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Metastatic Bronchogenic Carcinoma Simulating Osteoarthritis

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Metastatic bone disease is common among patients with bronchogenic carcinoma. Occasionally silent, such metastases will most often become symptomatic if untreated, provided the patient survives long enough to permit metastatic growth. Much less common is the patient with bronchogenic carcinoma who has a synovial effusion that simulates lower extremity osteoarthritis.

Case Report

A 63-year-old woman who had osteoarthritis of long standing presented to the rheumatology clinic with a two-month history of increased pain in both knees. Symptomatic treatment with nonsteroidal anti-inflammatory agents was only marginally effective. Pain and tenderness of the medial aspect of the left knee continued, and she began to limp. Plain roentgenograms of the left knee showed early marginal osteophyte formation at the medial aspect of the tibial plateau (Figure A).

Five weeks later, the patient experienced blood-streaked sputum, dysphagia, hoarseness, and weight loss. She had a 40-pack-per-year smoking history. Abnormal physical findings included an 8 x 2-cm mobile, nontender lymph node in the right supraclavicular fossa, wheezing and rhonchi over the left posterior chest, and fluid in the left knee joint. The joint was warm on palpation, and there was some tenderness over its medial aspect.

A chest roentgenogram obtained at this time revealed a 2.5 x 3.0-cm mass in the superior segment of the left lower lobe. Laboratory studies were normal except for alkaline phosphatase of 138 U/L (normal: 35 to 115 U/L) and SGOT of 46 U/L (normal: 9 to 33 U/L). Bronchoscopy revealed a poorly differentiated large-cell carcinoma. A repeat roentgenogram of the left knee revealed a large lytic defect in the proximal tibia (Figure B). Radionuclide bone scan showed increased activity about the left knee. (Although radionuclide bone scans can be abnormal in patients with osteoarthritis, the abnormalities are more often symmetrical and are not accompanied by lytic lesions on the plain films.) Needle biopsy of the synovium was negative for malignancy.

Radiation therapy to the left knee provided relief of pain, but the patient deteriorated and died 19 days later. Permission for autopsy examination could not be obtained.

Discussion

Approximately 1% to 2% of patients with bronchogenic carcinoma have bony metastases at the time of their initial diagnosis (1), most often in the axial skeleton or in proximal bones (2). The traditional explanation is the increased blood flow to these bones through communications with the vertebral venous plexus (3). Distal bone metastases may occur when bronchogenic carcinoma erodes into a pulmonary vein (3). In such cases, a rapidly fatal course caused by tumor dissemination is the usual outcome. Synovial effusions are uncommon among patients with bony metastases from lung cancer, although effusions have been reported in the patellar region (4-7) and in the shoulder (7). In a series of three patients with synovial effusions (two of whom had primary bone tumors), Lagier postulated that the malignant cells might liberate a substance with antigenic or enzymatic properties that would cause the synovitis (8). Although hypertrophic osteoarthropathy can rarely cause a mild synovitis (9), pain and tenderness in the bone, rather than in the joint space, generally dominate the clinical findings.

This case illustrates an unusual presentation of bronchogenic carcinoma in a patient who was initially believed to have degenerative joint disease. The presence of an elevated alkaline phosphatase is distinctly unusual among patients with osteoarthritis. Such a laboratory finding should cause the physician to search for metastatic carcinoma so that more appropriate and specific treatment can be given.
References