Case Reports

Metastatic Papillary Thyroid Carcinoma of the Submandibular Lymph Nodes with Extensive Squamous Metaplasia: Report of a Case

Hironori Kunisue1, Yoshiki Mikami2, Katsuhiro Tanaka1, Hiroshi Sonoo1, Kiyoshi Udagawa1, Yutaka Yamamoto1, Shigeru Yamamoto1, Junichi Kurebayashi1, and Kojiro Shimozuma1

Departments of 1 Breast and Thyroid Surgery and 2 Pathology, Kawasaki Medical School, 577 Matsushima, Kurashiki, Okayama 701-0192, Japan

Abstract

We report a unique case of metastatic papillary thyroid carcinoma of the submandibular lymph nodes with extensive squamous metaplasia. A 48-year-old man was referred to our hospital for treatment of a thyroid tumor and right submandibular masses. A tumor, 2 cm in its largest dimension, was palpated in the right lobe of the thyroid gland. The masses in the submandibular region measured up to 3 cm in diameter. Each submandibular tumor had a cystic cavity containing slightly opaque fluid. Aspiration cytology of the thyroid established a diagnosis of papillary carcinoma. Aspirated material from the cystic cavity of one of the submandibular masses contained only keratinized material with a thyroglobulin level of 175 ng/ml. The patient underwent a total thyroidectomy with modified radical neck dissection. Microscopic examination of the resected specimen confirmed a diagnosis of papillary carcinoma of the thyroid, as well as well-differentiated squamous cell carcinoma with cystic changes in the submandibular lymph nodes. Focal immunoreactivity for thyroglobulin, combined with the absence of any other possible primary lesions in the head and neck region, suggested metastatic papillary thyroid carcinoma of the submandibular lymph nodes with extensive squamous metaplasia.

Key words Squamous metaplasia · Submandibular lymph node · Thyroid cancer

Introduction

Squamous metaplasia is occasionally seen in papillary carcinoma as well as in follicular and medullary carcinomas, although the latter two conditions are extremely rare. The metaplastic components of these tumors are usually well differentiated. On the other hand, squamous cell carcinoma, which accounts for less than 1% of all thyroid cancers, exhibits marked nuclear anaplasia and is commonly associated with undifferentiated or anaplastic carcinoma. Thus, it is categorized as anaplastic.

We recently encountered pure well-differentiated squamous cell carcinoma in the submandibular lymph nodes dissected in a patient with papillary carcinoma of the thyroid. The clinical, histologic, and immunohistochemical features of this squamous cell carcinoma led us to conclude that its components arose as a consequence of metaplasia of the papillary carcinoma. The lymph nodes consisted of only a squamous component, with no papillary component. To the best of our knowledge, this is the first report of metastasizing papillary carcinoma of the thyroid with extensive squamous metaplasia in the lymph nodes.

Case Report

A 48-year-old man consulted a doctor after noticing a lump in his right submandibular region. A tumor was discovered in the right lobe of his thyroid with possible metastatic deposits in the right submandibular region, and he was referred to our hospital. On physical examination, the thyroid tumor, which was located in the middle of the right lobe, measured about 2 cm in its largest dimension, and palpable masses in the right submandibular region measured up to 3 cm in diameter. Laboratory studies, including serum thyroglobulin, revealed no abnormalities. Ultrasonography showed a
A hypoechoic mass with an obscured margin and internal calcification in the thyroid, and three hypoechoic masses with a clear margin in the right submandibular region. A computed tomography (CT) scan demonstrated cystic cavities in the masses of the right submandibular region. Aspiration cytology of the thyroid tumor established a diagnosis of papillary carcinoma, whereas fluid specimens obtained from the masses in the submandibular region contained keratinized materials, and showed an increased level of thyroglobulin of 175 ng/ml (measured by immunoradiometric assay). The serum thyroglobulin level at this time was 20.9 ng/ml (normal: <45 ng/ml). Nasolaryngoscopy, esophagoscopy, and chest and supramandibular CT scans failed to detect any abnormalities. A total thyroidectomy with modified radical neck dissection was performed. Postoperative ¹³¹I scintigraphy did not reveal any metastatic lesions. The patient was well without any evidence of recurrence when last seen 3 years after his operation.

Pathological Findings

Grossly, the thyroid tumor, which was located in the middle part of the right lobe, measured 1.8 × 1.2 × 1.2 cm, and was confined to the thyroid with a focal extraglandular extension. However, the dissected submandibular lymph nodes, ranging from 2 to 3 cm in diameter, showed cystic cavities on the cut surface. Microscopic examination of the thyroid tumor disclosed a pure papillary carcinoma with a mixture of papillary and follicular patterns (Fig. 1a, b). In limited areas, solid components composed of relatively abundant eosinophilic cytoplasm were identified (Fig. 2), whereas in the submandibular lymph nodes, well-differentiated squamous cell carcinoma with low-grade nuclear morphology and cystic change was identified (Fig. 3a, b).

Extensive sampling of the right paratracheal nodes, right jugular nodes, right supraclavicular nodes, right submandibular nodes, and left paratracheal nodes failed to demonstrate components of papillary carcinoma. Immunohistochemically, the components of the squamous cell carcinoma showed focal reactivity for thyroglobulin (1:50; Dako, Glostrup, Denmark) (Fig. 4).

Discussion

Submandibular nodal metastasis from papillary thyroid carcinoma is rare and usually associated with extensive cervical metastasis.¹⁻³ In our patient, the metastatic dissected lymph nodes were limited only to the subman-

Fig. 1a,b. Primary papillary carcinoma of the thyroid, showing a mixture of papillary and follicular patterns (H&E; a ×200, b ×400)

Fig. 2. Neoplastic cells with relatively abundant eosinophilic cytoplasm arranged in solid cords were seen in limited areas (H&E, ×200)