

POSITIVE ⁸⁵Sr BONE SCANS IN PERIOSTEAL NEW BONE FORMATION

The authors of the article "Positive ^{87m}Sr Bone Scan in a Case of Hypertrophic Pulmonary Osteoarthropathy" (1) are to be congratulated for their interesting presentation. Their article shows how the paraneoplastic hypertrophic bone formation in bronchogenic carcinoma can simulate metastatic skeletal lesions on the bone scintigram. In contrast to metastases, however, the increased strontium uptake in the areas with new bone formation returns to normal after radiotherapy of the pulmonary tumor according to our experience (2).

A similar pattern of the skeletal scan as in cases with pulmonary hypertrophic osteoarthropathy is found in the EMO syndrome, also called "thyroid acropachy." This syndrome is characterized by a triad of signs, exophthalmos, circumscribed myxoedema, and periosteal new bone formation. It occurs

in patients who are or have been hyperthyroid. Reports on the syndrome are rare; its incidence is supposed to be about 0.1% of all thyroid patients. However, by application of bone scintigraphy even in subclinical and radiological inapparent cases the osteoarthropathy can be diagnosed.

E. U. BIELER
Atomic Energy Board
Pretoria, South Africa

REFERENCES

1. CHAUDHURI TK, CHAUDHURI TK, SCHAPIRO RL, et al: Positive ^{87m}Sr bone scan in a case of hypertrophic pulmonary osteoarthropathy. *J Nucl Med* 13: 120-121, 1972
2. BIELER EU, ALBRECHT HJ: The scintigraphic picture of hypertrophic osteoarthropathy. *Nuclearmedizin* 10: 196-200, 1971

AUTHOR'S REPLY: POSITIVE BONE SCINTIGRAPHY IN SECONDARY HYPERTROPHIC OSTEOARTHROPATHY

We are glad to know that both Dr. Bieler's group (1) and our group (2) have independently confirmed each other's observation on positive strontium bone scan in hypertrophic pulmonary osteoarthropathy (HPO). In addition, they have illustrated positive bone scan in another variety of secondary osteoarthropathy, namely, EMO syndrome, also known as "thyroid acropachy" (3,4). The syndrome of thyroid acropachy (TA) is characterized by clubbing of the fingers, exophthalmos, and pretibial myxoedema. Bone changes are often present, but they are not necessarily a part of the syndrome.

TA is a rare manifestation of Graves' disease. When it occurs, it usually follows subtotal thyroidectomy, ¹³¹I therapy, or antithyroid drugs. However, it may also be associated with active hyperthyroidism. Despite the greater incidence of hyperthyroidism in females, TA is more common in males. The course of TA is usually benign. The osteoarthropathy of TA does not respond to thyroid administration.

This disease results in changes not only in the bones but also in the soft tissues. Roentgenographic examination reveals marked soft-tissue enlargement involving the hands, ankle, feet, and toes particularly on their dorsal aspects. Bone changes include peri-

osteal new bone formation particularly on the dorsal aspects of the metacarpals (minimal bone changes in the metatarsals) and to a lesser extent along the distal half of the radius, ulna, tibia, and fibula (cf. HPO). The roentgenographic appearance of periosteal reaction in HPO and TA differs in that in the former the periosteal reaction is lamellar and oriented parallel to the long axis of the bone while in the latter periosteal reaction is composed of vertical striations creating a slightly feathery appearance (bubbles on the bone surface).

Although the exact pathogenesis of osteoarthropathy following post-treatment hypothyroidism is not known, it is thought that the sudden change from a condition of hyperthyroidism to one of hypothyroidism with resultant circulatory changes is the factor responsible for osteoarthropathy in these cases. Thus removal of the causative factors results in regression of the periosteal new bone formation in HPO, whereas removal of the diseased gland is the usual antecedent in TA. The role of pituitary dysfunction in TA remains unclear.

The radiological and/or clinical regression of HPO occurs not only after radiotherapy but may also happen following several other procedures (5,6)