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Factors affecting long-term survival after en-bloc resection of lung cancer invading the chest wall.

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OBJECTIVE: Several reports emphasize the importance of en-bloc resection as the optimal surgical treatment of lung cancer with chest wall invasion. We investigated possible factors which could affect long-term survival following radical resection of these tumors.
METHODS: Between 1981 and 1998, 100 patients (90 male; ten female), with a median
age of 60 years (36-84), underwent radical en-bloc resection of non-small cell lung cancer (NSCLC) with chest wall involvement. Patients with superior sulcus tumors invading the thoracic inlet were excluded from this series. There were 43 squamous and 57 non-squamous tumors. The median number of resected ribs was three
(1-5). Lung resection included 73 lobectomies, two bilobectomies, 18 pneumonectomies and seven segmentectomies. Chest wall resection also extended to the sternum in one patient, the transverse process in one, the costotransverse foramen and hemivertebrae in two. All patients had a complete resection. Sixty-three patients received postoperative radiotherapy and 12 received chemotherapy. Histological data, including differentiation and depth of chest wall invasion, were carefully reviewed. The effect of various factors on survival
were studied.
RESULTS: There were four in-hospital deaths. Lymph node involvement was negative on surgical specimens in 65 patients, and 28 patients had positive N1 nodes; the final histology revealed seven N2 diseases. Chest wall invasion was limited to the parietal pleura in 29 patients and included intercostal muscles, bones and extrathoracic muscles in 67, 24 and seven cases, respectively. The overall 2-year
survival rate was 41%. The 5-year survival for patients with N0, N1 and N2 disease was 22, 9 and 0%, respectively. A local recurrence occurred in 13 patients, with four having a new resection and 45 patients developing systemic metastases. The nodal status (N0-1 vs. N2; P=0. 026) and the number of resected ribs(<2 vs. >2; P=0.03) were survival predictors in univariate analysis. By multivariate analysis, the two independent factors affecting long-term survival were the histological differentiation (well vs. poorly differentiated; P=0. 01) and the depth of chest wall invasion (parietal pleura vs. others; P=0.024).
CONCLUSIONS: Histological differentiation and depth of chest wall involvement were the main factors affecting long-term survival in this series. The role of induction chemotherapy for tumors with poor prognosis should be investigated.