Table 2. Results of Surgical Resection for Mesothelioma.

Study	Year	No. of Patients	Type of Resection	Per Cent of Patients Surviving			Years of Disease-Free Survival
				1 yr	2 yr	5 yr	
Wörn[17]	1974	186	Radical	75	34	9	Not specified
		62	"Palliative"	68	37	10	Not specified
Butchart et al.[14]	1976	29	Radical	30	10	3	3.5; 6
Wanebo et al.[15]	1976	33	Pleurectomy	NS*	30	15	2 to 5+ †
DeLaria et al.[16]	1978	11	Radical	36	27	0	2; 4
Antman et al.[2]	1980	10	Pleurectomy	70	30	10	5

*NS denotes not specified.
†In six patients.

Wanebo et al., 54 had exploratory surgery, and 33 had tumor resections (28 pleurectomies, two pleuropneumonectomies, and three lobectomies).[15] Most patients also received radiotherapy and cyclophosphamide chemotherapy. Of the 33 resected patients, seven were free of disease at 17 to 69 months (median, 24). In addition, five relapsed but survived for five years or more. One perioperative death from myocardial infarction occurred. In addition to disease-free survival resection resulted in a longer median survival time (as compared with patients treated with radiotherapy or chemotherapy or both) and decreased morbidity from chest pain and recurrent pleural effusions.[15] Critics note, however, that prolonged survival might have been expected in these selected patients with surgically approachable disease.

Radiotherapy

Prolonged survival and palliation of pain have been reported by French investigators after megavoltage radiotherapy (median, 4500 rads) delivered to the involved hemithorax.[18] The study group survived a median of 13 months, as compared with 9.8 months for nonrandomized controls given conventional radiation therapy. In addition, intraperitoneal colloidal gold or chromic phosphate (^{32}P) have resulted in substantial palliation of symptoms and occasional cures in anecdotal cases.[9,19] Since the radionuclide can become loculated and cause tissue necrosis, this form of therapy is contraindicated in patients in whom either extensive adhesions or nodules larger than a few millimeters in diameter are present at operation.

Chemotherapy

Response rates in small numbers of patients indicate that doxorubicin (adriamycin) and the alkylating agents, including cyclophosphamide, are probably active single agents against mesothelioma[15,19,20]; response rates are in the range of 20 to 40 per cent. Azacytidine and fluorouracil may also be effective.[19,20] The efficacy of the other standard chemotherapeutic drugs has not been established in mesothelioma, although single case reports of objective responses to standard and investigational agents are sufficiently common to suggest that mesothelioma, unlike related sarcomas, is sensitive to a range of chemotherapeutic agents.

Response rates approaching 30 to 40 per cent have been obtained with combination regimens containing doxorubicin, with palliation of symptoms and a longer median survival time for responding patients.[2,20]

Combined Treatments

Although mesothelioma is widely believed to be resistant to conventional cancer therapy, both surgery and intracavitary radiotherapy have resulted in a few five-year disease-free survivals. Moreover, considerable palliation of recurrent pleural effusions and chest pain appears to result from pleurectomy. Patients treated at one center with a combination of surgery, cyclophosphamide chemotherapy, and radiotherapy survived for longer than those treated with only one or two of these methods.[15] Since doxorubicin appears more effective than cyclophosphamide, the combination of surgery, radiotherapy, and a doxorubicin-containing chemotherapy regimen may improve palliation and increase the number of long-term disease-free survivors. An intensive combined approach, however, is clearly investigational and should be attempted only in cooperation with an ongoing prospective clinical trial.

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