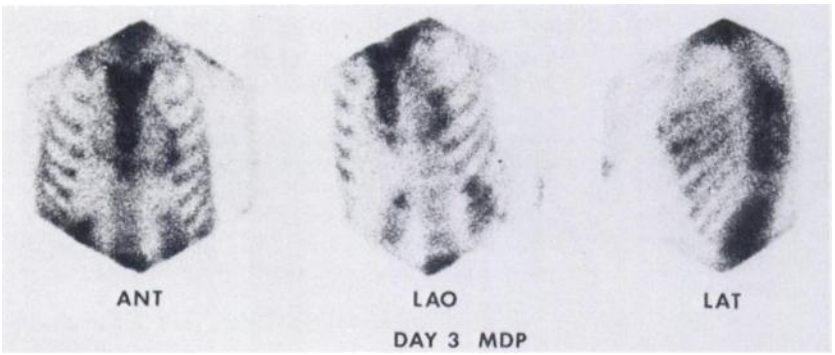

FIG. 1. Technetium-99m MDP scan showing uptake compatible with inferolateral myocardial infarction and accumulation of tracer in pericardial silhouette.

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False-Positive Fluorescence Thyroid Scan for Ectopic Thyroid Tissue

The first imaging system for clinical studies devised for thyroid iodine mapping by fluorescent techniques was reported by Hoffer et al. in 1968 (*1*). In a comparative study on patients having both fluorescent and conventional radionuclide scans, these investigators found that the fluorescent thyroid scan was technically comparable to the conventional thyroid scan and that the iodine content of the thyroid gland could be assessed by this method (*2–4*).

Recently, Patton et al. (*5*) have proposed that fluorescent thyroid scanning might be a useful predictor of malignancy in solitary nodules cold to conventional radionuclide scanning, and thus they have renewed interest in this method of thyroid imaging.

We wish to report a case in which a structure not contiguous with the thyroid—a left supraclavicular lymph node —contained iodine from a previous lymphangiogram and gave rise to a false-positive fluorescence thyroid scan as long as 2 yr later. The possibility of false-positive thyroid scans with respect to the location of ectopic thyroid tissue does not need to be considered in the conventional scan using pertechnetate or iodide, because functional thyroid tissue is required. We wish, therefore, to bring this observation to the attention of those using fluorescence scanning for thyroid diagnosis.

A 21-year-old woman had a history of syncopal episodes. On examination, there was tachycardia but no thyroid enlargement, bruit, or tenderness. Total thyroxine was 16.7 μg/dl (normal 4–11), and triiodothyronine uptake was 40% (normal 25–35%). An electrocardiogram showed paroxysmal atrial tachycardia. A diagnosis of hyperthyroidism was made, and the patient was given propranolol (Inderal), 30 mg four times a day.

Total thyroxine, assayed several times during the following weeks, ranged from 12.4 to 15.9 μg/dl, and triiodothyronine uptake, from 52.3 to 52.9%. Twenty-four hour I-131 uptake was 1%, and this increased to 6% after 3 days of administration of thyroid-stimulating hormone. A technetium thyroid scan after thyroid-stimulating hormone revealed a normal-sized thyroid gland.

Two months later, the patient was evaluated at this institution, and she related no significant history for that interval. Examination of the thyroid was normal and pulse rate was normal. Total serum thyroxine was 7.2 μg/dl, and triiodothyronine was 135 ng/dl (normal 120–312). Iodine-131 uptake was 5% at both 6 and 24 hours. A thyroid scan with 200 μCi of I-131 showed low and somewhat irregular uptake in a normal-sized thyroid gland; there was no evidence

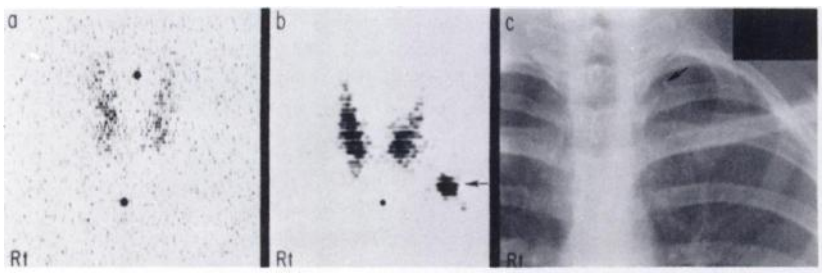

FIG. 1. (a) Thyroid scan performed with 200 μCi of I-131. (b) Fluorescent thyroid scan performed 1 day before that in (a), showing an area of high iodine content in left supraclavicular region (arrow). (c) Anterior chest roentgenogram showing iodide in supraclavicular lymph node (arrow) from previous lymphangiogram.

of abnormal uptake in the rest of the body. A diagnosis of thyrotoxicosis with low radioactive iodine uptake was made (*6*).

A thyroid fluorescent scan (Fig. 1b), part of an investigative protocol, showed a similar iodine distribution and thyroid size as were seen on the I-131 scan (Fig. 1a). Total iodine in the gland was estimated to be 13.4 mg by the use of a corrective factor for absorption by overlying tissues established in our laboratory. In addition, however, an area of high iodine content, which was not seen on the radioiodide scans, was noted in the left supraclavicular region (Fig. 1b). A chest roentgenogram revealed a radiopaque area consistent with an iodine-containing supraclavicular lymph node due to lymphangiography performed 2 yr previously (Fig. 1c).

Nijensohn et al. (*7*) should be credited with the first report on identification of extrathyroidal iodine. They described a similar situation observed a few days after lymphangiography, and again a month later. We show here that 2 yr later iodine can still be measurable by x-ray fluorescence.

This case stresses the fact that in fluorescence scanning of the thyroid, iodine concentration is the parameter being measured, rather than uptake and organification as in the conventional scan. Therefore, in interpretation, the information is not interchangeable.

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Bone Scan as a Diagnostic Aid in Hodgkin's Disease

We wish to report a unique circumstance in which a positive bone scan was crucial in diagnosis of a case of Hodgkin's disease stage IV, nodular sclerosing type. The patient, a 21-year-old black male, presented with a 4-mo history of progressive weakness, night sweats, 45-lb. weight loss, and pain in the sacroiliac and right tibial regions. Physical examination was remarkable only for emaciation,

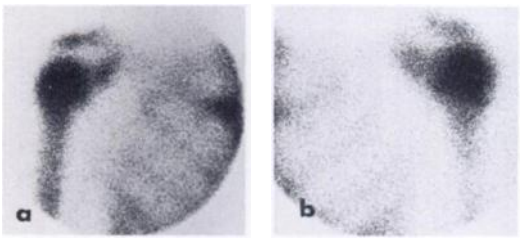

FIG. 1. Bone scintiphoto with Tc-99m pyrophosphate, showing increased uptake in proximal right humerus. (a) = right shoulder; (b) = left shoulder.

FIG. 2. Bone scintiphoto with Tc-99m pyrophosphate, showing increased uptake in proximal right upper tibial extremity (to viewer's left).

left axillary adenopathy, and splenomegaly. Chest x-ray and IVP were normal. A metastatic survey was interpreted initially as normal. Bone scintigrams (Tc-99m pyrophosphate) showed areas of radionuclide accumulation in proximal right humerus and proximal right tibia (Figs. 1 and 2).

Biopsy of a left axillary note was reviewed by several pathologists and found consistent only with dermatophytic hyperplasia. Using the bone scan as a guide, biopsies of both iliac spines and the right proximal tibia were performed. Although the biopsies were suggestive of Hodgkin's disease, in the absence of definitive lymph-node biopsies, a firm diagnosis could not be made. A laparotomy confirmed the diagnosis of Hodgkin's disease, nodular sclerosing type, involving spleen, a splenunculus, and iliac, paraortic, and splenic hilar nodes.

Nodular sclerosing Hodgkin's disease occurs most frequently among histologic types, constituting in one series 74%. This disorder is usually localized (stages I and II), with cervical and mediastinal presentation. Initial clinical findings limited to bone is almost unique. With respect to Hodgkin's disease, the bone scan is generally considered of limited value (*1*). In one series, bone biopsies, performed routinely in patients with nodular sclerosing Hodgkin's disease, were positive in only 4% of cases (*2*).

In our patient the bone scan was crucial, confirming patient's complaint and guiding site selection for diagnostic biopsy. Interpretation of bone biopsy findings in Hodgkin's disease is difficult (*3*), often only supporting lymph-node studies. Features suggested by the bone biopsies in this case mandated evaluation of abdominal lymph tissues to assure accurate diagnosis. Diagnosis in this instance would have