Axillary Lymph Node Recurrence of Papillary Thyroid Microcarcinoma: Report of a Case

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Abstract
We report a case of axillary lymph node recurrence of thyroid papillary microcarcinoma (PMC) in a 51-year-old woman who had undergone thyroidectomy with lymph node dissection 5 years earlier. We performed residual thyroid resection with cervical and bilateral axillary lymph node dissection, and pathological examination revealed well-differentiated papillary carcinoma, with partial poor differentiation. Postoperative radioiodine therapy was ineffective, and the patient died of systemic dissemination of the recurrence 8 months after her second operation. The positive cell rates of proliferating cell nuclear antigen and Ki-67 were clearly higher in the recurrent lymph nodes than in the primary thyroid tumor, suggesting increased cell proliferation in the recurrent lymph nodes. Thyroid papillary carcinoma rarely recurs in the axillary lymph nodes, but its possibility must be kept in mind, especially in patients with remarkable cervical lymph node metastasis and those who undergo extensive lymph node dissection.

Key words Thyroid papillary microcarcinoma · Axillary lymph node recurrence

Introduction
Thyroid papillary carcinoma is a common thyroid malignancy with an excellent prognosis, despite characteristically being associated with lymph node metastasis. Although the aim of surgical treatment is curative at the first operation, some cases show recurrence in the cervical or mediastinal lymph nodes. However, recurrence in the axillary lymph nodes is rare, and very few cases have been reported.1,2 We report a case of axillary lymph node recurrence of papillary microcarcinoma (PMC).

Case Report
A 46-year-old woman was referred to our department for investigation of cervical lateral lymph node swelling. Aspiration biopsy cytology of the lymph node revealed thyroid papillary carcinoma, but the primary thyroid carcinoma was not diagnosed preoperatively. Computed tomography (CT) showed enlargement of a left cervical lateral lymph node to 5.5 cm in diameter, with a cystic lesion (Fig. 1). The left jugular vein was compressed by the cervical lymph node, and was not found on the CT scan (Fig. 1). We performed a subtotal thyroidectomy with radical neck dissection including resection of the jugular vein and sternocleidomastoideus muscle. Pathological examination of the primary thyroid tumor revealed a papillary carcinoma, 2 mm in diameter (Fig. 2), with two metastatic lymph nodes; one in the cervical lateral nodes and one in the submandibular nodes. There was no pathological evidence of invasion of the left jugular vein.

The patient was readmitted 5 years later with a left axillary mass. However, laboratory data revealed no abnormalities. The serum thyroglobulin concentration was within the normal range (6.8 ng/ml), and the antimicrosome antibody level was within the negative range (<20 titer). Ultrasonography and mammography showed two enlarged left axillary lymph nodes, which were both 2 cm in diameter, but no lesions in the breast. Aspiration biopsy cytology of one of the axillary lymph nodes showed metastatic papillary carcinoma. The patient did not initially agree to a radical operation, and she was followed up by ultrasonography for 2 months. However, chest CT and 201thallium imaging subsequently showed progressive metastasis in the cervical, submandibular, mediastinal, and bilateral axillary

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nodes (Fig. 3), and she finally consented to undergo total thyroidectomy, involving resection of the residual thyroid with cervical and bilateral axillary lymph node dissection, followed by radioiodine therapy with $^{131}$I. Pathological examination revealed well-differentiated papillary carcinoma, with areas of poor differentiation. Because we found a psammoma body in the resected lymph node (Fig. 4a) and immunohistochemical staining using antithyroglobulin antibody was positive (Fig. 4b), the malignancy of the axillary lymph nodes was pathologically diagnosed as metastasis of thyroid papillary carcinoma.

To compare the proliferation between the primary thyroid tumor and the recurrent lymph nodes, we performed immunohistochemical staining with anti-proliferating cell nuclear antigen (PCNA) antibody (1:100, DAKO, Glostrup, Denmark) and anti-Ki-67 (MIB-1, 1:50, Immunotech, Marseilles, France) antibody. The positive cell rates for PCNA in the recurrent lymph node and the primary thyroid tumor were 21.1% and 3.3%, respectively, and the positive cell rates of Ki-67 in axillary lymph node and the primary thyroid tumor were 12.0% and 2.0%, respectively. The positive cell rates for PCNA and Ki-67 in the poorly differentiated area in the recurrent axillary lymph node were 34.8% and 21.0%, respectively, and those in the well-differentiated area were 17.9% and 8.0%, respectively. The positive cell rates were higher in the poorly differentiated area than in the well-differentiated area in the recurrent axillary lymph nodes. The positive cell rates for PCNA and Ki-67 were clearly higher in the recurrent lymph nodes than in the primary thyroid tumor, suggesting increased cell proliferation in the recurrent lymph nodes. We also performed immunohistochemical staining using anti-p53 antibody (DAKO) to examine p53 mutations. Most cells in the primary tumor and recurrent axillary lymph nodes were negative for p53 immunohistochemical staining. Continued radioiodine therapy did not evoke a favorable response, and the patient died of systemic dissemination from the thyroid carcinoma 8 months after her second operation.

**Discussion**

It is not easy to detect PMC of the thyroid using ultrasonography and fine-needle aspiration biopsy cytology. However, the treatment of this neoplasm is controversial because PMC usually exists as a harmless tumor