

IDENTIFICATION OF IODINE IN A SUPRACLAVICULAR LYMPH

NODE FOLLOWING LYMPHOGRAPHY: A FLUORESCENT SCAN ARTIFACT

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A fluorescent scan of the neck revealed deposition of iodine-containing contrast material in a cervical lymph node of a patient who had undergone lymphography.

A 64-year-old white female was admitted to The University of Chicago Hospitals and Clinics to determine the cause of her persistent fever. On physical examination the thyroid gland was non-nodular and normal size but tender to palpation. No cervical adenopathy was noted. A fluorescent thyroid scan was ordered. The fluorescent scan (Fig. 1) demonstrated a normal-appearing gland; however, an additional area of iodine-containing tissue was noted adjacent to the lateral aspect of the left lobe of the thyroid. The conventional ^{125}I scintigram (Fig. 2)

performed 1 day after the fluorescent scan showed no radioisotope uptake in this area.

Review of the patient's hospital record revealed that some days before her thyroid scan, she had undergone lymphography as part of her diagnostic evaluation. (The lymph gland was abnormal with an enlarged and poorly visualized left iliac node. This subsequently proved to represent a metastasis from a teratocarcinoma of the left ovary.)

Examination of the patient's chest roentgenograms (Fig. 3) following lymphography revealed that lymphographic contrast material was present in a

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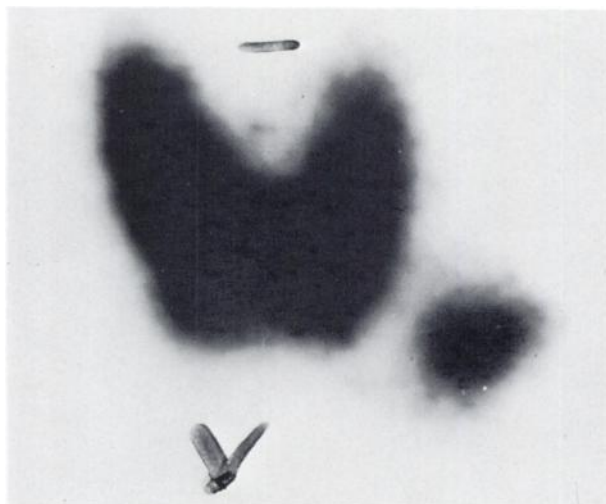


FIG. 1. Fluorescent scan.

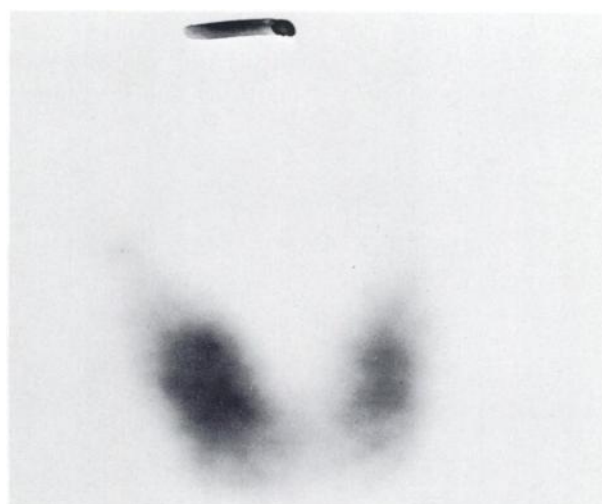


FIG. 2. Conventional scan.

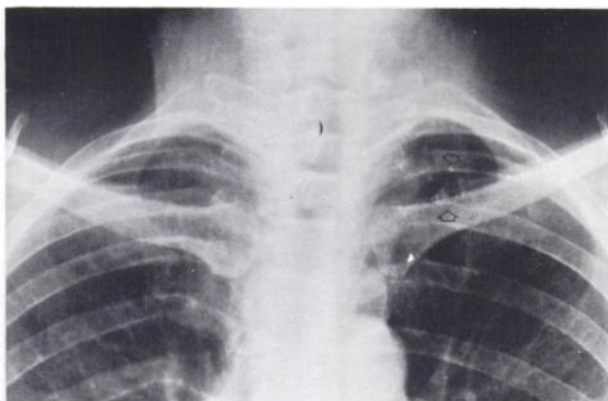


FIG. 3. Chest x-ray showing iodine in lymph node.

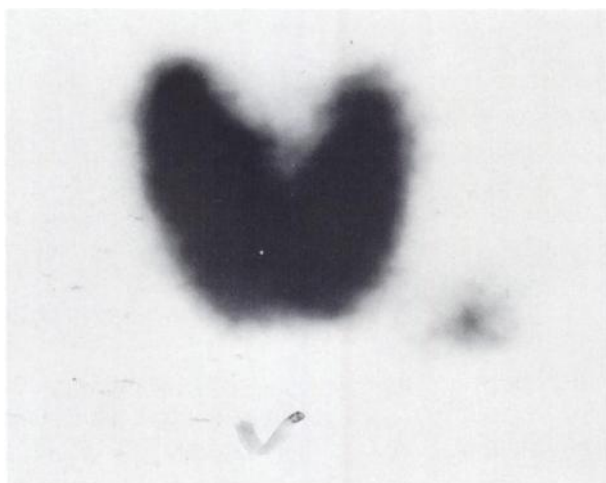


FIG. 4. Fluorescent scan.

lymph node in the left supraclavicular area corresponding to the area of increased iodine content seen on the fluorescent scan. A repeat fluorescent scan 1 month later (Fig. 4) demonstrated a moderate decrease in the iodine content of the lymph node.

Thyroid scans at The University of Chicago Hospitals and Clinics are routinely performed, using both conventional radionuclide techniques and fluorescent

scintigraphy as described by Hoffer, et al (1-4). The fluorescent scan technique is based on the displacement of an iodine k-shell electron by a photon with greater energy than the k-shell binding energy. Following the displacement of the k-shell electron, the vacancy is filled with an electron from an outer orbital shell with the release of energy as characteristic x-radiation. The 60-keV gamma emission of ^{241}Am is used as the incident photon.

The fluorescent scan provides information about the distribution of iodine in the thyroid gland but gives only indirect information about the gland function. The findings on the fluorescent scan usually correspond to findings on the radionuclide scan. However, in thyroiditis, no iodine is seen in the thyroid gland although the radionuclide uptake may be normal. Normal iodine content is noted in suppressed normal thyroid tissue when radionuclide uptake is depressed. The iodine content of the thyroid gland is also normal in spite of a flooded serum iodide pool which will depress radionuclide uptake.

Over 700 fluorescent thyroid scans have been performed to date at our institution. This is the first case in which extrathyroidal iodine has been identified. It is important to recognize that extrathyroidal iodine accumulations from any source may produce artifactual lesions on the fluorescent scan. Otherwise, these accumulations may be misinterpreted as representing "ectopic" or metastatic thyroid tissue in adjacent lymph nodes.

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