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Two possible explanations are suggested for the disappearance of the toxic autonomous nodule during therapy with sodium salicylate and PTU. One is that the nodule was found early in its development, and the inhibitory effects of PTU caused complete regression before formation of fibrous stroma, cystic degeneration and other irreversible changes could occur. Another possibility is that the extranodular, partially suppressed, thyroid tissue was involved with subacute thyroiditis at the time of the initial studies. The right upper-pole nodule may have been the first area undergoing regeneration and recovery from earlier thyroiditis, whereas the suppressed thyroid tissue was still inflamed. A biopsy was not performed. This hypothesized inflammatory process may have been beneficially affected by the sodium salicylate, PTU, or spontaneous remission over the period of a month.

In the article by Kammer and Loveless, we note that a T3 RIA was not reported on the patient's initial workup. Perhaps at that time there was a T3 thyrotoxicosis present. The patient then received an injection of TSH on each of three consecutive days. One week following the TSH injections, the thyroid nodule had shown no change. The patient was then placed on an antithyroid medication and the nodule disappeared. Our cases seem very similar. The autonomous nodule in both patients disappeared while on antithyroid drugs in a period of several weeks. To resolve the above questions, it might be helpful to examine similar cases of early autonomous nodule with needle biopsy of both the autonomous and suppressed regions in a small number of selected cases.

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REFERENCE


Bone Scintigraphy: Radiation-induced Cartilaginous Exostosis

The deleterious effects of radiation upon differentiating tissue are recognized. Radiation therapy in children may produce damage in the lungs, intestine, kidney, liver, salivary glands, eye, spinal cord, heart, and bone (1). Damage to bone may result in scoliosis, deformities of the vertebral body and pedicle, necrosis, or pathologic fracture, as well as malignant and benign tumors (2-4). The following case illustrates a radiation-induced cartilaginous exostosis.

A 2-year-old child was first seen in October of 1974. A retinoblastoma of the right eye was found, and the eye was enucleated. Bone scintigraphy, radiographic skeletal survey, and bone-marrow aspiration were normal. In August of 1975, pain developed in the right fibula. Bone scintigraphy, skeletal radiograms, and marrow aspiration revealed a metastasis to the distal right fibula. A total exposure of 3000 R over a 6-wk period was delivered in a 22- by 7-cm field that included the distal femur and the entire tibia and fibula. Figure 1 shows a bone scintigram and radiograph 2 years following radiation therapy. Figure 2 shows an interval study a year later. There is a focal area of increased activity lateral to the distal femoral metaphysis.

Bone abnormalities produced in children who have undergone therapeutic radiation are primarily related to: (a) patient's age, (b) total dose delivered, and (c) area irradiated. In general, the younger the child and the larger the radiation dose, the higher the incidence of bone abnormality. Regional effects differ somewhat: impairment of chondrogenesis with epiphyseal irradiation; abnormal resorption with metaphyseal irradiation; and altered periosteal bone deposition with diaphyseal irradiation. The maximum effect is usually to the epiphysis (5).

In animal studies, it has been proved that benign cartilaginous tumors can be produced by irradiation (6). The mechanism by which radiation produces cartilaginous exostosis in children is not clear. These benign cartilaginous tumors are probably secondary to the associated metaphyseal-diaphyseal growth impairment combined with the aberrant epiphyseal growth pattern. The radiographic and scintigraphic appearances are illustrated in Fig. 2.

To date, 35 such cases have been reported (4), with only radiologic documentation. We have not heard of malignant degeneration of these exostoses despite the 1-5% incidence of spontaneous malignant degeneration of a solitary cartilaginous exostosis. (7-10).

In scintigraphic appearance, a radiation-induced exostosis looks like other exostoses (11). Several views may be needed to

FIG. 1. (Top) No abnormal activity noted in Tc-99m methylene diphosphonate bone image (2 hr delayed study). (Bottom) Skeletal radiograph. Arrows mark dense metaphysis, resulting from failure of normal resorption.
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FIG. 2. (Top) Tc-99m methylene diphosphonate bone image, delayed 2 hrs. Solid arrow marks exostosis. (Bottom) Skeletal radiograph. Solid arrow marks a typical exostosis. Demonstrate the lesion's position, which is peripheral to the shaft of the long bone. A superimposed exostosis may mimic a metastatic lesion.

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Time for a FASORS?

The greatest impediment to progress is a desire to maintain the status quo. Thus, the aphorism—no problems, no progress.

By now, the Executive Director and her assistant have resigned as administrators of the Society of Nuclear Medicine. Their leaving will be a great loss, but at the same time it stimulates us to take a fresh look at the entire administrative structure of the Society of Nuclear Medicine, as well as the relationship of nuclear medicine to other medical disciplines.

I believe that the time has come to form a Federation of American Societies of Radiological Sciences (FASORS) with the Society of Nuclear Medicine and one or more related societies as founding members with an invitation to others to join subsequently. An analogous structure is the Federated Societies of Experimental Biology (FASEB), which includes organizations such as the American Physiological Society and other basic science organizations in medicine.

Why should we form such a Federation? Few would deny that medicine in general and the radiological sciences in particular face substantial problems, many of which are in common and could be solved more effectively by combining our efforts, expertise, and resources. For example, the presentation of our views to the governmental agencies in Washington could be more effectively advanced, yet with greater economy to each organization. The costs of annual meetings of the various societies could be reduced if they were held in sequence at the same location. Of greater importance would be the opportunity for each discipline to be aware of the advances in associated areas, scientific, technical, governmental, etc. These opportunities and economies would benefit both the component societies and the individual members. Some may feel that the Society of Nuclear Medicine could lose its sense of identity; however, with the philosophy of unity in diversity, the identification of the individual component societies would be retained, as they are in other similar groups, including FASEB.

Among the greatest needs of clinicians and scientists in the various disciplines of the radiological sciences is that of retaining a strong central core of persons whose professional lives are dedicated to their disciplines, as they increasingly collaborate with associated specialists, such as cardiologists and neurologists. More than most physicians, we are concerned with the diagnostic process. We do not limit ourselves to diseases of a single organ or organ system. Together we could have a unifying effect on the increasingly important and complicated area of medical diagnosis. We must convince the public and our political leaders that our technology, although at times expensive, serves primarily to reduce the “guesswork” in medical diagnosis and therefore reduces costs of delayed or wrong treatment.