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Synchronous lung and bone metastasis in lung cancer

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Lung and bone are two of the most common sites of metastasis from lung cancer (1,2). At the time of initial diagnosis in certain of patients, metastases seem to be confined to these two organs. In order better to understand the etiology of such specific metastases, a review of patients with synchronous spread to lung and bone from primary lung cancer was undertaken. From 1976 to 2002, 1067 patients were admitted to the University of Tsukuba Hospital for pathologically proven primary lung cancer. TNM staging (3) was performed by computed tomographic (CT) scanning of the thorax and abdomen and a head CT scan or brain magnetic resonance imaging, as well as bone scintigraphy. Fifty (4.7%) patients had synchronous spread to lung and bone at the time of initial diagnosis; the median age was 67 years; and 31 of them were men. Histologically, there were 36 (72.0%) adenocarcinomas, six (12.0%) squamous cell carcinomas, five (10.0%) small cell carcinomas, and three (6.0%) others. Despite the presence of metastases, 27 (54.0 %) patients had a good performance status (PS 0-1) and TN staging (3) was not necessarily advanced: T1: 5 (10.0%), T2: 21 (42.0%), N0-1: 9 (18.0%) and N2: 20 (40.0%). In 24 (48.0%) patients, metastases were confined to these two organs only. Fourteen (28.0 %) patients had synchronous lung, bone, and brain metastases. In 9 (18.0%) patients, synchronous metastases were found in lung, bone, and liver. Among the 50 patients with synchronous spread to lung and bone, the most common metastatic pattern present in 38 (76.0%) patients was that of multiple metastatic sites in both lung and bone. Eighteen of the 24 patients whose metastases confined only to these two organs had multiple metastatic sites in both lung and bone. Solitary metastasis in both organs was quite rare (2 patients; 4.0%). Twenty-nine (58.0%) patients were treat-

ed with platinum-containing chemotherapy; however, only 5 (17.2%) had responded.

Our results suggest that lung and bone might interact closely with a certain type of adenocarcinoma, and that metastasis in both organs might not necessarily be associated with advanced TNM staging. Our results supported the hypothesis that organ-specific colonization by cancer cells may occur owing to specific and close interaction between the cancer cells and the target organ (4). It is possible that synchronous lung and bone metastases may occur even if small primary lesion and without regional lymph node involvement, when the primary tumor is adenocarcinoma of the lung.

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Manuscript was received: 04.12.2002

Provisionally accepted: 06.12.2002

Accepted for publication: 06.12.2002