CLINICAL VIGNETTE

A Case of Small Cell Lung Cancer and Paraneoplastic Sensory Neuropathy

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Case

A 57-year-old female with past history of untreated chronic hepatitis C, presented to the emergency department (ED) complaining of three months of progressive numbness and tingling in bilateral lower extremities extending to her waist. She also noted numbness and tingling in bilateral upper extremities extending to the shoulders. She reported twenty pound unintentional weight loss over several months.

There was associated weakness in the bilateral upper and lower extremities accompanying the numbness and tingling. She was still able to ambulate and perform her activities of daily living despite three months of progressive sensory deficits until the weeks before ED presentation.

At that time she had onset of rapidly progressive bilateral upper and lower extremity weakness. She needed to lean on furniture to prevent falling and became bed bound, incontinent, and unable to feed herself. She denied any sick contacts, any recent travel, or any preceding illnesses. She also denied any vision or speech changes, or any difficulty breathing or swallowing.

Her physical exam was notable for moderate weakness in her bilateral upper and lower extremities, distal (3/5) worse than proximal (4/5). The reflexes were absent throughout. There was a stocking and glove distribution sensory loss to pinprick, and decreased positional sense in the toes and fingers.

The patient was admitted to the internal medicine service with neurology consulted. CT and MRI brain were negative. Lumbar puncture was notable for WBC of 22, lymphocytic predominant, and protein of 62 mg/dl. Basic laboratory studies were unremarkable including vitamin B12 of 285 pg/ml. Nerve conduction study was notable for severe diffuse sensory neuropathy in upper and lower extremities with severe axonal demyelinating neuropathy. Electromyography was grossly normal except for chronic denervation in the right deltoid which was probably old. The working diagnosis was atypical Guillain Barre Syndrome with mild CSF pleocytosis and mainly sensory neuropathy. Plasmapheresis was initiated while continuing to evaluate for causes of vasculitic neuropathy including cryoglobulinemia from Hepatitis C, systemic lupus, Sjogrens, and paraneoplastic subacute sensory neuropathy due to malignancy. Lymphoma and lung cancer can cause neuropathy which can mimic Guillain Barre Syndrome.

She continued to complain of burning and tingling pain despite gabapentin and plasmapheresis. She still required assistance from bed to bedside commode despite daily physical therapy. She was consuming the majority of her diet without difficulty and denied any respiratory issues. She was tolerating plasmapheresis well.

CT chest, abdomen, and pelvis was performed to evaluate for malignancy and revealed mediastinal, subcarinal, precarinal, pretracheal, periportal, and portal caval lymphadenopathy. Notable labs include ANA with titer 1:40, HCV RNA PCR level of 12,000,000, positive Cryoglobulins, Anti-Hu with titer 1:640. Sjogren panel (SS-A and SS-B), Lupus panel, Anti-Ri, and Anti-CV2 were negative.

With positive Anti-Hu and CT findings of diffuse adenopathy, Small cell carcinoma of the lung associated with paraneoplastic sensory neuropathy was favored as the primary diagnosis. Pulmonary performed endobronchial ultrasound transbronchial needle aspiration (EBUS-TBNA) of the mediastinal lymph node.

The patient had completed six sessions of plasmapheresis with mild improvement in strength diffusely. With minimal nursing assistance she could transfer from bed to bedside commode. She still complained of severe pain in her extremities despite her pain regimen escalating to max doses of gabapentin and amitriptyline, along with opioid analgesics.

When the EBUS-TBNA results returned positive for small cell carcinoma. Chemotherapy was initiated with carboplatin and etoposide with 6 cycles every 21 days. She completed the first three day cycle as an inpatient. She was transferred to an acute rehabilitation center for aggressive physical therapy. Referrals were made for additional imaging and outpatient follow up.

At oncology follow up after one week of intensive physical therapy, she was able to feed herself, dress herself, but could not ambulate independently. She received her second dose of chemotherapy 2 weeks later without complications.

Unfortunately, the patient was discharged from the rehabilitation center and then she was lost to follow up.

Discussion

Although paraneoplastic syndromes are rare and occur in less than 1% of cancer patients, up to 3%-5% of patients with Small cell lung cancer develop paraneoplastic syndromes.[1] Paraneoplastic syndromes are usually progressive, and they may cause severe debilitation within weeks to months. In general, paraneoplastic cause should be suspected when symptoms progress in a subacute course and disability remains severe.[2]

Many paraneoplastic syndromes are associated with antibodies directed against the central nervous system. The anti-Hu antibody is associated with a paraneoplastic subacute sensory neuropathy described in cases of Small cell lung cancer.[3] Small cell lung cancer accounts for more than 90% of cases of paraneoplastic syndrome that are positive for anti-Hu antibody.[4]

Several patients with anti-Hu antibody-positive small cell lung cancer, had been reported with spontaneous regression of small cell lung cancer without treatment, suggesting a host immune response directed against both cancer and the nervous system.[5] However, treating the underlying cancer is generally the most effective therapy for paraneoplastic syndromes, and treatment soon after symptom onset appears to offer the best potential for symptom improvement.[6]

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