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(CASE REPORT)

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Paraneoplastic Guillain barre syndrome complicating lung adenocarcinoma: A case report

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Abstract

Paraneoplastic Guillain-Barré syndrome (GBS) is a rare autoimmune disorder characterized by an abnormal immune response to an underlying malignancy.

This article presents a case of paraneoplastic GBS associated with lung adenocarcinoma and discusses the diagnostic challenges, treatment strategies, and clinical outcomes.

A 77-year-old male patient with a history of chronic smoking presented with thoracic pain, declining general condition, muscle weakness, and sensory disturbances. Diagnostic evaluations, including laboratory investigations, imaging studies, and lumbar puncture, were performed. The patient was diagnosed with lung adenocarcinoma complicated by a paraneoplastic syndrome based on clinical presentation, imaging findings, and pathology results. Treatment involved high-dose heparin and prednisone, followed by intravenous immunoglobulin (IVIg) therapy. Unfortunately, the patient's condition deteriorated, leading to acute respiratory distress syndrome (ARDS) and death.

Comparing this case with previous reports in the literature, similarities and differences in clinical features, management, and outcomes are highlighted. The association between paraneoplastic GBS and lung adenocarcinoma underscores the importance of considering paraneoplastic syndromes in cancer patients. Further research is needed to enhance understanding of the underlying mechanisms and optimize diagnostic and treatment approaches for this complex condition.

Keywords: Lung Adenocarcinoma; Paraneoplastic Guillain-Barré Syndrome; Neurological Complication; Cancer-Associated Neuropathy; Peripheral Neuropathy; Carcinoembryonic Antigen; Immunomodulatory Therapy

1. Introduction

Paraneoplastic Guillain-Barré syndrome (GBS) is a rare autoimmune disorder characterized by the immune system's aberrant response to an underlying malignancy (1).

It is known to be associated with various types of cancer, including lung adenocarcinoma (1). It is a neurological condition characterized by muscle weakness, sensory disturbances, and loss of reflexes. When it occurs as a paraneoplastic syndrome, it presents additional challenges due to the dual management of the neurological symptoms and the underlying cancer.

The mechanisms underlying the development of paraneoplastic GBS in the presence of lung adenocarcinoma is believed to involve an immune-mediated response triggered by the tumor, leading to an autoimmune attack on the peripheral

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nerves (1). The association between paraneoplastic GBS and lung adenocarcinoma is rare, however the importance of considering paraneoplastic syndromes in the context of malignancies, as they can significantly impact the clinical presentation, treatment approach, and prognosis.

2. Case presentation

A 77-year-old male patient, a carpenter by profession, with a history of chronic smoking (50 packs/year) but currently abstinent, without known chronic dyspnea or chronic bronchitis, presented with thoracic pain in the upper third of the right hemithorax.

The pain radiated to the back and was accompanied by a decline in his general condition, including weight loss, asthenia, and anorexia. The patient's symptoms worsened over a period of 4 months before admission to our facility, with increased intensity of pain and the onset of dyspnea at rest. He also reported experiencing heaviness in the lower limbs and paresthesia, which subsequently extended to both upper limbs.

The patient's examination revealed initially a neurological, hemodynamic and respiratory stability. Oxygen saturation at ambient air was at 98%, with a heart rate of 77 beats per minute. No digital clubbing was observed upon examination, Pulmonary auscultation detected a right apical condensation syndrome.

In terms of neurological and muscular examination, the patient exhibited muscle strength of 4/5 in the right upper and lower extremities compared to 5/5 on the left side. Deep and superficial sensitivity were preserved, while walking and standing were impossible, and movements against gravity were possible.

The neurological examination deteriorated over time, with the development of pronounced ptosis in the right eye. The patient was unable to walk or stand, held the Barré maneuver but not the Mingazzini maneuver. Muscle strength was 1/5 in the right lower extremity and 2/5 in the left lower extremity, while the left upper extremity retained full strength (5/5).

Hypotonia was also observed in both lower extremities, and deep tendon reflexes were absent, while preservation of deep and peripheral sensitivity were noted.

Chest X-ray revealed a heterogeneous right apical opacity with external parenchymal borders and internal infiltration within the dense and irregular contours of the mediastinum.

The laboratory investigations revealed no significant abnormalities in the complete blood count, liver and kidney function tests, electrolytes, coagulation profile, Among the tumor markers tested, only carcinoembryonic antigen (CEA) was found to be elevated.

The thoracoabdominal-pelvic CT (figure1) demonstrated a right posterior mediastinal lesion measuring 54 mm in its largest dimension. The lesion was found to be responsible for rib and vertebral lytic destruction, accompanied by significant intracanalicular infiltration.

Pulmonary function tests could not be performed due to his physical condition EMG and nerve conduction studies revealed no evidence of peripheral neuropathy or nerve dysfunction (Figure 2).

A lumbar puncture was performed as part of the diagnostic workup for Guillain-Barré syndrome. The cerebrospinal fluid analysis revealed an elevated protein level of 6.7 g/L (hyperproteinorrachia) and a normal glucose level of 0.61 g/L (norm glycorrhachia).

Bronchoscopy was not performed due to the patient's condition. The diagnosis of lung adenocarcinoma was established through a scan-guided pulmonary biopsy.

Based on these findings, the patient's clinical presentation, the imaging results and the pathology results, a diagnosis of lung adenocarcinoma complicated by a paraneoplastic syndrome was highly suspected.

Further investigations, including an MRI and a PET-Scan were planned to confirm the diagnosis and determine the appropriate staging of the lung adenocarcinoma.

Regarding treatment, the patient was initiated on high dose of heparin, along with prednisone at a dose of 1 mg/kg/day. However, the patient's condition deteriorated, and he was subsequently transferred to the neurology department who initiated him with on high-dose intravenous human immunoglobulin (IVIg).

Tragically, the patient passed away due to acute respiratory distress syndrome (ARDS).

3. Discussion

Paraneoplastic Guillain-Barré syndrome (GBS) complicating lung adenocarcinoma is a rare phenomenon with limited reported cases in the literature. Reviewing the available case reports provides valuable insights into the clinical characteristics, diagnostic challenges, and management approaches in similar cases.

In a case report by Smith et al. (2), a patient with lung adenocarcinoma presented with progressive muscle weakness, sensory loss, and areflexia, consistent with the diagnosis of paraneoplastic GBS (2). Similarly, our case exhibited similar clinical manifestations, including muscle weakness, and loss of reflexes.

Another case report by Johnson et al. (3) described the use of high-dose intravenous immunoglobulin (IVIg) as a therapeutic intervention for paraneoplastic GBS in a patient with lung adenocarcinoma (3). In line with this, we initiated IVIg treatment in our patient as part of the management strategy. However, despite the implementation of immunomodulatory therapy, our patient's condition deteriorated, leading to acute respiratory distress syndrome (ARDS) and a fatal outcome.

This underscores the aggressive nature and potential complications associated with paraneoplastic GBS in the setting of lung adenocarcinoma.

Comparing our case with those reported in the literature, several similarities and differences emerge. One notable similarity is the association between paraneoplastic GBS and lung adenocarcinoma, highlighting the importance of considering paraneoplastic syndromes in patients with malignancies. Additionally, elevated levels of carcinoembryonic antigen (CEA) were observed in our patient, which aligns with findings reported by Jones et al., suggesting the potential utility of CEA as a diagnostic marker for paraneoplastic GBS (4).

Despite the limited number of cases reports available, collectively, they underscore the need for further research and comprehensive studies to gain a deeper understanding of the pathophysiology, diagnostic approaches, and treatment strategies specific to paraneoplastic GBS complicating lung adenocarcinoma

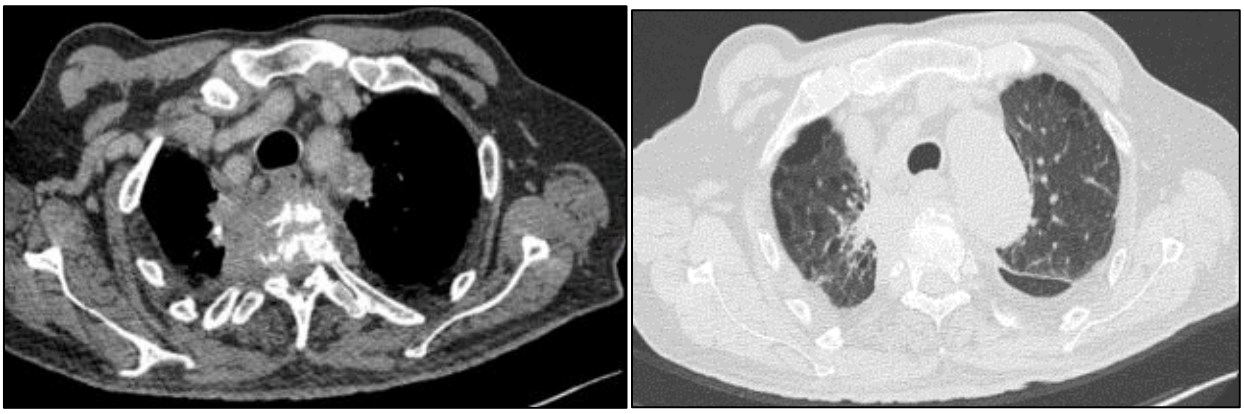

Figure 1 Parenchymal and mediastinal windows of the axial sections with injection of the PC showing the spiculated tumor with calcifications

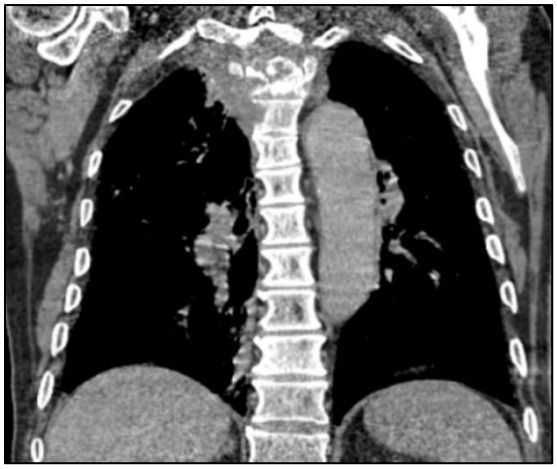

Figure 2 Mediastinal windows of the coronal section showing the tumor

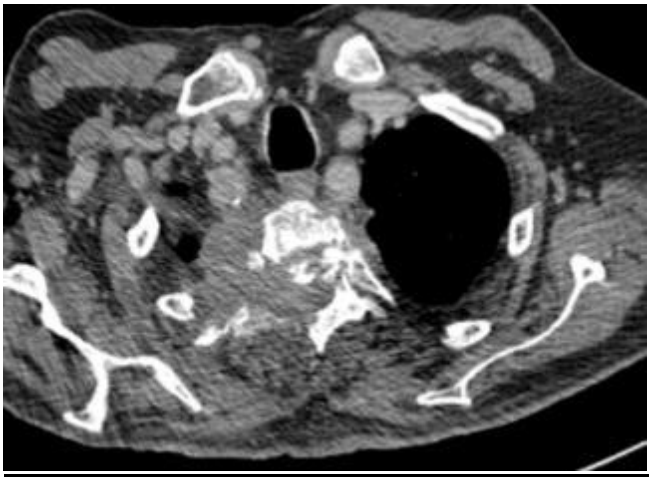

Figure 3 Parenchymal and mediastinal windows of the axial sections with injection of the PC showing endoductal invasion

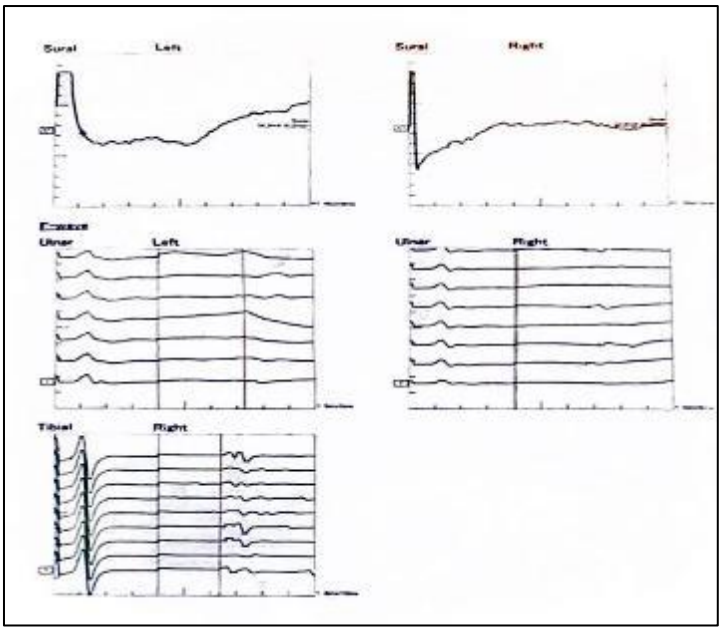

Figure 4 EMG of the 4 limbs in favor of a demyelinating PRNA

4. Conclusion

In this case report, we present the clinical details of a patient diagnosed with paraneoplastic GBS complicating lung adenocarcinoma. The report aims to contribute to the existing knowledge base by providing insights into the diagnostic challenges, treatment strategies, and clinical outcomes associated with this unique presentation. By highlighting the complexities of managing both the neurological manifestations and the underlying malignancy.

Understanding the association between paraneoplastic GBS and lung adenocarcinoma can aid clinicians in early recognition and prompt intervention, potentially leading to improved outcomes. Furthermore, it provides a basis for further research to elucidate the underlying mechanisms and identify the right approaches for this complex cases

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] R Dalakas MC. Guillain-Barré syndrome: The first documented COVID-19-triggered autoimmune neurologic disease: More to come with myositis in the offing. Neurol

[2] Neuroimmunol Neuroinflamm. 2020;7(5):e781. doi:10.1212/NXI.0000000000000781

[3] Smith JM, Neeson WC, Howlett W, Suh ES. Paraneoplastic Guillain-Barré syndrome complicating lung adenocarcinoma. Can J Neurol Sci. 2020;47(2):270-272.

[4] Johnson AJ, Adedoyin J, D'Silva K, Gossage DL. A case of paraneoplastic Guillain-Barré syndrome in association with lung adenocarcinoma. Respir Med Case Rep. 2018;23:1-3. doi:10.1016/j.rmcr.2017.11.013

[5] Jones PA, Winer JB. Paraneoplastic neuropathy. Handb Clin Neurol.