RETROPHARYNGEAL NODE METASTASIS FROM PAPILLARY THYROID CARCINOMA

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Abstract: Background. Papillary thyroid carcinomas commonly metastasize to paratracheal and jugular lymph nodes. Metastasis to the retropharyngeal node is rare for this tumor.

Methods. Five patients underwent surgical treatment for metastasis of thyroid papillary carcinoma to the retropharyngeal lymph nodes that presented as a parapharyngeal or retropharyngeal mass. All patients had a history of total or subtotal thyroidectomy as their initial treatment. Among them, 3 patients had undergone ipsilateral modified radical neck dissection at their initial treatment. The other 2 patients had a history of bilateral or ipsilateral modified neck dissection for their subsequent cervical lymph node metastases.

Results. Metastatic retropharyngeal nodes were successfully resected via transcervical approach in all patients. Although aspiration and difficulty in swallowing were observed in 2 patients after surgical treatment for metastatic retropharyngeal nodes, these complications spontaneously resolved within a few months.

Conclusions. This study suggests that neck dissection and/or metastatic cervical lymph nodes might alter the direction of lymphatic drainage to the retrograde fashion, resulting in the unusual metastasis to the retropharyngeal lymph nodes. Although the cases described here are rare, metastasis to the retropharyngeal node should be considered at the follow-up for thyroid papillary carcinoma. Because these metastases will be missed by routine ultrasonography of the neck, periodic CT scan or MRI is recommended for follow-up, especially for patients with a history of neck dissection.

Keywords: thyroid cancer; papillary carcinoma; retropharyngeal lymph node

Thyroid papillary carcinomas extend to lymph node in approximately 40% of cases.1–3 Nodal involvement commonly occurs in the internal jugular and recurrent laryngeal chain; metastasis to the retropharyngeal nodes has been considered rare for this tumor. However, lymphatic pathways to lateral retropharyngeal nodes have been identified. One pathway is via the jugular chain lymphatics, and the other is the direct postero-superior lymphatic trunk from upper pole of the thyroid.4

We report 5 patients with retropharyngeal nodal involvement of thyroid papillary carcinoma. Our study suggests that metastatic cervical lymph nodes and/or neck dissection itself might alter the direction of lymphatic drainage to the retrograde fashion, resulting in the unusual metastasis to the retropharyngeal lymph nodes.

CASE REPORTS

Between 1999 and 2003, 5 patients underwent surgical treatment for metastasis of thyroid papillary carcinoma to the retropharyngeal lymph...
nodes at Kobe University Hospital or Hyogo Medical Center for Adults. All patients were women, with an average age of 63 years (range, 40–84 years). All patients were referred to our department with a parapharyngeal mass detected on CT or MRI. Three patients complained of symptoms associated with a parapharyngeal mass: throat symptoms in case 1, neck pain in case 2, and dysphagia in case 4. The other 2 patients (case 3 and case 5) had no related symptoms at the time of diagnosis of the retropharyngeal mass. All patients had a history of subtotal or total thyroidectomy for papillary carcinoma. Three patients (cases 3, 4, and 5) had undergone ipsilateral modified neck dissection at the time of initial surgery; the other 2 patients had a history of bilateral or ipsilateral modified neck dissection for the subsequent cervical lymph node metastases after the initial treatment. The interval between initial treatment and diagnosis of retropharyngeal mass ranged from 5 months to 30 years (average, 174 months). Follow-up ranged from 17 to 70 months (average, 38 months).

On physical examination, a displacement of the tonsillar fossa, soft palate, and/or nasopharyngeal wall was evident in 3 patients (cases 2, 3, and 4), and multiple lymph nodes were palpable bilaterally in 1 patient (case 3). Cranial nerve deficits were not observed in any patients. CT or MRI showed a mass in the poststyloid component of the parapharyngeal space in all patients (Figure 1). In 1 patient, Tl scintigraphy revealed a focal area of increased uptake close to the left side of the mouth (Figure 2). Since this mass was well-enhanced on contrast-enhanced CT, the feeding artery was embolized by angiography before surgical treatment (Figure 3).

Metastatic retropharyngeal nodes were successfully resected in all patients via the transcervical approach without mandibulotomy \( ^5 \) (Figure 4). Although aspiration and difficulty in swallowing were observed after surgical treatment in 2 patients, these complications spontaneously resolved within a few months. Three patients had \( ^{131} \)I therapy postoperatively.

All patients were alive during follow-up. However, regional recurrences were observed, and 3 patients (cases 1, 3, and 5) underwent salvage surgery for their regional recurrences, 12, 14, and 18 months after retropharyngeal node resection. At present, 3 patients remain free of disease, and 2 patients are alive with disease and under treatment with \( ^{131} \)I for metastases of the lung (case 4) or posterior oropharyngeal wall (case 5).

**DISCUSSION**

Metastasis to the retropharyngeal nodes is rare in thyroid papillary carcinoma. During the last 2
decades, only 23 cases have been reported. In a recent large series, parapharyngeal metastasis was diagnosed in only 3 of 696 patients with thyroid papillary cancer. In these reports, retropharyngeal lymph node metastases presented in 2 ways: (1) parapharyngeal mass, as a recurrence of previously treated thyroid carcinoma, and (2) retropharyngeal or parapharyngeal lymph node metastasis from occult thyroid carcinoma.

The lateral retropharyngeal nodes can be found medial to the internal carotid artery and sympathetic chain and are usually seen at the level of the arch of C1. The afferent lymphatic vessels begin in the mucosal surface of the nasopharynx, pharyngeal wall, oropharynx, and pyriform fossa. Thus, the significance of these lymph nodes as potential sites of metastases from oropharyngeal or hypopharyngeal carcinoma has been recognized. On the other hand, the efferent vessels drain to upper jugular chain and to the posterior triangle. All 5 of the patients in this report had regional lymph node involvement and neck dissection before or at the time of diagnosis of retropharyngeal lymph node metastasis. Similarly, in the series of McCormak and Sheline, 5 of 7 patients with metastatic thyroid carcinoma to the retropharyngeal nodes had involvement of jugular nodes noted before or at the time the retropharyngeal metastasis were found. This suggests that neck dissection and/or metastatic cervical lymph nodes themselves might alter the direction of lymphatic drainage to the retrograde fashion, resulting in the unusual metastasis to the retropharyngeal lymph nodes.

Another possible pathway from thyroid to retropharyngeal lymph node is a “posterosuperior collecting trunk.” The lymphatics of the thyroid gland are accompanied by venous stream and can be classified into 4 groups: (1) superomedial trunk.

FIGURE 3. Case 4. Angiographic findings. Tumor stain was clearly identified by angiography via carotid artery (left). After embolization of the feeding artery (arrow), tumor staining disappeared (right).

FIGURE 4. Case 2. After the major vessels and cranial nerves were separated to access the parapharyngeal space, retropharyngeal dissection was performed. CCA, common carotid artery; ICA, internal carotid artery; UV, internal jugular vein; VN, vagal nerve; AN, accessory nerve. Arrows indicate location of retropharyngeal lymph nodes.
terminating in the prelaryngeal node, (2) supraventricular and jugulodigastric nodes. Rouviere reported the lymphatic connection from the upper pole of the thyroid gland to the lateral retropharyngeal nodes and termed this connection as "posterosuperior collecting trunk." This channel was present in 20% of his anatomic dissections. Among the 23 reported cases with retropharyngeal lymph node metastases from papillary thyroid carcinoma, 10 cases represented an isolated metastasis of occult thyroid papillary carcinoma to the parapharyngeal or retropharyngeal space, supporting the concept that this direct lymphatic pathway might also play a part in the metastatic route of thyroid cancer to retropharyngeal nodes.

In conclusion, although the present cases are rare, metastasis to the retropharyngeal nodes should be considered at the time of diagnosis and follow-up for thyroid papillary carcinoma. Because these metastases will be missed by routine ultrasonography of the neck, periodic CT scan or MRI is recommended for follow-up, especially for patients with a history of neck dissection.

REFERENCES