



## A Surprising Cause of Back Pain and Difficulty Walking

### CASE REPORT

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### ABSTRACT

Carcinoid tumors are neuroendocrine neoplasms that originate from enterochromaffin cells. The incidence of the disease is 1 per 100,000 per year. Carcinoid tumors usually metastasize to the liver, lungs, and lymph nodes. In recent studies, the rate of bone metastasis was determined to be around 10%. In this case study, we report that a patient's complaints of back pain, difficulty walking, and spinal metastasis that had been detected were related to carcinoid tumors.

Keywords: Carcinoid tumor, spinal cord, magnetic resonance imaging

### INTRODUCTION

Carcinoid tumors (CTs) are neuroendocrine neoplasms resulting from enterochromaffin cells. CTs show a wide distribution in the body (1, 2). Although CTs mostly occur in the gastrointestinal system (58%-75%) and lungs (20%-31%), they can form in any part of the body (2, 3). The incidence of the disease has been reported to be 1 in 100,000 (4). Due to serotonin secretion of the tumor, diarrhea, flushing, and bronchial obstruction symptoms might be observed in patients (3, 5). CTs are usually metastatic to the liver, lymph nodes, and lungs (6). In recent studies, the rate of bone metastasis was determined to be around 10% (5, 6). Stemming from skeletal metastases pain, pathologic fractures, and spinal cord injuries might be seen. Some patients with skeletal metastases may have no symptoms. In this paper, a case complaining of back pain and difficulty walking who had CT metastases in the spinal column is described and discussed.

### CASE REPORT

A 65-year-old male patient was admitted to our clinic with complaints of pain in the lower back and legs and difficulty walking that had been continuing for 7 months. The patient described in his history that his complaints increased when he moved and decreased while resting. Various treatments had been applied on the patient, who had been suffering from night sweats, loss of appetite, and weight loss (5 kg in the last month) in other medical centers with a diagnosis of lumbar disc herniation, radiculopathy, and brucellosis. However, the patient stated that he did not benefit from those treatments. When the medical history of the patient was questioned, it was learned that due to CT, he had had a lobectomy operation of the right lung 2 years ago (pathology prot. no: 20102828-10). The pathology result of the patient was reported as: moderately differentiated neuroendocrine carcinoma (atypical carcinoid), anterior mediastinum, phrenic nerve, pericardium, and excision.

In his physical examination, the patient was in the lumbar flexor posture, mobilized with double-sided support. Bilateral upper extremity muscle strength was 5/5, there were no sensory deficits, and deep tendon reflexes (DTRs) were normoactive. Bilateral hip abductor in the lower extremities and abductor muscle strength were 4/5, right hip flexor muscle power was 4/5, left hip flexor muscle power was 3/5, bilateral hip extensor muscle strength was 4/5, and other muscle strength was determined as 5/5. Bilateral L2 and 3 dermatomes were hipoestezik. In the lower extremity on both sides, DTRs were hyperactive, Babinski reflexes were positive, and clonus was present. Abdominal skin reflex could not be obtained.

There was no abnormality in the patient's blood laboratory tests. Electroneuromyography (ENMG) was consistent with lower motor neuron involvement, in which the right lumbar root was more affected (Table 1). Magnetic resonance imaging (MRI) detected a soft tissue mass showing invasion towards the right paraspinal region, neural foramens, and spinal cord at the L1-L4 level (Figure 1, 2). We consulted with neurosurgery about the patient. According to the assessment, the current situation was determined as vertebral metastases of an atypical carcinoid tumor, and the patient was considered inoperable due to widespread metastases. The patient was referred to

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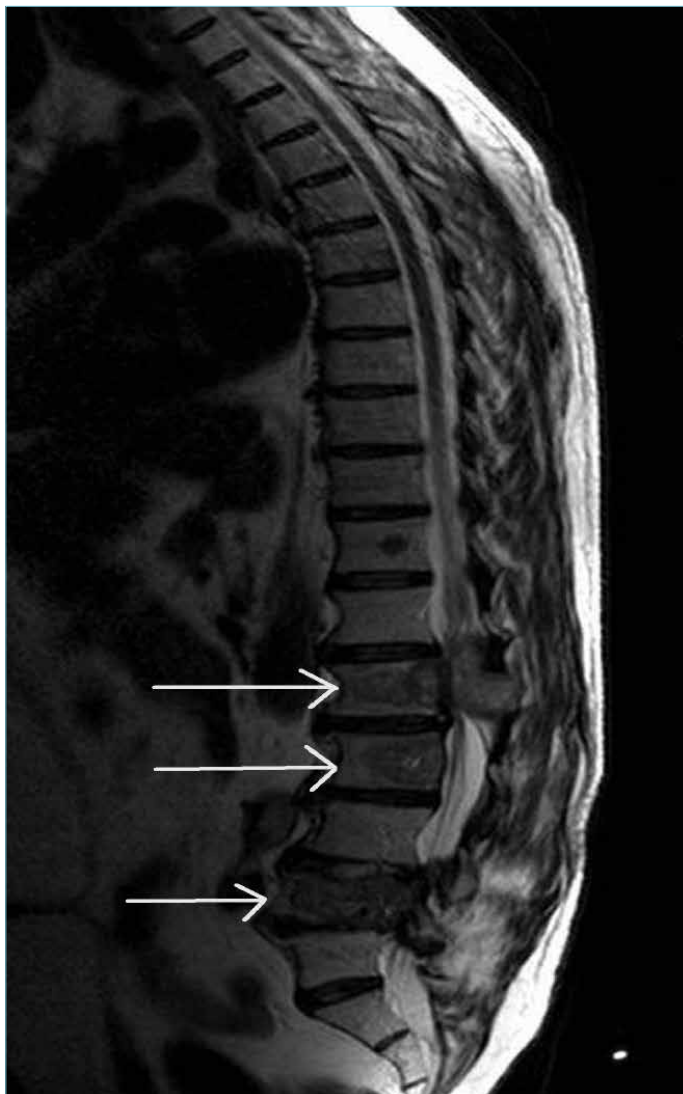
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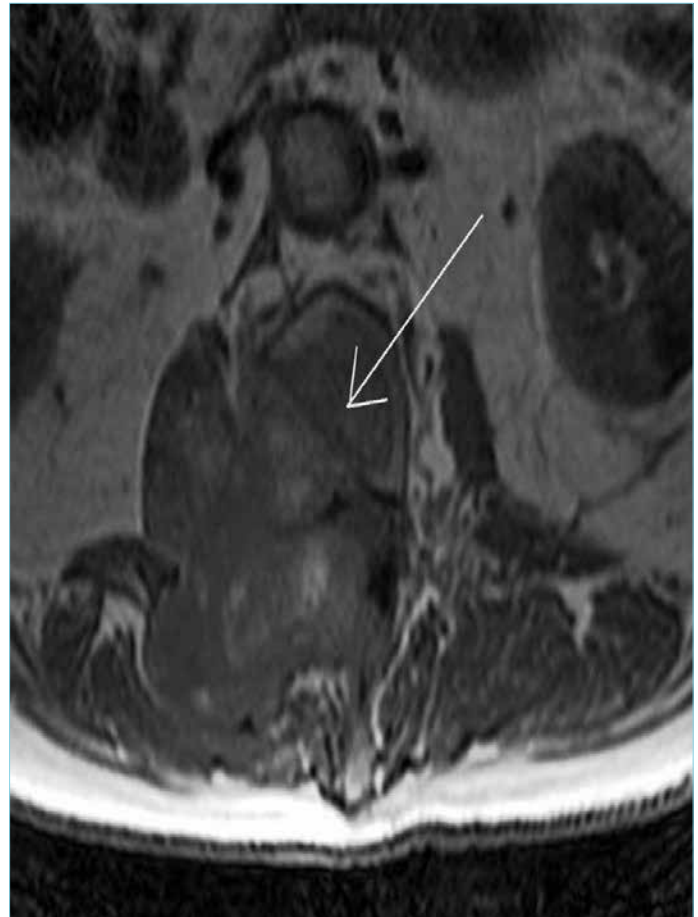
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**Table 1.** Electroneuromyography results.

Motor nerve	Latency (ms)	Amplitude ( $\mu$ V)	CV (m/s)	Injection ENMG
Right medianus	2.2.8	8.8	55.1	
Right ulnaris	2.4	9.5	52.3	
Right musculocutaneous	3.0	8.5	61.2	
Right axilla	3.2	11.6	55.2	
Right tibialis (Ank-AH)	4.1	18.3	44.4	Fib:++ PSW: ++
Left tibialis (ank-AH)	3.4	12.2	41.0	Fib: - PSW: -
Right peroneus (ank-EDB)	7.6	0.2	40.8	Fib:++ PSW: ++
Left peroneus (ank-EDB)	4.3	4.8	46.2	Fib: - PSW: -



**Figure 1.** In magnetic resonance imaging (MRI), in a sagittal section, atypical carcinoid tumor metastatic to L1, L2, and L4 vertebrae and to the spinal cord at the L1-L4 level



**Figure 2.** In magnetic resonance imaging (MRI), in the T1A axial section, atypical carcinoid tumor metastatic to the L4 vertebrae at the L4 level, to the right paraspinal region, neural foramens, and invasion towards the spinal cord

oncology, and radiotherapy (RT) treatment was started. However, the patient's overall condition deteriorated after the 10th session of RT, and he died despite all of the interventions performed.

## DISCUSSION

Histopathologically, carcinoid tumors are divided into two important types: typical carcinoid (TC) tumors and atypical carcinoid (AC) tumors; 10%-20% of bronchial carcinoid tumors are atypical, and 80%-90% is typical. Compared to TCs, nodal and distant organ metastases are more common in ACs. Distant organ metastases are associated with the size and diameter of the tumor, and the rate was reported as 15% in one study, while another study reported a rate of 20%-27%. Distant organ metastases are mostly seen in the liver, bones, adrenal glands, and ovaries (7).

Vertebral metastases of carcinoid tumors were thought to be much less frequent in the past (8). Various autopsies performed have shown that vertebral metastases stemming from CTs are not as rare as believed (9). The incidence of bone metastases has increased, owing to the developments in diagnostic methods (10). In our case, MRI played an important role in detecting CT metastases in the lumbar region.

The spinal column is the most affected part in patients with bone metastases. Thoracic vertebrae in 40% of patients, lumbar verte-

brae in 34% of patients, and cervical vertebrae in 32% of patients are affected (11). Our case had lumbar vertebral involvement, one of the most frequent regions in which bone metastases are seen.

Bone scintigraphy, octreotide scintigraphy, and fluoro-2-deoxy-D-glucose positron emission-computerized tomography might be used in detecting bone metastases (5, 12). It should be noted that patients without any complaints may also have bone metastases. Therefore, patients with carcinoid tumors should be followed with an appropriate method at certain intervals. In the majority of patients with bone metastases, RT provides long-term palliation (2). Surgical procedures performed for metastases improve the quality of life in patients (13). The use of systemic chemotherapy (CT) is very limited. High-graded neuroendocrine can be used in the tumors. Rather than single chemotherapy, combination therapy is recommended (2). Our patient did not go to regular follow-ups after having primary lung surgery (lobectomy), and we think that his not taking CT and RT was a factor that affected the prognosis of our patient negatively.

Also, 60% of spinal column metastases stem from breast, lung, and prostate cancers. In addition, renal carcinoma, thyroid malignancies, gastrointestinal carcinomas, and melanomas can also cause vertebral metastases. Of patients with spinal metastases, pain causes the first physician contact in most of the patients. The patient usually suffers from mild pain at the beginning, but the severity gets stronger afterwards. Pain is often felt at night, and if there is a compression of neural elements, a radicular pain pattern may occur (14). In our case, the complaints had started in radicular pain form, and he had been followed with radiculopathy in various other medical centers. That also led to a delay in the diagnosis.

We also think that detecting lumbar column tumor metastasis, which is a rare etiologic factor encountered in back and leg pain, played an important role in our case. Also, the metastasis being caused by CT, a very rare tumor to encounter, makes our case valuable.

We frequently encounter patients complaining of back and leg pain in our everyday clinical experience. In these patients, generally, mechanical causes, such as lumbar disc herniation, radiculopathy, and myalgia, are considered. However, as in our patient, if rare and sometimes serious etiological factors are not identified in a timely manner, the quality of life of patients and the mortality rates can be affected negatively. We believe that in this context, particularly for patients who are unresponsive to treatment and who describe atypical pain patterns, anamnesis should be taken carefully and considered in detail.

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