Abstract
We report a 64-year-old woman with follicular thyroid cancer found by subacute bulbar palsy. Progressive bulbar palsy (PBP) was considered the most likely diagnosis, because no abnormal finding was detected on brain CT and blood test except for the decrease of free T4. An echogram of the thyroid revealed a small nodule which was shown to be class IIb by fine needle biopsy. However, $^{201}$Tl scintillation examination showed skull base metastasis. Follicular thyroid cancer sometimes seems to manifest as a distant metastasis with no clinically evident thyroid lesion. This case suggested the importance of a detailed survey for malignancy, when subacute bulbar palsy is seen.

Key words: skull base metastasis, PBP like symptoms

Introduction
Follicular cancer accounts for approximately 15 percent of thyroid cancers (1, 2). It usually undergoes an early hematogenous spread, and the patient may present distant metastasis in the lungs and bones (3, 4). Further, follicular cancer may sometimes manifest as a distant metastasis with no clinically evident thyroid lesion (1). However solitary skull base metastasis of follicular thyroid cancer is rare with only four cases in the literature (5) and there are no reports of bulbar palsy as the initial sign of follicular cancer.

Here we report a case of subacute bulbar palsy caused by skull base metastasis from follicular thyroid cancer. We thought, at first, progressive bulbar palsy (PBP) was a more likely diagnosis because we detected no abnormal findings on brain CT and blood test except for the decrease of free T4 ($fT_4$). Finally, $^{201}$Tl scintillation examination was useful to make a diagnosis of skull base metastasis from thyroid cancer, although fine needle biopsy from the thyroid was negative.

Case Report
A 64-year-old woman was admitted to our hospital for dysarthria and dysphagia. Four months prior to admission, she had visited a local clinic because of discomfort in her tongue and difficulty with speech. A blood examination showed no abnormal findings and brain CT appeared to be almost normal, though the sphenoid sinus was not clear when we checked the film retrospectively (Fig. 1). By the time of admission, her speech had deteriorated and she also experienced difficulty swallowing. Neurological examination on admission showed bilateral atrophy of the tongue (Fig. 2) and fasciculation. Gag reflex was decreased on both sides. Although biceps reflex was mildly increased on both sides, there were no pathological reflexes. No muscle weakness or sensory disturbance was found. A needle electromyography on all four extremities showed no abnormal findings. Brain MRI could not be done, because of the presence of a bolt in the lumbar spine from a previous lumbar spondylosis operation. She refused a lumbar puncture. FT4 was 0.31 ng/dl (our normal range: 0.72–1.40). TSH was normal. An echogram of the thyroid revealed a small nodule, which was shown to be class IIb by fine needle aspiration. As we could not find any malignancy at this point, PBP was considered the most likely diagnosis. However, $^{201}$Tl scintillation examination taken for evaluating thyroid function revealed the accumulation on the skull base that led us to suspect skull base metastasis from thyroid cancer. A brain CT was taken again, which showed a solid mass and osteolytic change from the temporal bone to sphenoid sinus. A biopsy of this lesion confirmed it to be a metastasis from follicular thyroid cancer. Based on these findings, we diagnosed that the subacute bulbar palsy in this patient was from skull base metastasis of thyroid cancer.
Pomorski and Bartos reported that metastasis was the initial manifestation of thyroid cancer in 6 of 309 (1.9%) follicular carcinoma patients (6). Although it is not rare for follicular thyroid cancer to metastasize distantly to the bones or lungs (3, 4), there are no known reports of bulbar palsy as the first sign of follicular thyroid cancer.

Skull base metastasis is commonly presented as isolated or multiple cranial neuropathies due to metastatic erosion of the basal foramen, through which the nerves exit the skull (7). The present patient had nerve palsy of the ninth, tenth, and twelfth nerves. As the eleventh nerve was not affected, compression of the nerves by the mass might have occurred at the distal side of the jugular foramen. This is the first known report of bulbar palsy as the initial sign of follicular thyroid cancer.

If metastasis is the only manifestation of cancer, the clinical picture would be, understandably, confusing. Although examinations using CT, MRI, and a lumbar puncture are useful to diagnose skull base metastasis, a CT scan may appear normal in the early stages of skull base metastasis. In the present case, we could not detect skull base metastasis from the brain CT performed when the patient had initially complained of discomfort of the tongue. A bone condition CT scan focused on the skull base should have been done. Unfortunately, MRI could not be done because of the

Figure 1. Brain computed tomography findings from the time when the patient had initially complained of discomfort of the tongue.

Figure 2. Bilateral atrophy of the tongue in the present patient.

Discussion

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previous operation for lumbar spondylosis and the patient rejected a lumbar puncture. As a result, $^{201}\text{Tl}$ scintillation examination was useful to make the diagnosis of skull base metastasis from thyroid cancer. This patient suggests the importance of a detailed survey for malignancy, when multiple cranial neuropathy including subacute bulbar palsy is seen.

References