640 patients with large bowel cancer submitted to laparotomy at Westminster Hospital only 112 (18%) had liver metastases and were therefore suitable for no more than palliative treatment. Patients often die, in fact, of recurrence of the disease after an apparently successful removal of the growth.

Most surgeons believe that distant metastases found after resection represent foci which were occult at the initial laparotomy. There is, however, a body of opinion that in some cases at least handling of the tumour at the time of operation might have detached cancer emboli. In 1913 E. E. Tyzzer showed<sup>2</sup> that digital trauma to tumours implanted in the chest wall of mice resulted in extensive metastases compared with controls. E. R. Fisher and R. B. Turnbull found cancer cells in the portal blood in 8 out of 20 patients undergoing resection of cancer of the colon.<sup>3</sup> Since then Turnbull and his colleagues<sup>4</sup> have been advocating and practising what has been named the "no-touch isolation technique" of colonic resection, in which extreme care is taken not to palpate the tumour mass in the ward and the x-ray departments or by vigorous scrubbing in the preoperative skin preparation. At operation the cancer-bearing segment is not handled until the lympho vascular pedicles have been divided and ligated and the colon divided. The results of this technique between 1950 and 1964 were described by Turnbull in his recent Moynihan Lecture at the Royal College of Surgeons of England.<sup>5</sup> Compared with his surgical colleagues not using this technique, Turnbull found improvement in his five- and ten-year survival rates, particularly in his class C cases with tumour metastases to regional lymph nodes but with no clinical or radiological evidence of distant spread. In this group the five-year survival rate was 67.3%.

In assessing Turnbull's results it is important to notice that his classification of staging is a little different to that used in many other centres: his stage D comprises not only patients with distant tumour metastases and peritoneal seeding but also those with adjacent organ invasion. Of the 205 patients in this last group, half underwent resection. It would be interesting to compare Turnbull's results with those obtained at

other major centres reclassified according to the staging used at the Cleveland Clinic. At St. Mark's Hospital the survival rate after perineo-abdominal excision of the rectum, in which the vascular pedicle is not controlled until after considerable manipulation of the tumour, is very similar to that after the abdomino-perineal technique, in which it is.<sup>6</sup>

A somewhat different approach to this problem has been the use of intraluminal chemotherapy at the time of surgery to perfuse the lympho-venous drainage area of the tumour.<sup>7</sup> There is a suggestion that survival figures are improved in those patients with lymph node metastases, but further long-term results are needed before the value of such anti-cancer chemotherapy can be evaluated.

Local recurrence of the tumour after resection may result from inadequate excision or from implantation of free tumour cells at the anastomotic line. In restorative resection of the rectum such recurrences were reported in approximately 10% of cases by J. C. Goligher in 1951.<sup>8</sup> However, since the introduction by Naunton Morgan and Lloyd-Davies of irrigation with a 1/500 solution of perchloride of mercury, anastomotic recurrence has been reduced<sup>9</sup> to about 2%. Hale has confirmed<sup>10</sup> experimentally that both mercury perchloride and a 1% solution of cetrimide are highly effective in preventing tumour implantation at the suture line.

So while it is clear that local implantation of cancer cells in the wound and suture line can occur and can be prevented, the danger of causing distant metastases by operative manipulation is less solidly founded. Tumour cells may certainly be recovered in the blood of patients at the time of operation, but their powers of implantation are still conjectural. There can be no complacency about the results of surgery in large bowel cancer when so many patients die each year of this disease. While surgeons strive to improve the minutiae of their techniques much still remains to be discovered about the fundamental mechanism of the development of distant metastases. On this will certainly depend future advances in treatment; since, as Osler said, "As is our pathology, so is our treatment."

## Give and Take

The Chancellor's recent announcements<sup>1 2</sup> on Government expenditure merit attention, not just for the arithmetic but because they give some indication of the Conservative administration's future intentions. The financial proposals for the Health Service are reported at p. 377 and though the proposals lack detail they show that the new Health Service charges will bring in an estimated £53m. a year by 1974-5. These charges represent a potential saving for the Government, but it announced that part of these savings in public expenditure would be switched to those parts of the health and welfare services which are in greatest need, particularly facilities for the aged and mentally handicapped. As the White Paper<sup>2</sup> puts it "The forward expenditure plans have therefore been adjusted to provide for new expenditure amounting to £110m. over the years 1971-2 to 1974-5." Nevertheless, even with this "new" expenditure of approximately £37m. a year the Chancellor should be saving around £16m. annually

<sup>1</sup> Oxley, E. M., and Ellis, H., *British Journal of Surgery*, 1969, 56, 149.

<sup>2</sup> Tyzzer, E. E., *Journal of Medical Research*, 1913, 28, 309.

<sup>3</sup> Fisher, E. R., and Turnbull, R. B., *Surgery, Gynecology and Obstetrics*, 1955, 100, 102.

<sup>4</sup> Turnbull, R. B., Kyle, K., Watson, F. R., and Spratt, J., *Annals of Surgery*, 1967, 166, 420.

<sup>5</sup> Turnbull, R. B., *Annals of The Royal College of Surgeons of England*, 1970, 46, 243.

<sup>6</sup> Bussey, H. J. R., Dukes, C. E., and Lockhart-Mummery, H. E., in *Cancer of The Rectum*, ed. C. E. Dukes, p. 267. Edinburgh, Livingstone, 1960.

<sup>7</sup> Rousselot, L. M., Cole, D. R., Grossi, C. E., Conte, A. J., and Gonzalez, E. M., *Cancer (Philadelphia)*, 1967, 20, 829.

<sup>8</sup> Goligher, J. C., Dukes, C. E., and Bussey, H. J. R., *British Journal of Surgery*, 1951, 39, 199.

<sup>9</sup> Keynes, W. M., *Annals of Surgery*, 1961, 153, 357.

<sup>10</sup> Hale, J. E., *Proceedings of the Royal Society of Medicine*, 1969, 62, 713.

<sup>1</sup> *Hansard*, House of Commons, 27 October 1970, Col. 37.

<sup>2</sup> *New Policies for Public Spending*, Cmnd. 4515, London, H.M.S.O., 1970.

<sup>3</sup> Miller, H., *Encounter*, 1967, 4, 11.

<sup>4</sup> Office of Health Economics, *Information Sheet No. 9*, London, 1970.

<sup>5</sup> *British Medical Journal*, 1970, 4, 192.

<sup>6</sup> *Medical Research Council Annual Report April 1969-March 1970*. House of Commons Paper 9, London, H.M.S.O., 1970.