

present. As gallium resolution continues to improve, inflammatory disease confined to a single anatomic compartment is being seen with increasing frequency (7). Our cases of psoas inflammation are additional examples of compartmental localization, and in Case 1 scintigraphy led to early diagnosis and successful medical therapy before abscess formation.

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### Warthin's Tumor and the I-123 Scan

Papillary cystadenoma lymphomatosum (Warthin's tumor) is a benign growth that constitutes about 5-10% of all parotid tumors. Rarely it may be bilateral, and occasionally may be multiple in the same gland. The incidence is higher in men, with a ratio of 5:1. These tumors are usually small and not palpable; but when palpable they are soft (cystic) or mildly firm, nontender unless infected, and may sometimes become impalpable a day or two later. When they are infected, they can be easily confused with an abscess because of their cystic consistency. Involvement of salivary glands other than parotid is rare (1)

Several workers (2) have shown that Warthin's tumor concentrates pertechnetate ( $^{99m}\text{TcO}_4^-$ ) on salivary gland scintigraphy. Since oncocytoma also localizes pertechnetate, it is conceivable that an I-123 image should also show this tumor as increased activity, although this has not been reported. We present the following case showing a histologically proven Warthin's tumor of the parotid gland, which gave an area of increased uptake on a radioiodine scintigram.

A 64-year-old woman had a left-lobe thyroid nodule that was treated with thyroid USP, 1 grain per day for more than a year. She presented with a nodule in right neck of 3 weeks' duration. There was no pain or other symptom, or history of radiation to the



FIG. 1. Sodium iodide (I-123) scintigram, showing area of radioactivity corresponding to palpable nodule in right submandibular region, which proved to be Warthin's tumor.

neck. On physical examination there was a 1.5-cm nodule in the right submandibular region, moderately firm in consistency. Palpation of the thyroid showed a nodule in left lobe of thyroid, 3 cm in diameter. The right lobe was not palpable. All thyroid tests were within normal limits, and other studies noncontributory. A thyroid scintigram (Fig. 1), obtained with I-123, 200  $\mu\text{Ci}$  p.o., showed the large, easily palpable, functioning nodule at the lower pole of the left lobe. There were two areas of decreased radioactivity in the relatively smaller (impalpable) right lobe. A small amount of radioactivity was seen in the palpable nodule in the right submandibular region. At the time we considered the findings consistent with well-differentiated thyroid carcinoma (papillary, follicular, or mixed), with metastasis in right submandibular region—although it is uncommon for a metastasis to concentrate radioactivity in the presence of a functioning thyroid gland. With this preoperative impression, the patient underwent subtotal thyroidectomy and excision of the right submandibular nodule. The latter was found to be a tumor in the tail of the parotid gland,

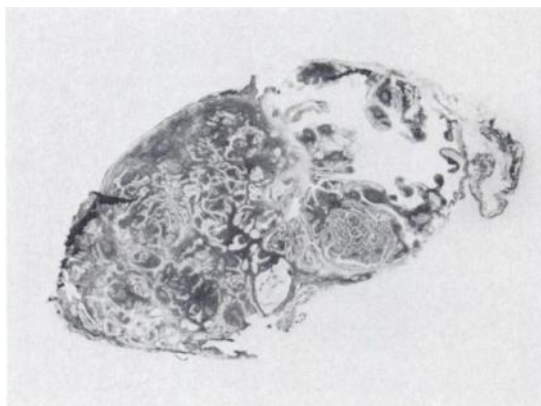


FIG. 2. Section of nodule in Fig. 1, showing multiple cystic areas lined by papillary structures and scattered lymphoid follicles, characteristic of Warthin's tumor.

that histologically proved to be a papillary cystadenoma lymphomatosum (Warthin's tumor) (Fig. 2).

Parotid tumors, such as Warthin's and oncocytoma, concentrate pertechnetate; hence they appear as foci of increased activity on nuclide images, whereas nodules of decreased activity in the parotid gland are generally malignant (3). Gates et al. (4), have shown that normal salivary glands concentrate both pertechnetate and I-131, but the images obtained with the former are better than the radioiodine scans. Pertechnetate therefore became the tracer of choice for the diagnostic evaluation of parotid tumors. This was mainly because of the superior physical properties of Tc-99m and its lower radiation dose. Iodine-123 has physical properties comparable to those of Tc-99m and has virtually replaced I-131 where possible. Burt (5) has also reported Warthin's tumor localizing I-123. Ausband et al. (3) reported an oncocytoma that showed up as increased activity on a pertechnetate scan. Therefore, with the increasing use of I-123, we should be aware that Warthin's tumor, and conceivably oncocytoma, may show up as areas of positive uptake in these tumors. Our case and that of Burt (5) support this contention.

Aberrant thyroid tissue is sometimes found in lymph nodes (7). This is usually a microscopic finding seen after neck exploration for some other reason, or at autopsy. It is usually nonpalpable and benign, and is thought to be due to migration of thyroid follicles through lymphatics to the regional lymph nodes (7). Its differentiation from follicular carcinoma of thyroid may at times be very difficult. When these nests enlarge, however, they may be palpable and may be seen on radioiodine thyroid scans. Therefore, an uptake of radioactivity, seen high in the neck on a thyroid image, should raise the possibility of aberrant thyroid tissue, metastatic well-differentiated thyroid carcinoma, Warthin's tumor, and possibly oncocytoma.

Further studies are required to determine the place of I-123 imaging of parotid tumors, to establish the differences, if such exist, between pertechnetate and I-123 scans of the salivary glands, and perhaps to develop a strategy to differentiate the tumors on the basis of their scintigraphic appearance with these two tracers.

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