

4. WILLIAMS IR, FULMER CB: Excitation functions for radioactive isotopes produced by protons below 60 MeV on Al, Fe, and Cu. *Phys Rev* 162: 1055-1061, 1967

5. BLASER JP, BOEHM F, MARMIER P, et al: Fonctions d'excitation de la réaction (p,n). *Helv Phys Acta* 24: 31-38, 1951

6. WING J, HUIZENGA JR: (p,n) cross sections of ^{51}V , ^{52}Cr , ^{63}Cu , ^{65}Cu , ^{107}Ag , ^{109}Ag , ^{111}Cd , ^{114}Cd , and ^{139}La from 5 to 10.5 MeV. *Phys Rev* 128: 280-290, 1962

7. JOHNSON CH, GALONSKY A, INSKEEP CN: Cross sections for (p,n) reactions in intermediate-weight nuclei. *Re-*

port No. ORNL-2910, Oak Ridge National Laboratory, 1960, pp 25-28

8. HANSEN LH, ALBERT RD: Statistical theory predictions for 5- to 11-MeV (p,n) and (p,p') nuclear reactions in ^{51}V , ^{59}Co , ^{63}Cu , ^{65}Cu , and ^{106}Rh . *Phys Rev* 128: 291-299, 1962

9. HOWE HA: (p,n) cross sections of copper and zinc. *Phys Rev* 109: 2083, 1958

10. GREENE MW, LEBOWITZ E: Proton reactions with copper for auxiliary cyclotron beam monitoring. *Int J Appl Radiat*: submitted for publication

AN UNUSUAL SITE OF RADIOIODINE CONCENTRATION IN A PATIENT WITH THYROID CANCER

We read with interest a letter from Schall, et al (1) pointing out the importance of proper bowel cleansing before ^{131}I whole-body scans in a search for metastases in a patient with thyroid cancer. The knowledge of the usual sites of radioiodine concentration in the body is essential for the correct interpretation of the total-body or profile scan in such a case. However, as these authors point out, the real pitfall in the correct diagnosis is concentration of ^{131}I in a lesser known site. We would like to report an unusual concentration of radioiodine in one of our patients in nonlactating breasts that made the diagnosis difficult and scan findings misleading.

A 35-year-old married female with a histologically proved follicular carcinoma of the thyroid, for which total thyroidectomy was carried out, showed during a whole-body scan, 48 hr after administration of 1 mCi of ^{131}I , the appearance over mediastinum shown in Fig. 1. X-ray of the chest had not shown

metastases in the lungs. It was observed that the site of maximum concentration of radioiodine shifted when the position of the breast was altered manually.

During subsequent post-therapy scans and large dose followup tracer studies over a period of 5 years, the concentration over the region of the breasts was invariably visualized while chest x-rays during this period did not show evidence of metastases in the lungs.

Secretion of radioiodine in the milk of lactating mothers is well known, but concentration of radioiodine in nonlactating breasts is rare and only one such case has been reported in the past (2).

The radioactivity in the region of the breasts may be easily mistaken for functioning metastases in the lung. Although it is frequently mentioned that scans may show metastatic deposits in the lungs despite a negative skiagram, the possibility of concentration of radioiodine in the breasts should be excluded when disparity exists between the scan and chest skiagram.

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REFERENCES

1. SCHALL GL, TEMPLE R: Importance of proper bowel cleansing before ^{131}I whole body scan or retention study. *J Nucl Med* 13: 181-182, 1972

2. SITTERSON BW, ANDREWS GA: Introduction to thyroid scanning. In *Progress in Medical Radioisotope Scanning*, Oak Ridge, ORINS, 1962, pp 279-295

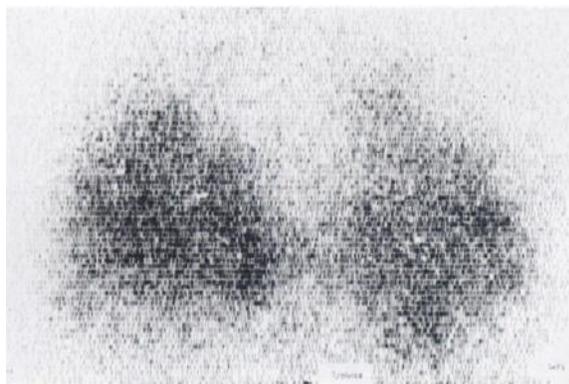


FIG. 1. Scan of thoracic region showing concentration of radioiodine in both breasts.

SIGNIFICANCE OF THE "DOUGHNUT" SIGN

The appearance of cerebral radionuclide images with a central core of decreased activity surrounded by a zone of increased activity has been described and called the "doughnut" sign (1). This uncommon sign has been reported in primary and meta-

static brain neoplasms, abscesses, and cerebrovascular accidents (1).

The zone of decreased-to-absent activity usually indicates necrosis, hemorrhage, or cyst formation within a lesion. In some views the area of decreased