

Reoperation for bronchial carcinoma

A GABLER AND S LIEBIG

From the Surgical Division, Department of Pulmonary Diseases, Heckeshorn Hospital, Berlin, West Germany

ABSTRACT After a primary operation for bronchial carcinoma, 17 patients underwent reoperation for local recurrence or intrathoracic metastasis (nine squamous cell, five alveolar cell, and three adenocarcinomas). The average interval between the first and second operation was 23 months (range: six to 48 months). Twelve patients had a pneumonectomy after an initial ipsilateral lobectomy. Five patients underwent contralateral wedge excision after initial lobectomy or wedge excision. Three patients died within 30 days of the reoperation. Eight of the remaining 14 patients died subsequently, the time of survival averaging 18 months (range: three to 54 months). Six patients are still alive, two having survived their reoperation for more than five years. Reoperation for recurrent bronchial carcinoma is rarely performed, but it should be considered in all cases where patients survive operation for lung cancer if the primary operation was thought to be radical.

At present, there is little interest in reoperations for bronchial carcinoma. This is surprising, since as far back as 1954, Beattie *et al*¹ reported a reoperation for recurrent carcinoma in a case where a pneumonectomy had been performed previously. One year ago, the work of Schulte *et al*² induced us to analyse our own cases. We were also influenced by the work published by Abbey Smith^{3, 4} and Neptune *et al*⁵ as well as that of Döring⁶ who in 1976 reported on the largest number of cases. We found that in the last 25 years, 11 reoperations for bronchial carcinoma had been performed at our hospital. In the same year, after we had reported our findings at a meeting of the Berlin Pneumologists,⁵ six additional reoperations for recurrent bronchial carcinoma were performed.

In this paper we consider only those cases where a reoperation for recurrent bronchial carcinoma was performed after a previous resection for bronchial carcinoma. We are not concerned with the many possible alternative surgical procedures after resection of the lung because of bronchial carcinoma.

Patients and methods

The type of the reoperation is shown in table 1. The first operation was considered to be radical in all cases. On 12 occasions, a pneumonectomy followed either an ipsilateral lobectomy or a wedge excision. In five patients, a contralateral wedge excision was performed, after a lobectomy or wedge excision.

The reoperation was considered to be incomplete in three cases. Two of these patients died after the operation. In all other cases, the reoperation seemed to be radical.

The histopathological types of the tumours are listed in table 2. There were nine squamous cell carcinomas, five alveolar cell carcinomas, and three adenocarcinomas. The numbers in brackets indicate the patients still alive.

Table 1 Surgical procedures in 17 patients who underwent reoperation for bronchial carcinoma

First operation	Reoperation	Number of patients (number still alive)
<i>Ipsilateral procedures</i>		
Lobectomy	Pneumonectomy	11 (2)
Wedge excision	Pneumonectomy	1 (1)
<i>Contralateral procedures</i>		
Lobectomy	Wedge excision	4 (3)
Wedge excision	Wedge excision	1 (0)
		<u>17 (6)</u>

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Address for reprint requests: Dr Achim Gabler, Chirurgische Abteilung der Lungenklinik Heckeshorn, Krankenhaus Zehlendorf, Am Grossen Wannsee 80, D-1000 Berlin 39, West Germany.

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Table 2 *Histopathological types of reoperated bronchial carcinomas*

Squamous cell	9 (3)*
Alveolar cell	5 (2)
Adenocarcinoma	3 (1)

*()=number of patients still alive

None of the 17 patients received either chemotherapy or immunotherapy after the primary or secondary operation.

Results

The figure shows our 17 cases, numbered chronologically. A horizontal line is given for each patient, the beginning of which indicates the first operation. The time of reoperation is indicated where the horizontal line meets the vertical line. The length of this line to the right indicates the survival time after the reoperation.

Three patients died of postoperative complications (cases 1, 12, and 13). Necropsy on those patients who died 3–54 months after the second operation revealed residual tumour varying from isolated brain metastasis to generalised carcinoma. Two patients (cases 10 and 15) died during the first year after their reoperation. Two more patients (cases 11 and 14) died exactly one year after their reoperation. Three patients (cases 5, 7, and 8) died before the end of the second year after their reoperation. One patient (case 2) died

54 months after the reoperation. Six patients are still alive, two of whom have now survived their reoperation for more than five years.

The interval between the two surgical procedures varied between six (case 10) and 48 months (case 17), the average being 23 months. There was no relation between this interval and the success of the reoperation.

Discussion

Between 1953 and 1978, 1153 resections for bronchial carcinoma were performed at our hospital.

A reoperation for recurrent bronchial carcinoma in 17 cases gives a rate of reoperation of 1.5%. This seems to be very low and the data shown in table 3 may provide some explanation.

Table 3 shows the spread of the tumour as revealed by 100 necropsies, performed during the

Table 3 *Spread of carcinoma as seen at necropsy in 100 cases previously resected for bronchial carcinoma*

<i>Spread of carcinoma revealed by necropsy</i>	<i>Number of previously resected cases</i>	<i>Number of cases excluding post-operative deaths</i>
No tumour	34	10
Tumour limited to one half of the thorax	20	13
Tumour limited to the thorax (both sides)	9	9
Tumour in the thorax and distant metastases	35	35
Single distant metastasis	2	1

Necropsies 1967–1977

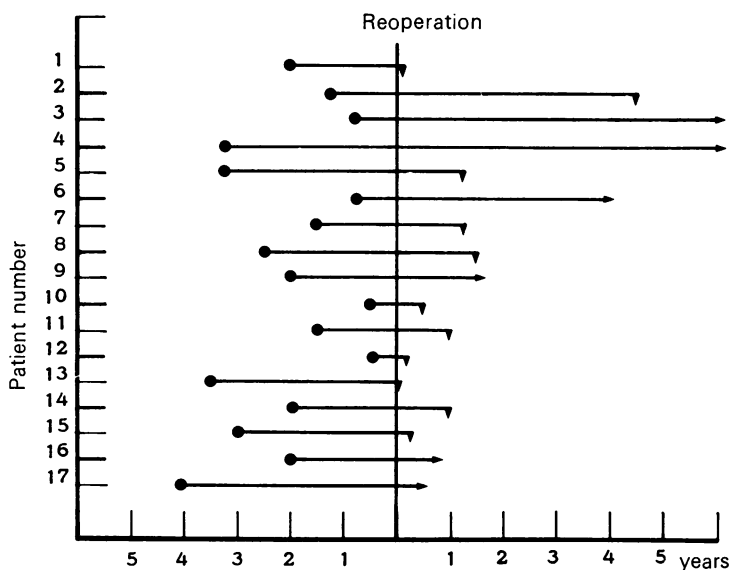


Figure *Interval between the first and second operation and time of survival after reoperation for bronchial carcinoma (see text). ▼ = dead, ▲ = alive.*

years 1967 to 1977. The patients concerned had previously undergone a resection for bronchial carcinoma at our hospital.

Excluding the result of the necropsy in the early postoperative deaths, the data can be summarised as follows. In 10 cases, no tumour at all was found at necropsy. In 22 cases, the spread of the tumour was limited to the thorax itself, and in 13 of these 22 cases, the tumour was situated in one half of the thorax only. This of course does not imply that all 13 cases mentioned above could have been regarded as possible candidates for a reoperation. But it illustrates the fact that the recurrence or the metastases of bronchial carcinoma—always excepting the small cell variety—are often, and for a relatively long period, limited to the thorax itself. If early diagnosis of recurrence would be established in cases similar to ours, the possibility of reoperation might be improved.

In our opinion, three conditions should be met if a chance for reoperation is to be considered.

1 The follow-up after a resection for bronchial carcinoma should be as complete as possible. Chest radiography should be performed three-monthly for the first two years, and then six-monthly. If the patient is unwell or has respiratory symptoms he should be investigated at once and bronchoscopy considered.

2 The follow-up should be a long-term one; it should not cease at five years. Almost half of all our five-year-survivors died between the fifth and the tenth year after the resection, the majority of neoplastic disease.

3 The follow-up should have consequences. The establishment of a new pathological finding must lead to an answer to the questions: is it tumour, metastasis, local recurrence, or a second primary tumour? Is a reoperation possible? This decision does not depend on the nature of the new tumour.^{4 5 8 9}

The possibility of reoperation should not have to be explored and debated for each single new

case. Rather, this possibility must always be considered on principle, provided the following general requirements are met: the first operation was not incomplete, there is no evidence for distant metastasis, and there is no other disease which would shorten the life of the patient more than the tumour itself.

In the case of a new tumour being located ipsilaterally, the reoperation is possible when there is no contralateral pathological finding, when the first operation was a limited resection, and when there is a chance for a radical procedure. In the case of a new tumour being located contralaterally, reoperation is possible when there are no pathological findings at the site previously operated on, and when there is a chance to remove the new tumour with a limited resection.

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