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Resection for bronchial carcinoma in the elderly

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The results of surgery for carcinoma of the bronchus among an elderly population are reviewed in relation to the total number of cases seen. Although there is a 20% operative hospital mortality, nevertheless a survival rate of 39% for four years makes surgery in the elderly worthwhile. The span of life in untreated cases is even less than in the younger age groups.

Between 1950 and June 1971, 1,804 cases of bronchial carcinoma were seen in two general hospitals covering a population of 160,000 in 1950, rising to 211,000 in 1970.

The centre is Worthing with a population of 83,000, of whom 32% are over 65 years of age. The town has the highest percentage of old people in England for the size of population.

Of the 1,804 patients, 723 (40%) were aged 65 to 94 at the time of diagnosis. The female ratio has risen from 17% to 20% in the last decade. Owing to the aged population Worthing has one of the highest bronchial carcinoma rates in the world, and a death rate which since 1950 has risen more quickly than the rising rate for England and Wales, so that in 1969 the rate per 100,000 was 118 in Worthing compared with 61 for the rest of England and Wales (Figure).

Of the 1,804 patients aged 19 to 94, 58% were clinically inoperable and 19% were found to be inoperable after bronchoscopy, making 77% unfit for surgery. Thus 23% were submitted to surgery. At thoracotomy a further 8% were found to be inoperable, leaving a resection rate of 15%. It is noteworthy that these percentages were practically the same for those over 65 as for the younger patients.

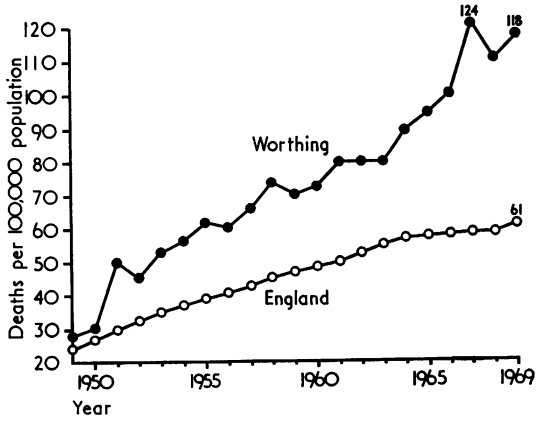

FIGURE *Death rate per 100,000 population for Worthing compared with the rate for England and Wales 1950–69.*

SELECTION

There has been a reluctance in some centres to operate on patients over 65, but Bates (1970) operated on 100 patients over 70, and considered that there was a place for surgery in older patients. Between 1950 and June 1971, of 723 Worthing patients over 65, only 114 were suitable for resection.

All the patients had a clinical assessment, pulmonary function tests, and, in recent years, routine electrocardiograms, and all were bronchoscoped at Worthing Hospital. The factors of age, build, the degree of infection, and the likely amount of lung tissue to be removed were considered. Mild electrocardiographic changes were ignored and only in the presence of marked ischaemia or cardiac failure were cases considered clinically inoperable. Likewise, reduced pulmonary function was related to whether a pneumonectomy or lobectomy was contemplated; indeed, in the presence of infection and poor pulmonary function tests a lobectomy has even improved the tests by removing the source of infection. The same surgeon operated on 98% of the cases under review.

POSTOPERATIVE MORTALITY

The overall mortality for those over 65 was 23 deaths, that is 20% (Table I). This is made up of the following age groups: 65–69, 11 deaths out of 69 cases (16·0%); 70–74, 8 deaths out of 30 cases

TABLE I

Cause of Death	No. of Patients
Cardiorespiratory failure	9
Cardiorespiratory failure with infection	2
Pulmonary embolus	4
Bronchial fistula	2
Oesophageal ulcer, perforating	1
Paralytic ileus	1
Myocardial infarction	2
Haemorrhage from a gastric ulcer	1
Contralateral spontaneous pneumothorax	1
	23

(26·6%); 75–83, 4 deaths out of 15 cases (26·6%). (The comparative mortality for those under 65 was 10%.) The postoperative mortality rate for pneumonectomy in those over 65 was 27%, that is 13 (9 right, 4 left) out of 48 patients (20 right, 28 left).

The rate for lobectomy was 15%, that is 10 (3 right, 7 left) out of 66 patients (36 right, 30 left). In the last decade the percentage of lobectomies was higher.

Postoperative deaths occurred from the first to the twenty-sixth postoperative day, except for one patient who had a pneumonectomy in 1952 and died in hospital from cardiorespiratory failure at six weeks.

SURVIVAL

Between 1951 and June 1971, 114 post-resection cases between the ages of 65 and 83 were personally followed up. Twenty-five were in their seventies and only one was over 80.

Of these 114 cases, 81 have been selected for review as they were all resected before September 1967 and this allows a possible four years of survival to September 1971. It is considered that in these older patients four years of extra life is significant. Thus, 33 cases resected since September 1967 have not been included, in order to avoid statistical errors of shorter survival rates.

Of these 81 cases, 39 had pneumonectomies and 42 had one or more lobes removed; 32 (39%) were alive for periods exceeding four years (Table II). Twelve of the 39 pneumonectomy patients (10 left, 2 right) survived for more than four years (30%) and of these, five lived from 11 to 18 years.

TABLE II

Survival	No. of Patients
Alive after 5 years	24
Alive after 6 years	18
Alive after 7 years	15
Alive after 8 years	12
Alive after 9 years	9
Alive after 10 years and up to 18	8

However, 20 of the 42 (47%) lobectomy patients (11 left, 9 right) survived for more than four years. The longest survivor was a woman aged 72 at diagnosis; she was found to have diabetes, had a pneumonectomy, and lived until she was 90.

Concerning the quality of life after surgery in the over 65 age group, most are content to be alive and accept a reduced pulmonary function. The question whether surgery is worthwhile in the elderly cannot be answered as no control series is feasible. However, for comparison the statistics of the period of survival of 1,336 patients not submitted to surgery are shown (Table III). These patients of all ages were followed up to the time of their death.

TABLE III

Age (yr)	Survival over 6 months	Death Rate by 6 months
Under 65	139 of 556 patients (25·0%)	75·0%
65–70	90 of 364 patients (24·7%)	74·3%
71–94	84 of 416 patients (20·0%)	80·0%
	Survival over 12 months	Death Rate by 12 months
Under 65	50 of 556 patients (9·0%)	91·0%
65–70	27 of 364 patients (7·0%)	93·0%
71–94	27 of 416 patients (6·5%)	93·5%

The figures in Table III show that the growth of bronchial carcinoma is as rapid in old age as in younger patients. This may be a factor in advising surgery when possible in older patients.

SPONTANEOUS SURVIVAL

Most clinicians will recall the inoperable case with a confirmed histological diagnosis, or the patient who has had a thoracotomy only, who has lived for a long period. Statistically, these are few. Out of 780 patients aged over 65, only 21 (2·7%) survived more than two years, with the rare case up to five years. Under 65, out of 556 cases, 21 (3·7%) survived more than two years.

Since the patient over 65 years of age appears to have a 77% chance of being dead in the first six months and a 93% chance of not living a year, then surgery for the suitable case is justified as giving a 39% chance of survival for four years.

This paper is a tribute to my friend and colleague, Mr. Vincent Powell, who operated on 98% of these patients at King Edward VII Hospital, Midhurst.

My thanks are due to my secretary, Miss Joan Canton, for her constant help in keeping these statistics up to date.

REFERENCE

Bates, M. (1970). Results of surgery for bronchial carcinoma in patients aged 70 and over. *Thorax*, **25**, 77.