Isolated Porta Hepatis Metastasis of Papillary Thyroid Cancer

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Metastases from differentiated thyroid cancer are usually seen in the cervical or mediastinal lymph nodes, lung or bone. We report a case of papillary thyroid cancer metastasizing to lymph nodes in the porta hepatis. No other site of metastasis was apparent on neck or abdominal exploration or on iodine whole-body scans. The primary tumor was a multifocal papillary thyroid cancer arising on a background of multinodular goiter. The metastasis was observed on a diagnostic radioiodine scan after surgical resection of the primary tumor despite significant (11%) radioiodine uptake by residual thyroid tissue in the neck and was proven by histologic examination and thyroglobulin immunohistochemistry. Although rare, metastasis to porta hepatis lymph nodes should be considered in the differential diagnosis of abdominal radioiodine uptake in patients with differentiated thyroid cancer.

Key Words: thyroid cancer; metastasis; porta hepatis; lymph node
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Differentiated thyroid cancer usually remains localized to the thyroid gland (*1*). At the time of initial diagnosis, however, there may be cervical lymph node metastases in 26%–44% of patients (*2,3*) and distant metastases in 3.8% and 16.4% of patients with papillary or follicular thyroid cancer, respectively (*3*). The most common site of distant metastasis from differentiated thyroid cancer is the lung followed by mediastinal lymph nodes and bone (*4*). Rare sites of distant metastases include the brain (*1,5–11*), liver (*7–10,12–14*), peritoneum (*10*), pericardium (*11*), pleura (*11,15*), adrenal gland (*16*), eye (*10,17–19*), skin (*20*), pituitary gland (*21*) and kidney (*9,22*).

We report a case of papillary thyroid cancer associated with isolated metastasis to lymph nodes in the hepatic hilum.

CASE REPORT

A 36-yr-old woman with a 17-yr history of anterior neck swelling had noticed a gradual increase in the size of a swelling over the last few years. Physical examination showed firm nodular enlargement of both lobes of the thyroid gland without lymphadenopathy. She was euthyroid clinically and biochemically.

Ultrasound of the neck showed diffuse enlargement of both thyroid lobes with a 1.5-cm cystic lesion and areas of calcifications in the right lobe and a few scattered areas of hypoechoic densities in both lobes. She underwent right lobectomy and left subtotal thyroidectomy in another hospital. Histological examination showed nodular goiter with multiple foci of papillary thyroid cancer in the left lobe (the largest focus 1 cm) and no lymph node metastasis. No definite extension beyond the thyroid was noted. Iodine-123 diagnostic whole-body imaging performed several months after surgery showed two large foci of radioiodine uptake in the thyroid bed with a 24-hr uptake of 11%. The patient had a TSH of 22 mIU/liter (nl, 0.2–5), FT4 of 9.8 pmole/liter (nl, 12–30), thyroglobulin of 320 μg/liter (nl, 2–70) and normal liver function tests, including albumin, alkaline phosphatase, ALT, AST, total bilirubin, PT and PTT. She was treated with 100 mCi (3770 MBq) I^{131} after three daily doses of 10 U of bovine TSH IM. On the postablation scan and retrospectively on the diagnostic scan, there was abnormal radioiodine uptake in the right side of the mid-upper abdomen (Fig. 1). Abdominal CT depicted a 3-cm hypoattenuating mass located lateral to the pancreatic head and medial to the duodenum extending up to the hepatic hilum (Fig. 2). Ultrasound confirmed the findings and also showed that the mass was separate from the pancreatic head. Her chest radiograph was normal. Fine needle aspiration biopsy of the abdominal mass revealed clusters of uniform epithelial cells with foamy histiocytes on a background of pale colloid, suggesting metastatic thyroid carcinoma.

Abdominal exploration showed a large mass of matted lymph nodes in the porta hepatis intimately adherent to the cystic, common hepatic and common bile ducts without causing bile duct obstruction. The patient underwent an excision of the porta hepatis mass plus part of the common bile duct, cholecystectomy and Rou-en-Y biliary enteric anastomosis.

Pathological examination revealed a 4 × 4 firm, solid, well-circumscribed mass with a pink-tan cut surface. The attached

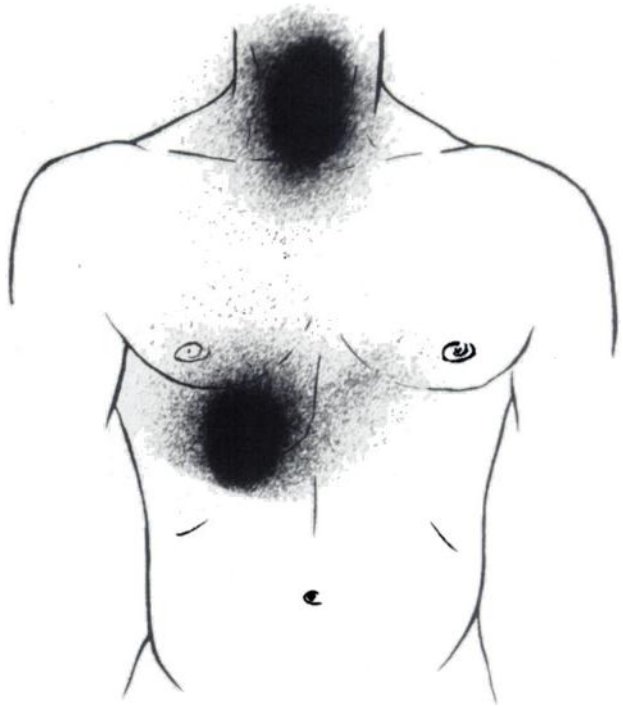

FIGURE 1. Anterior view of a diagnostic ^{123}I whole-body scan. There is abnormal radioiodine uptake in the right side of the upper abdomen. The uptake in the thyroid remnant in the neck is 11%. A body outline is drawn for clearer illustration.

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FIGURE 2. CT scan of the abdomen. Arrow shows a 3-cm hypoattenuating mass located lateral to the pancreatic head and extending up to the hepatic hilum.

gallbladder was somewhat distended but otherwise unremarkable. Microscopic examination (Fig. 3) of the mass revealed well-differentiated follicular structures with a variable amount of colloid. Focal papillary structures were also present. There were several foci of necrosis. No residual lymph node elements were noted. There was strong reaction with antithyroglobulin antibodies and the overall picture was consistent with a follicular variant of papillary carcinoma of the thyroid. The gallbladder as well as the cystic duct were uninvolved by the neoplasm. Liver hilum and supraduodenal lymph nodes showed granulomatous lymphadenitis and were negative for malignancy.

Postsurgically, ^{123}I whole-body scan was negative at 24 and 48 hr (except for neck uptake by residual functioning thyroid tissue) and thyroglobulin levels decreased to 29 μg/liter (with a TSH of 40 mIU/liter), which confirmed complete resection of iodine-concentrating tissue in the abdomen and the absence of other metastases.

DISCUSSION

Several studies have indicated that cervical lymph node metastases may be present at the time of the initial diagnosis in approximately one-third of patients with well-differentiated thyroid cancer and is more common in papillary than in follicular carcinoma (*2,3*). In contrast, the risk of distant metastases, usually to the lung, mediastinal lymph nodes and bone (*4*), is greater in follicular than in papillary carcinoma (*3*). Other sites of distant metastases are much less common, occurring in about 10% of patients with distant metastasis and usually in association with bone or lung metastases (*3–22*).

Our case is unique in that there was lymph node metastases in the porta hepatis without detectable lymph node involvement in the neck or the mediastinum and without any evidence of other distant metastases. The abdominal mass in the porta hepatis was proven to be metastasis from thyroid cancer by its remarkable uptake of radioiodine, histological examination and immunohistochemistry. The absence of other metastasis was strongly suggested by a negative history and physical examination; the results of neck exploration, abdominal exploration and repeated radioiodine scanning; and the considerable decrease in thyroglobulin levels after surgical removal of the abdominal metastasis.

Two other aspects of this case are interesting:

1. The primary tumor consisted of multifocal papillary thyroid cancer on a background of multinodular goiter, whereas the metastasis consisted mainly of follicular structures.
2. The metastasis demonstrated radioiodine uptake despite considerable residual thyroid tissue in the neck.

Porta hepatis lymph node metastasis has not been previously reported in patients with differentiated thyroid cancer. It should be considered in the differential diagnosis of radioiodine uptake in the abdomen and included in the list of the rare sites of distant metastasis from thyroid cancer.

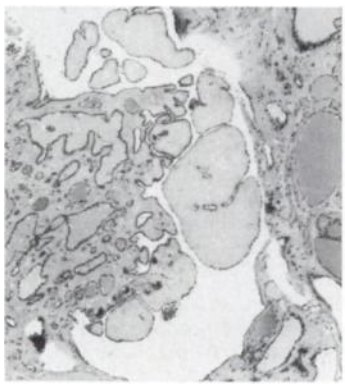

FIGURE 3. Microscopic examination of the porta hepatis lymph node metastasis. There are well-differentiated follicular structures with variable amounts of colloid. Focal papillary structures are also present. The picture is consistent with follicular variant of papillary thyroid carcinoma.

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