

Prognosis of Patients with Metastatic Spinal Cord Compression from Adrenocortical Carcinoma

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Abstract. *Background/Aim: Adrenocortical cancer is a rare aggressive type of cancer. The prognosis is poor, particularly for metastatic disease. This study focused on metastatic spinal cord compression (MSCC) from adrenocortical carcinoma. Patients and Methods: Data of three patients who received palliative irradiation of MSCC from adrenocortical carcinoma were retrospectively analyzed for motor function, ambulatory status and survival. Results: One patient died before completion of radiotherapy. The other two patients died two weeks and four weeks, respectively, following irradiation. In these patients, pre-radiotherapy pain scores were 9 and 10 points. In both patients, partial pain relief was achieved (scores of 5 and 4 points). All three patients were non-ambulatory before irradiation. In assessable patients, motor function remained unchanged following irradiation. Conclusion: Palliative irradiation resulted in considerable pain relief, whereas motor function did not improve. Considering the extremely poor survival, supportive care alone may be considered if pain relief is achieved without irradiation.*

Adrenocortical cancer is a rare and very aggressive type of cancer (1-4) with, generally, poor prognosis, in particular in cases of distant metastases. Adrenocortical cancer can metastasize to the bone, including vertebral bodies. A complication of vertebral body metastases is metastatic spinal cord compression (MSCC) (5, 6). Since adrenocortical cancer is a rare disease, very little is known on MSCC from this type of cancer. Several treatment options are available for this situation, such as palliative irradiation,

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decompressive surgery followed by irradiation and best supportive care alone, including administration of dexamethasone (7-9). The present study presents a small series of patients with MSCC from adrenocortical carcinoma and aims to contribute to the appropriate treatment for this rare oncological situation.

Patients and Methods

The data of three patients who received palliative irradiation for MSCC from adrenocortical carcinoma were analyzed in this retrospective study with respect to the treatment effect on motor function and ambulatory status, as well as with respect to survival. Median age was 64 years (range=51-65). Additional characteristics of the patients are given in Table I.

Pain was evaluated before and at the end of the radiotherapy course with a scale between 0 points (no pain) and 10 points (maximum pain). Partial response was defined as improvement of at least two points and complete response as 0 points. Motor function was also evaluated before and after irradiation with a five-category scale: 0, normal strength; 1, ambulation without aid; 2, ambulation with aid; 3, patient not ambulatory; 4, complete paraplegia (10). Improvement and deterioration of motor function were rated as a change of one or more categories. Survival time, given in weeks, was counted from the last day of irradiation.

Results

Of the three patients, one patient died before the radiotherapy course was completed. The other two patients died two weeks and four weeks, respectively, following irradiation, resulting in a median survival time of two weeks. Thus, only two patients were assessable for pain relief and treatment effect on motor function. In these two patients, pre-radiotherapy pain scores were 9 and 10 points, respectively. In both patients, partial pain relief was achieved with post-irradiation pain scores of 5 and 4 points, respectively. All three patients were not able to walk before irradiation (category 3 on the five-category scale). In the two assessable patients, motor function remained unchanged following irradiation. Thus, no patient regained the ability to walk.

Table I. *Patients' characteristics.*

Characteristic	N
Gender	
Female	3
Male	0
Interval from carcinoma diagnosis to MSCC	
≤6 months	2
>6 months	1
Time of developing motor deficits	
≤7 days	2
>7 days	1
Number of involved vertebrae	
2	2
4	1
Extraspinal bone metastases	
No	1
Yes	2
Visceral metastases	
No	0
Yes	3
Pre-radiotherapy ability to walk	
Able to walk	0
Not able to walk	3
Performance status	
ECOG 2	0
ECOG 3-4	3
Radiotherapy schedule	
5×4 Gy in one week	1
10×3 Gy in two weeks	2

MSCC, Metastatic spinal cord compression; ECOG, Eastern Cooperative Oncology Group.

Discussion

Since most patients with adrenocortical carcinoma have a poor prognosis, there is a constant interest of research in the improvement of the patients' prognoses (1-4). This applies also to patients who have already developed distant metastases. MSCC occurs in up to 10% of all adult cancer patients (11-16). Patients with MSCC from adrenocortical carcinoma represent a small group of patients with MSCC accounting for about 0.1% of all MSCC patients. Therefore, only very little is known on this particular group of cancer patients. The present study is the first reported so far that focused on patients with MSCC from adrenocortical carcinoma. It aimed to contribute to the appropriate treatment of these patients. Since MSCC from adrenocortical carcinoma is an extremely rare situation, only three patients could be included in this study. The very small sample size and the retrospective design of the study should be kept in mind during the interpretation of the results.

Despite the small number of patients, this study provided interesting results. Palliative irradiation resulted in partial

pain relief and can, therefore, be of benefit for those patients experiencing severe vertebral bone pain. In contrast, palliative irradiation failed to improve motor function and ambulatory status. This may be explained with a reduced radio-sensitivity of adrenocortical carcinoma or by the fact that no patient survived longer than four weeks following irradiation (5, 6). Previous studies have shown that a positive effect of radiotherapy on motor function takes at least one month in many patients irradiated for MSCC (5, 12, 16). Taking into account the extremely poor survival prognosis of patients with MSCC from adrenocortical carcinoma observed in this study, it appears that these patients do not benefit from palliative irradiation in terms of improvement in motor function and ambulatory status. Thus, palliative irradiation may be limited to those patients requiring pain relief. If sufficient pain relief can be achieved with analgesic drugs, best supportive care alone appears an appropriate option.

In conclusion, palliative irradiation resulted in considerable pain relief in patients with MSCC from adrenocortical carcinoma. In contrast, motor function and ambulatory status did not improve. Thus, taking into account the extremely poor survival of these patients, supportive care alone may be considered if pain relief is not the indication for palliative irradiation.

Conflicts of Interest

On behalf of all Authors, the corresponding Author states that there are no conflicts of interest related to this study.

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