

When The Reason for Consultation Does Not Always Point to The Clinical Picture: Dizziness of Pulmonary Origin, Regarding A Case

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ABSTRACT

Introduction: Dizziness is one of the most common reasons for consultation in emergency departments and is usually associated with neurological, cardiovascular, vestibular, or medication-related causes. However, it may occasionally represent the initial manifestation of a serious systemic disease, highlighting the importance of a thorough medical history and comprehensive clinical assessment.

Case report: We present the case of a 59-year-old man, a heavy active smoker, with a history of arterial hypertension and methadone maintenance therapy, who presented with a six-week history of nonspecific dizziness associated with occipital headache, arthralgia, asthenia, somnolence, and unintentional weight loss. Physical examination revealed no significant findings. Laboratory tests showed leukocytosis, anemia, thrombocytosis, and elevated inflammatory markers. A chest radiograph, requested in the context of constitutional symptoms and active smoking, revealed findings suggestive of a pulmonary mass. Computed tomography confirmed a right upper lobe lung neoplasm associated with mediastinal involvement and multiple metastatic pulmonary lesions. Subsequent staging studies demonstrated numerous supra- and infratentorial brain metastases. Following histopathological confirmation and multidisciplinary evaluation, the patient was enrolled in a clinical trial for oncologic treatment. Despite therapy, the disease progressed unfavorably, ultimately requiring follow-up by the Palliative Care Unit.

Conclusion: This case highlights that seemingly nonspecific symptoms such as dizziness may represent the initial presentation of advanced lung cancer. The identification of associated symptoms and risk factors during history taking was crucial in guiding the diagnostic process. Furthermore, it underscores the importance of rapid diagnostic pathways to ensure timely specialist assessment in patients with suspected malignancy.

Keywords: Dizziness; Lung cancer; Emergency medicine; Constitutional symptoms; Early diagnosis; Neoplastic syndromes

INTRODUCTION

Dizziness is one of the most common reasons for consultation in emergency departments and is typically associated with neurological, cardiovascular, vestibular, or medication-related causes.¹ However, it may occasionally represent the initial manifestation of a serious systemic disease, highlighting the importance of obtaining a thorough medical history and performing a comprehensive clinical assessment.

The initial medical interview is particularly important when evaluating a patient, especially in healthcare settings where time constraints and workload pressures play a crucial role in clinical decision-making. A detailed history allows for appropriate initial diagnostic orientation and helps prevent cognitive biases that may lead clinicians to overlook potentially serious or life-threatening conditions.²

CASE REPORT

A 59-year-old man with an active lifestyle presented to the emergency department. His medical history included arterial hypertension, active smoking of at least 30 cigarettes per day, former alcohol abuse with a history of alcohol withdrawal syndrome eight years earlier, currently receiving methadone maintenance therapy, and a severe pneumonia 14 years previously that required admission to the intensive care unit and tracheostomy. His regular medications included enalapril, methadone, sertraline, and gabapentin.

He reported a clinical syndrome of approximately six weeks' duration characterized by nonspecific dizziness without a sensation of vertigo, associated with nonspecific occipital headache described as burning in nature, bilateral knee-predominant arthralgia that worsened throughout the day, as well as asthenia and somnolence. He also reported an unintentional weight loss of at least 3 kg over the previous two months, without any dietary changes. He denied fever, diarrhea, or vomiting. The patient attributed his symptoms to sertraline, which had been initiated two months earlier, and also described intermittent sharp chest discomfort occurring after taking the medication.

On arrival at the emergency department, he appeared in good general condition. He was afebrile, comfortable at rest, and maintained an oxygen saturation of 97% on room air. Hemodynamic parameters were stable, with a blood pressure of 124/84 mmHg and a heart rate of 95 beats per minute. Physical examination revealed no significant lymphadenopathy. Cardiac auscultation was unremarkable, while respiratory examination demonstrated mildly decreased breath sounds at both lung bases without adventitious sounds. Abdominal and lower extremity examinations were normal.

As part of the initial emergency department evaluation for dizziness, routine laboratory tests, a 12-lead electrocardiogram, and a chest radiograph were obtained.

- Laboratory investigations revealed leukocytosis of $15.79 \times 10^3/\mu\text{L}$ with neutrophil predominance (74%), mild anemia with a hemoglobin level of 12.1 g/dL, and thrombocytosis of $514 \times 10^3/\mu\text{L}$. Fibrinogen was elevated at 743 mg/dL, while the remaining coagulation parameters were within normal limits. Renal function was preserved, with a serum creatinine level of 0.79 mg/dL and an estimated glomerular filtration rate of 97.59 mL/min/1.73 m². Liver function tests were unremarkable. Serum electrolytes were within normal ranges, including sodium of 139 mmol/L and potassium of 4.2 mmol/L. C-reactive protein was elevated at 7.58 mg/dL.
- Further evaluation of the anemia demonstrated low serum iron (17 $\mu\text{g/dL}$), reduced transferrin saturation (8%), and decreased transferrin levels (171 mg/dL), with a normal ferritin concentration (372 $\mu\text{g/mL}$). Vitamin B12 levels were within the normal range, whereas folate levels were mildly decreased at 3.80 ng/mL. Urinalysis was unremarkable.
- The electrocardiogram showed normal sinus rhythm without conduction abnormalities or acute ischemic changes.
- Posteroanterior and lateral chest radiographs demonstrated bilateral hilar enlargement and two radiopaque lesions within the right upper lobe, measuring 44×52 mm and 12×10 mm, respectively. No pleural effusion or costophrenic angle blunting was observed.
- Given the presence of constitutional symptoms, anemia, a significant smoking history, and radiographic findings suggestive of pulmonary masses, the patient was urgently referred to the Pulmonology Department through the institutional fast-track pathway for suspected malignancy (C-15 pathway). A contrast-enhanced computed tomography (CT) scan of the chest, abdomen, and pelvis was requested to further characterize the lesions and assess the extent of disease.
- Contrast-enhanced CT imaging of the chest, abdomen, and pelvis revealed the following findings:

- A large heterogeneous mass measuring $66 \times 65 \times 48$ mm was identified in the central portion of the right upper lobe. The lesion exhibited extensive hypodense areas suggestive of necrosis and poorly defined margins, findings highly suspicious for a primary lung malignancy.
- A second large mediastinal mass, measuring 52×62 mm, was centered in the right lower paratracheal region. It demonstrated imaging characteristics similar to those of the primary pulmonary lesion and was considered likely nodal in origin. The mass was closely associated with a 4.9-cm segment of the superior vena cava, which appeared markedly narrowed with irregular wall contour, raising suspicion of vascular invasion.
- Additional right hilar lymphadenopathy measuring up to 12.4 mm was observed.
- Multiple bilateral pulmonary nodules consistent with metastatic disease were also identified, including lesions measuring 20 mm and 18 mm within the right lower lobe and a 24-mm lesion within the right upper lobe.
- An 18-mm left adrenal nodule was detected; however, its nature could not be definitively characterized on this examination.
- Overall, the imaging findings were consistent with an advanced primary lung malignancy staged as cT4N2M1a.

The patient was subsequently evaluated by the Pulmonology Department, where flexible bronchoscopy, brain magnetic resonance imaging (MRI), and whole-body positron emission tomography (PET) were requested to complete disease staging and further characterize the left adrenal lesion. Following histopathological confirmation from bronchoscopic biopsy specimens and review of the imaging studies, the case was discussed at a multidisciplinary tumor board meeting and referred to the Oncology Department for consideration of active treatment.

Further staging revealed numerous supra- and infratentorial brain metastases involving both cerebral and cerebellar hemispheres, with a greater burden of disease in the right hemisphere. All lesions were subcentimeter in size. Given the extent of metastatic disease, the patient was enrolled in a clinical trial evaluating systemic anticancer therapy. Despite initial treatment, the disease progressed, and following therapeutic failure, the patient was referred to the Palliative Care Unit for symptom-directed management.

This case highlights the importance of a comprehensive clinical assessment when evaluating patients with nonspecific symptoms. Although dizziness was the presenting complaint, careful attention to accompanying features—particularly constitutional symptoms such as unintentional weight loss, asthenia, and generalized weakness—prompted further investigation. In the context of a significant smoking history, these findings justified obtaining a chest radiograph, a test not routinely performed in the standard evaluation of dizziness, which ultimately led to the diagnosis.

The case also underscores the value of rapid-access diagnostic pathways for patients with suspected malignancy. Such pathways facilitate timely referral to specialist services and expedite the completion of diagnostic investigations, enabling prompt multidisciplinary assessment and treatment planning. This approach is particularly relevant in emergency care settings, where the primary objective is often to identify life-threatening conditions while ensuring appropriate follow-up for serious non-emergent diseases.

Despite enrollment in a clinical trial and the use of multiple therapeutic strategies, the patient experienced progressive disease. Owing to the development of chronic cancer-related pain and refractory dyspnea despite home oxygen therapy, long-term management ultimately focused on palliative and supportive care.

DISCUSSION

The present case highlights the importance of obtaining a thorough medical history and performing a comprehensive clinical assessment, particularly in patients presenting with nonspecific symptoms that

may initially suggest a benign condition while potentially masking a more serious or even life-threatening disease.

Dizziness is one of the most common presenting complaints in emergency departments and is most frequently associated with neurological, vestibular, cardiovascular, metabolic, or medication-related disorders. However, as illustrated by this case, it may occasionally represent the initial clinical manifestation of an underlying malignancy.³

In our patient, the presence of dizziness could initially have suggested a neurological or cardiovascular etiology. A medication-related cause was also considered, given the temporal association with the recent initiation of sertraline therapy. Nevertheless, careful identification of accompanying symptoms allowed the diagnostic approach to be broadened beyond the presenting complaint. The recognition of constitutional symptoms, particularly unintentional weight loss, asthenia, and somnolence, prompted consideration of a systemic process and helped avoid diagnostic anchoring bias.⁴ This aspect is especially relevant in emergency medicine, where clinical decisions often need to be made rapidly and may be disproportionately influenced by the patient's chief complaint, potentially overlooking more significant underlying pathology.

The initial laboratory findings, including leukocytosis and elevated inflammatory markers such as thrombocytosis and increased C-reactive protein levels, may be explained by the underlying neoplastic process. Although these findings are nonspecific, their presence in a patient with constitutional symptoms and a significant smoking history justified further investigation. In this context, a simple chest radiograph proved crucial, revealing the pulmonary lesions that ultimately led to the diagnosis. Chest radiography remains an accessible, low-cost, and widely available imaging modality, and in this case played a decisive role in the initial detection of the disease.

The subsequent identification of distant metastatic involvement, including pulmonary metastases, mediastinal and hilar lymphadenopathy, and multiple brain metastases, suggests that dizziness may have been an indirect manifestation of advanced malignancy. Alternatively, the symptom may have been directly related to the presence of intracranial metastatic lesions, which were later demonstrated on brain imaging.^{5,6}

RESULTS

Dizziness is a frequent presenting complaint in emergency departments, and although it often suggests a neurological or cardiovascular origin, the differential diagnosis should be broadened to include less common etiologies, particularly in the context of constitutional symptoms. In cases of non-vertiginous dizziness, underlying neoplastic processes or hematological abnormalities such as anemia—both potentially related to oncological disease—should be considered.

On the other hand, lung cancer remains one of the leading causes of cancer-related mortality worldwide.⁷ Although its initial clinical presentation depends on the primary tumor location and disease stage, suspicion is typically raised in patients presenting with more specific respiratory symptoms such as persistent cough, hemoptysis, or dyspnea. However, this focus may lead to underrecognition of extrapulmonary manifestations, which can be the first indicators of metastatic disease or advanced systemic involvement.^{8,9}

CONCLUSION

Nonspecific dizziness, although a frequent presenting symptom that is typically initially attributed to neurological, cardiovascular, or metabolic/pharmacological causes, may represent an atypical manifestation of conditions unrelated to the central nervous or cardiovascular systems, including certain malignancies. A comprehensive clinical assessment, following a detailed medical history that incorporates accurate interpretation of presenting symptoms and personal medical history, is essential for appropriate diagnostic reasoning and clinical decision-making. This case reinforces the importance of maintaining a

broad diagnostic perspective in emergency settings, helping to avoid diagnostic tunnel vision that may arise under the pressure of high clinical workload and the need for rapid decision-making, potentially leading to missed diagnoses when symptoms do not initially suggest common etiologies; in this case, dizziness as a manifestation of pulmonary malignancy.

This clinical case also highlights the importance of established rapid diagnostic pathways and clinical circuits for patients with suspected oncological disease identified in the emergency department, even in the absence of criteria for immediate intervention.^{10,11} The availability of such pathways allowed timely diagnostic evaluation and early completion of staging studies, facilitating multidisciplinary assessment. In healthcare systems where advanced imaging is not routinely performed without criteria of severity or acute pathology, these structured pathways are essential to ensure efficient diagnostic workup, improve access to specialist care, and potentially enhance overall patient outcomes and quality of care.

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None

CONFLICTS OF INTEREST

There is no conflict of interest in the presentation of this case.

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