A Case of Granuloma Pyogenicum-like Cutaneous Metastasis to the Fingertip in Papillary Thyroid Carcinoma

Sung Kwi Park, M.D., Ho Sun Jang, M.D., Kyung Sool Kwon, M.D., Tae Ahn Chung, M.D.

Department of Dermatology, College of Medicine, Pusan National University, Pusan, Korea

Cutaneous metastasis of the papillary thyroid carcinoma (PTC) is very rare. We report a case of PTC that metastasized to the left fourth fingertip. Its cutaneous appearance was similar to granuloma pyogenicum.

A 65-year-old woman who has PTC with regional lymph nodes involvement and pulmonary metastasis complained of a protruding hemorrhagic subungual mass on the left fourth finger for two months. The histopathologic findings showed papillary projections of the tumor cells surrounding the axial fibrovascular stroma and mitotic cells. The tumor cells showed a positive reaction with antithyroglobulin antibody in immunoperoxidase stain.

To the best of our knowledge, this is the first case report of PTC that metastasized to the fingertip, and that showed granuloma pyogenicum-like cutaneous lesion at the metastatic site. (Ann Dermatol 7(4)350~353, 1995)

Key Words: Cutaneous metastasis, Finger, Papillary thyroid carcinoma

The incidence of cutaneous metastasis of internal malignancy is 1.0—4.4%12. Considering all the metastatic skin neoplasms, thyroid originated carcinomas are relatively uncommon.

A PTC which is the most common type of the thyroid carcinomas in adulthood mainly tends to bring about regional infiltration and metastasis to the peripheral lymph nodes. Distant metastasis involving such as lung, bone, central nervous system occurs in about 10%1. However, the incidence of cutaneous metastasis of PTC is very rare.

REPORT OF A CASE

In May, 1993, a 65-year-old woman presented with a hemorrhagic crusted mass on the subungual region of the left fourth finger for two months (Fig. 1).

She had received total thyroidectomy due to PTC at the Department of General Surgery, Pusan National University Hospital (PNUH), two years prior to our evaluation. One year after the thyroidectomy due to disclosed metastasis to the cervical lymph nodes a radical neck dissection was done at the Department of ENT, PNUH. Thereafter, recurrence of the enlarged cervical lymph nodes and pulmonary metastasis were noted. For these reasons, she had received radioiodine therapy, radiotherapy, and thermotherapy. Two months before, a bluish discolored nodule was noted on the subungual area of the left ring finger, and the lesion showed a growing and hemorrhagic tendency.

Her past medical and family history was non-contributory except for the known PTC. On physical examination, there were general weakness and enlarged cervical lymph nodes. Routine laboratory tests including complete blood cell count, urinalysis,
liver function test, renal function test, stool examination, and electrocardiogram were negative or within normal limits. Thyroid function test was slightly fluctuated but sustained within normal range. Following a chest X-ray, multiple metastatic nodular densities were noted. The left hand oblique view revealed erosion on the distal phalanx of the fourth finger. A computed tomography scan of the chest and neck showed cervical lymph nodes enlargement and metastatic lesions on the lung and rib. Thyroid and whole body scan with I$^{131}$ disclosed no remnant thyroid gland and functional distant uptake.

A biopsy specimen obtained from the hemorrhagic crusted mass showed pseudocarcinomatous hyperplasia, papillary projections of tumor cells surrounding the axial fibrovascular stroma (Fig. 2). Many of the papillae which had a partially disclosed mixed follicular pattern were compressed. Mitotic cells were obvious but the ground glass appearance of the tumor cells was not so distinct (Fig. 3). Immunohistochemical stain with antithyroglobulin antibody revealed thyroglobulin-positive tumor cells (Fig. 4).

The patient underwent excision of the lesion and, to control the metastasis of the thyroid cancer, received radioiodine therapy. After the excision, the lesion recurred. Eight months later she died of extensive pulmonary metastasis.
DISCUSSION

Histologic subtypes of malignant thyroid tumor include papillary carcinoma, follicular carcinoma, medullary carcinoma, undifferentiated carcinoma, epidermoid carcinoma, and other tumors. PTC is more common in females than males. It can occur in any age group, the mean age at the time of initial diagnosis being approximately 40 years. Because it has indolent subjective symptoms, enlargement of cervical lymph nodes can be the first sign of the disease.

When we examined the subungual mass at the initial evaluation, clinically we thought it to be granuloma pyogenicum, malignant melanoma, or metastatic tumor. However we made a diagnosis easily through histologic finding.

The pathognomonic histologic feature of PTC is a complicated, branching, treelike pattern sharply outlined by the papilliform axial fibrovascular stroma. The characteristic nuclear features of papillary carcinoma consist of ground glass nuclei, nuclear pseudoinclusions, and nuclear grooves. Psmomma bodies which are laminated calcific spherules may be encountered in about half of all papillary lesions. In our case, neither psmomma body nor ground glass nucleus was noted, but there were some clear nuclei. In more aggressive lesion, cellular atypicality, piling-up of epithelium, invasion of the stalk and capsule, and formation of glands or sheets of cells may be encountered.

Although pure PTC can be frequently encountered, the mixed form including follicular elements and papillary elements is more commonly observed. The biologic behavior of the mixed form thyroid carcinoma is so similar to pure PTC that the mixed form is classified as PTC. Our case can be regarded as the mixed form, too. Since there is no evidence of thyroglobulin synthesis by any tissues other than the thyroid, the immuno-

histaehemical stain with monoclonal antithyroglobulin antibodies was able to increase the sensitivity and specificity in diagnosis of thyroid originated tumor. In this case, most of the tumor cells were thyroglobulin-positive.

There are two explanations for the extreme rarity of distant skin metastasis in PTC. One is the low frequency of skin metastases from malignant neoplasms in general compared to internal metastases. The other is the characteristically slow growth of PTC and its relatively low potential for extrathyroid metastases. The incidence of local invasion beyond the thyroid capsule at the initial diagnosis and metastases to regional lymph nodes is about 40%, respectively. Involvement of the lymph node via lymphatics is the most common pattern of metastasis in PTC but PTC may involve the lungs, bones, and central nervous system through the bloodstream. In our case, since the tumor cells spreading into the lumen of the blood vessels was noticed from the thyroid gland, it suggested that cutaneous metastasis might happen through hematogenous spreading.

Although PTC has a good prognosis, survival after the diagnosis of distant metastasis is seriously reduced, more than 50% of all patients died within one year, and 70% within two years. Factors relating to poor prognosis are the onset after the age of 40 years, male, extrathyroid extension, microscopic variants (diffuse sclerosing, oxyphilic, tall cell, or columnar variants), history of previous irradiation, large tumor size, unencapsulated tumor, tumor without pushing margins, multicentricity, distant metastases, poorly differentiated foci, and DNA aneuploidy. In this case, a poor prognosis was predicted by the onset after the age of 40 years, extrathyroid extension, capsule invasion, and distant metastasis.

Only four case reports of distant cutaneous metastases of PTC have been noted while reviewing literatures in English. Of these cases, the con-

Table 1. Comparison with cases of the cutaneous metastasis in papillary thyroid carcinoma

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age(year)</th>
<th>Site</th>
<th>No. of lesions</th>
<th>Duration(year)</th>
<th>Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pritlik</td>
<td>female</td>
<td>26 chest wall</td>
<td>1</td>
<td>10</td>
<td>tender nodule</td>
</tr>
<tr>
<td>Horiguchi</td>
<td>male</td>
<td>62 scalp</td>
<td>1</td>
<td>3</td>
<td>asymptomatic, pink to red</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>soft tumor with a thick stalk</td>
</tr>
<tr>
<td>Doutre</td>
<td>female</td>
<td>70 scalp, abdomen</td>
<td>multiple</td>
<td>11</td>
<td>dome-like appearance</td>
</tr>
<tr>
<td>Our case</td>
<td>female</td>
<td>59 scalp</td>
<td>3</td>
<td>7</td>
<td>firm, purplish-blue nodules</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2months</td>
<td>hemorrhagic mass</td>
</tr>
</tbody>
</table>
firmed sites of metastases were the scalp, chest, and abdomen. Distal extremities as the site for metastases were not encountered. Furthermore, the cutaneous feature of metastatic lesion mimicking granuloma pyogenicum has not been reported yet (Table 1). In Korea, five cases with cutaneous metastases on the scalp and neck have been reported in review articles12,13.

In conclusion, although metastasis to the regional lymph node is relatively common, cutaneous metastasis is a very rare event in PTC. Therefore, our case may be the first of PTC which showed a solitary cutaneous metastasis to the fingertip with granuloma pyogenicum-like skin lesion.

REFERENCES