

Two Unusual Causes of Peripatellar Nonmetastatic Positive Bone Scans in Patients with Malignancies: Case Reports

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Bone scans performed with ^{99m}Tc -polyphosphate in two patients with epidermoid carcinoma of the lung each showed activity in one knee area. In the first case, radiographs of the area revealed Pellegrini–Stieda calcification over the internal femoral condyle. Uptake corresponded to this process, rather than to a lesion deep in the bone. In the second case, the activity accumulation in the right tibia was the only abnormality noted in the scan. An open biopsy revealed Paget's disease, and no radiographic evidence of Paget's disease was found in any other bone. These cases again illustrate that localized accumulation of a bone-scanning agent, in patients with known primary tumors, does not necessarily denote malignancy in bone.

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Bone scans have been widely employed to detect intraosseous spread of malignancies arising in other sites. For example, tumors of the prostate and breast are particularly prone to metastasize to bone (1). However, nonmalignant disorders also result in positive bone scans (2,3). We wish to report two cases in which peripatellar accumulation of ^{99m}Tc -polyphosphate, in patients with known epidermoid carcinomas, turned out to be due to unusual nonmalignant causes.

CASE REPORTS

Case 1. Two years after a left pneumonectomy for epidermoid carcinoma in a 63-year-old man, whole-body skeletal imaging was performed after intravenous administration of ^{99m}Tc -polyphosphate. Intense accumulation was seen in or near the internal femoral condyle in the right leg (Fig. 1). The remainder of the examination was within normal limits. Detailed x-ray films made of the right knee region showed a Pellegrini–Stieda type of calcification adjacent to the internal femoral condyle (Fig. 1). This was in a somewhat amorphous (and therefore possibly recently acquired) and active phase. Multiple angu-

lated views showed that the area of radionuclide accumulation lay in the soft tissue and condyle, rather than deep within the bone.

Case 2. A 53-year-old man with a long history of smoking had a routine chest x-ray that showed a right lower lobe infiltrate. After a 10-day course of antibiotics failed to clear the lesion, a bronchoscopy was performed. A section of a tumor involving the right bronchus was described as showing a poorly differentiated epidermoid carcinoma. A whole-body scan with ^{99m}Tc -polyphosphate was only abnormal in that it revealed an area of increased uptake in the right tibia (Fig. 1). Radiographs of the right knee (Fig. 1) showed an alteration of the trabecular pattern, but additional history from the patient revealed an old injury in this area. An open biopsy of the right proximal tibia revealed Paget's disease without evidence of tumor. There was no radiographic evidence of Paget's disease in other bones.

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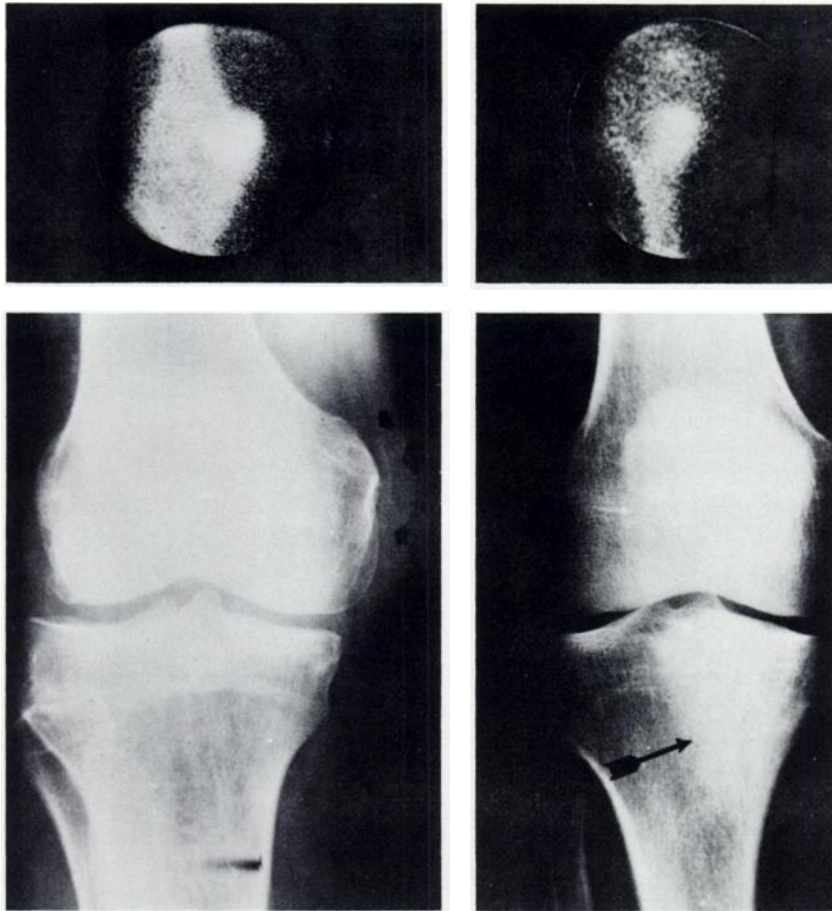


FIG. 1. Scintigrams and corresponding radiographs of knee area in Cases 1 (left) and 2 (right).

DISCUSSION

Pellegrini-Stieda's disease is the eponym for peritendinitis calcarea of the medial collateral ligament of the knee joint (4). The mechanism may be a hematoma or inflammatory edema developing as a result of tearing and shredding of fibers at their femoral attachment, perhaps due to trauma. The damaged soft tissues degenerate and become necrotic, forming a locale for deposition of calcium salts. Eventually, the inflammation either subsides with partial or complete resorption of the calcium salts, or the mass becomes ossified and may be connected by a pedicle to the femoral condyle. The hard mass constitutes a permanent obstruction to movement of the ligament. Adhesions may form between the ligament and the surface of the condyle below the epicondyle, further restricting movement.

Case 1 is apparently the first report of an intense accumulation of ^{99m}Tc -polyphosphate in the region of the internal femoral condyle due to Pellegrini-Stieda's disease. Without exercising proper caution, this could have been misinterpreted as metastasis to the right knee.

In Case 2, the correct diagnosis was established only after open biopsy of the right proximal tibia.

Radiographically, the remarkable finding was that the skeletal changes were limited to a very small part of the tibia. Involvement of a portion of a bone by Paget's disease is sometimes referred to as merostotic Paget's disease. These cases point out that many conditions (2,3,5,6) other than metastatic bone disease can result in a positive bone scan. Indeed, when the area near a joint is considered, arthritis and metabolic bone disease should both be thought of in the differential diagnosis of increased uptake of a bone-scanning agent (7,8).

The two cases illustrate that the occurrence of increased accumulation on a bone scan, in patients with a known primary tumor, does not establish that metastases are present. Bone scans have great sensitivity, but their specificity is low: "benign" lesions can give positive scans.

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