Tumor Calcinosis Imaged by Bone Scanning: Case Report

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The typical symmetric lesions in a patient with tumor calcinosis avidly accumulated bone-seeking compounds. Thus, bone scanning is very helpful in the diagnosis of this rare disease, especially if the calcareous masses are not situated periarticularly.


Accumulation of $^{99m}$Tc-labeled phosphate compounds in soft-tissue calcifications due to dermatomyositis or calcinosis universalis have been reported (1–3). Similar accumulation was seen in a case of tumor calcinosis studied by clinical, radiologic, and scintigraphic methods.

CASE REPORT

A 68-year-old white woman was admitted to the hospital with a painful rapidly growing swelling below the left elbow. An initial radiograph showed a lobulated calcified mass over the otherwise intact left radius (Fig. 1). A routine whole-body scan with $^{99m}$Tc-diphosphonate, performed because of the strong suspicion of malignancy, surprisingly revealed a marked symmetric accumulation of the agent in both forearms, without osseous lesions elsewhere. On the regional scans these focal concentrations contrasted sharply with the normal uptake of the unaffected underlying bone (Fig. 2). The same findings were seen on a second bone scan performed with $^{85}$Sr.

A radiographic check of the right arm confirmed the suspected symmetry of the disease (Fig. 1). Repeated tests for serum phosphorus, calcium, and alkaline phosphatase were normal. At operation a calcareous tumor, 8 cm in diameter, was found near the left radial bone. The tumor consisted of several cysts filled with a milky fluid. Histologic examination revealed a typical tumor calcinosis.

DISCUSSION

Tumor calcinosis is a rare disease of unknown cause (4–9). The dense multinodular calcareous masses are generally at or near joints, but sometimes, as in our case, they may be found distant from joint areas. All laboratory studies are normal except for occasional hyperphosphatemia (4,9); there is seldom any elevation of the serum alkaline phosphatase.

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(8,9). On pathologic examination the tumors are seen to be surrounded by a connective tissue capsule. The cysts contain a white suspension of carbonate and calcium phosphate crystals. Histologically the walls of the cysts are coated with mononuclear cells rich in alkaline phosphatase. Most cases have been reported in non-white races (7,8).

The characteristic symmetric deposits of calcareous masses within normal soft tissues were first shown by bone scanning. The reason for the high uptake of phosphate compounds in tumor calcinosis is not clear, but the disease must be similar to other well-known osteogenic processes with elevated alkaline phosphatase. The uptake of 85Sr in the lesions was also relatively increased, paralleling that of the labeled phosphates.

The radiologic differential diagnosis includes periarticular calcification in myositis ossificans, calcinosis universalis, renal insufficiency, milk-alkali syndrome, and vitamin-D intoxication. Furthermore, such systemic disorders as scleroderma or dermatomyositis, which may also produce soft-tissue calcification, must also be excluded. The typical symmetric multinodular appearance of the calcified masses, the normal serum electrolyte and enzyme values, the normal skeletal radiographs, and the intense uptake of radioactive tracers must lead to the diagnosis of “tumor calcinosis.”

REFERENCES


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