Total tumor excision for spinal metastases of thyroid carcinoma improves patient survival

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INTRODUCTION:
Thyroid carcinoma presents as an indolent tumor and is usually associated with a relatively favorable long-term survival. The bones and lung are common site of bone metastases in thyroid carcinoma. Osseous metastases originating from thyroid carcinomas are difficult to manage. They tend to be large, highly destructive, and more resistant to systemic and radiation therapy than other metastases. Current Thyroid Association guidelines state that total tumor excision of isolated symptomatic bone metastases can improve survival. The spine is the most common site of osseous metastases. Spinal metastases are associated with a significant reduction in quality of life due to pain, neurological deficit, and increased mortality. This study aimed to examine the long-term (>3 years) results of patients who underwent surgery for spinal metastases from thyroid carcinomas.
METHODS: We performed a retrospective analysis of 39 patients who underwent tumor excision surgery for spinal metastasis from thyroid carcinomas at our medical center between 1984 and 2017. Twenty-four patients underwent curative spondylectomy (spondylectomy group), and 15 underwent debulking surgery (debulking group). We retrospectively analyzed clinical outcomes in terms of survival, tumor recurrence, and neurological function in the 2 groups. Patient characteristics of the 2 groups were almost the same including the presence of vital organ metastases. According to the local condition of spinal lesions, surgical strategy was decided. Survival was defined as the time from the first spinal lesion surgery to death or last follow-up. Kaplan-Meier analysis with the long-rank test was used to compare the cancer-specific survival rates between the groups.
RESULTS:
For all patients, the overall 5- and 10-year survival rates were 68% and 36%, respectively (Fig. 1). spondylectomy group survived longer than debulking group (5-year survival: 78% versus 49%; 10-year survival: 52% versus 0%; p<0.01) (Fig. 2). To investigate whether lung metastasis has any effect on survival, the patients were also divided into two groups according to the presence of lung metastasis. The 5-year survival rate for patients with lung metastases was 62%, lower than the survival rate for patients without lung metastases (71%), but not significantly different between the two groups (p=0.24). Only one patient in the spondylectomy group experienced local tumor recurrence, whereas 9 of 10 patients who were long-term survivors (>18 months after surgery) in the debulking group experienced local tumor recurrence and a consequent deterioration in performance status.
DISCUSSION AND CONCLUSION: The present study was performed to analyze the results of surgical treatment in patients with spinal metastasis from thyroid carcinoma during a mean follow-up of 80 months. In a previous retrospective analysis, the overall 5- and 10-year survival rates from the time of diagnosis of were 25-41% and 13-15%, respectively. In this study, the overall 5- and 10-year survival rates were 68% and 36%, respectively, for all patients. These favorable results most likely reflect long survival in spondylectomy group. Curative spondylectomy for spinal metastases, if achievable, has the potential not only to prevent local recurrence status, but also to prolong survival.

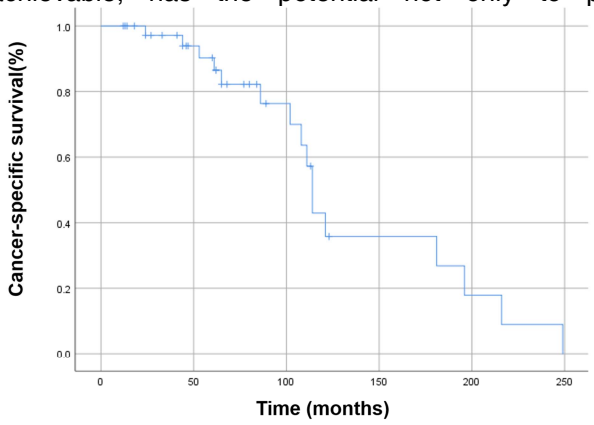

Figure 1. The overall survival of the 39 patients undergoing surgical resection of spinal metastases from thyroid cancer. The 5- and 10-year cancer-specific survival rates were 87% and 36%, respectively. The tick marks indicate the last dates of follow-up.

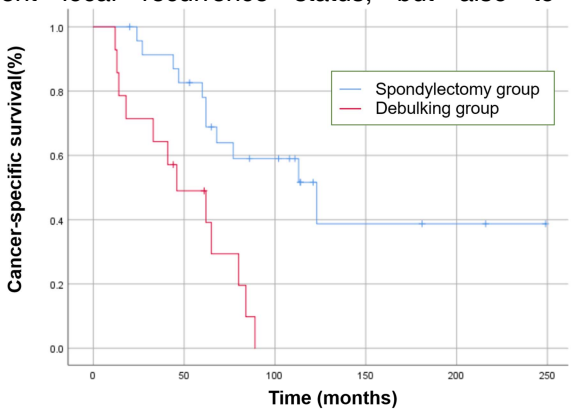

Figure 2. Comparison of the overall survival of spondylectomy group with that of debulking groups. The patients in the spondylectomy group survived longer than those in the debulking group (5-year survival: 78% vs. 49%; 10-year survival: 52% vs. 0%; P < 0.01). The tick marks indicate the last dates of follow-up.