Case Report 185

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Fig. 1 A and B. Anteroposterior and lateral roentgenograms of the lower half of the femur demonstrate a sclerosing lesion of the femur, extending from the middle third of the femoral shaft for a considerable distance distally. The zone of transition around the area of sclerosis is wide. Periosteal reaction suggests a "sunburst" configuration. A soft tissue mass is not definitely defined.

Fig. 2. A selective arteriogram of the right profunda femoris artery demonstrates no definite neovascularity. The "sunburst" appearance of the skeletal lesion is particularly well observed on the subtraction roentgenogram.

History

This 56-year-old woman presented with a six-month-history of an enlarging, painful mass in the distal end of the right thigh. No systemic symptoms or weight loss had been present. Further history is withheld.

Radiological studies disclose an osteoblastic lesion involving the distal half of the femur with a "sunburst" pattern of periosteal reaction. Arteriography was performed, demonstrating a soft tissue component of the mass without definite evidence of neovascularity. A radionuclide bone scan showed abnormal activity in the right femur (corresponding to the lesion illustrated radiologically) and the left 10th rib. The workup was otherwise normal.

A biopsy of the femoral shaft lesion was performed.

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Histological Studies

Fig. 3A and B. A A photomicrograph obtained from the histological sections of the lesion in the lung (H and E stain ×237.5) shows sheets and cords of cells intermixed with small gland-like structures. The cells in all areas have eosinophilic cytoplasm and oval or round nuclei with evenly dispersed chromatin. Nucleoli are not prominent and mitoses are not observed. This photomicrograph illustrates a formation of glands by columnar cells with bland, round nuclei. B This photomicrograph of the biopsy specimen from the lesion of the femoral shaft (H and E stain, ×237.5) shows a gland-like formation similar to that in the lesion of the lung described in A. Differences of fixation contribute to cell shrinkage and hyperchromatic nuclei. The photomicrographs in A and B establish the diagnosis of carcinoid. They show a striking similarity between the histological structure of the primary lesion of the lung and the skeletal metastasis.

Diagnosis: Metastasis to the Femur from a Bronchial Carcinoid Tumor

The differential diagnosis includes osteosarcoma and chronic sclerosing osteomyelitis.

Discussion

The patient had undergone a lobectomy (left upper lobe) six years previously for a malignant carcinoid tumor. The surgical margins at the time of the original operation were free of tumor. The patient had been asymptomatic from the time of surgical removal of the bronchial carcinoid until the development of the mass in the right thigh.

Biopsy of the femoral shaft lesion demonstrated metastatic tumor resembling the initial bronchial carcinoid lesion histologically (Fig. 3 A and B).

Bronchial carcinoids account for 85–95% of bronchial adenomas and for 4% of primary lung neoplasms. They are similar histologically to gastrointestinal carcinoid tumors, except that they rarely contain argentaffin granules. Cells within the bronchial glands which appear closely related to the gastrointestinal Kulchitsky cells (from which gastrointestinal carcinoids arise) are generally considered to be the site of origin of the bronchial carcinoid. Although usually regarded as benign, bronchial carcinoid adenomas often demonstrate low-grade malignant potential. Approximately 10% of these tumors metastasize, usually to local lymph nodes, but occasionally to liver and bone.

The natural history of malignant carcinoid is quite variable. Diffuse bony metastases may be present at the time of diagnosis of the primary bronchial adenoma, or may occur as a single osteoblastic lesion as late as 20 years after resection of the primary pulmonary lesion.

Bronchial carcinoids only occasionally produce the carcinoid syndrome, and when this occurs, widespread metastatic disease, usually with liver involvement, is present. Abdominal carcinoids, in contrast, are more likely to produce the carcinoid syndrome.

Skeletal metastases from bronchial carcinoids are uncommon and only 17 cases had been reported by 1975. The metastases are usually diffusely sclerotic and indistinguishable from prostatic carcinomas. The “sunburst” appearance observed in this patient is rare and mimics remarkably the appearance of an osteosarcoma. Despite their radiological similarity,