CASE REPORT

An unusual case of papillary carcinoma of the thyroid with cutaneous and breast metastases only

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Abstract
Cutaneous metastases of thyroid carcinoma are infrequent and, when present, are usually located in the vicinity of a widespread primary tumor. Breast metastases from these tumors are even less common. We report the case of a 64-year-old female with a toxic multinodular goiter in whom a fine-needle biopsy, performed in 1985 at the age of 52, was suggestive of papillary carcinoma of the thyroid. Total thyroidectomy for a papillary carcinoma, follicular variant, was performed in 1988. Four months after surgery, a cutaneous metastasis was discovered in the right thigh. Surgical excision of this lesion followed by treatment with radioactive iodine decreased serum Tg levels from 7495 to 3.3 μg/l. Under suppressive therapy with 1-thyroxine, serum Tg remained undetectable for the next 4 years. Then, serum Tg levels rose to 3.9–5.6 μg/l and a second cutaneous metastasis was removed from the abdominal wall. The patient was again treated with radioactive iodine and the post-treatment whole-body scan did not show any area of increased uptake of the radionuclide. However, serum Tg levels under suppression with 1-thyroxine remained elevated at 4–20 μg/l for the next 2 years. In August 1995, a 1.5 cm nodule was found in the right breast. Cytological examination was suggestive of a breast metastasis from thyroid carcinoma and the lesion was removed by enucleation. This proved to be a metastasis from a papillary carcinoma of the thyroid. Elevated (19–44 μg/l) serum Tg levels persisted postoperatively. A third cutaneous metastasis was revealed by 131I scintigraphy in the right buttock and surgically removed in December 1996. Serum Tg levels have remained undetectable since then. To the best of our knowledge, this is a unique case of a papillary carcinoma of the thyroid with a propensity to metastasize only to the skin and breast during a follow-up of 11 years.

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Introduction
Differentiated thyroid carcinoma of follicular origin, i.e. papillary and follicular carcinomas, metastasize predominantly to the lymph nodes, lungs and bone. Cutaneous metastases of these types of carcinomas are rarely seen, except in the vicinity of a locally invasive tumor. Skin metastases confirmed by immunohistochemistry have been reported in seven cases of follicular carcinoma (1–5) and in six cases of papillary carcinoma (5–8), two of which were of the follicular variant type (5, 6). Metastases from follicular carcinomas were located in the scalp (1, 3–5), neck (1) and cheek (2). In five cases of papillary carcinoma, skin metastases were located only in the scalp (5–8), and in one case there were multiple sites of dissemination, i.e. scalp, cheek, shoulder, arm, abdomen and thigh (6). In most of these cases there was a persistent invasive primary tumor (1–3, 6, 7).

Immunohistochemically proven breast metastases of thyroid carcinomas have been reported only in one papillary (9) and one follicular carcinoma of the thyroid (10).

We report a case of a papillary carcinoma of the thyroid with recurring cutaneous and breast metastases that appeared in the absence of other sites of tumor dissemination.

Case report
A 49-year-old Caucasian female was referred to our hospital in October 1981 for evaluation and treatment of a toxic multinodular goiter. Fine-needle aspiration cytology was negative for malignant cells. Her past medical history was irrelevant, except for thyroid surgery at the age of 26 due to a ‘benign goiter’ in another hospital. We were unable to obtain the histological diagnosis of the goiter removed at that time. Initially, she was treated with methimazol followed by two courses of therapy with 131I (477 MBq) in March 1983 and
January 1985. By November of 1985, she noticed an increase in the size of the goiter. A fine-needle biopsy was suggestive of papillary carcinoma of the thyroid. The patient refused surgery and was lost to follow-up. She returned 2 years later. A total thyroidectomy was performed in August 1988. Pathology confirmed the diagnosis of papillary carcinoma, follicular variant. One month later, serum Tg levels were 5370 μg/l and the body scan with 131I did not show areas of increased uptake. In November 1988 she was treated with 2960 MBq 131I. At this time, serum Tg levels were 7495 μg/l. A post-treatment scan showed focal 131I fixation in the thyroid bed and right thigh. An asymptomatic red-violet mass 5 cm in diameter was found in the right thigh, and was removed in January 1989. Histology revealed a cutaneous metastasis from a papillary carcinoma of the thyroid with the same architectural structure as the primary tumor. A new course of 131I (4033 MBq) was then given and a subsequent 131I-labeled imaging study was negative. Serum Tg levels were 3.3 μg/l. Under suppression with l-thyroxine (150 μg/day), serum Tg remained undetectable for the next 4 years. In January 1993 serum Tg rose to 3.9–5.6 μg/l. A 131I whole-body scan revealed an area of increased uptake in the right buttock which was confirmed by CT scan. In December 1996, this lesion was removed and proven to be a metastasis from a papillary carcinoma in the subcutaneous fat tissue. Since then, and until the present date (April 1997), serum Tg levels have remained undetectable.

All the removed metastases stained positively for Tg with anti-Tg antibody (Fig. 1).

Discussion

The case herein reported has some peculiar characteristics. First, metastases were found only at sites distant from the primary tumor, i.e. in the skin and breast. Secondly, there was never any evidence of persistent

Figure 1 Cutaneous metastasis: immunostaining with anti-Tg antibody. Note the intense staining of most cells (Streptavidin-biotin-complex, ×400).
thyroid tumor in the neck. Thirdly, the metastases were similar in their histological pattern and in their ability to take up $^{131}$I, but they differed in their capacity to secrete Tg. In fact, the first cutaneous metastasis was associated with very high levels of Tg in serum (7495 $\mu$g/l), which promptly normalized after surgery, while the others were associated with slightly increased Tg concentrations in serum (3.9–44 $\mu$g/l). Fourthly the case has now a follow-up of 11 years and no other sites of dissemination of the disease have become apparent.

In sum, we report what appears to be a unique case of a papillary carcinoma of thyroid, follicular variant, with three cutaneous and one breast metastases spread over a time span of 11 years, in the absence of a locally invasive tumor or of other sites of dissemination.

References


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