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# Small Cell Lung Cancer Mimicking Pulmonary Tuberculosis in a 22-Year-Old Man: A Diagnostic Challenge in a Tuberculosis-Endemic Setting

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A B S T R A C T

Small cell lung cancer (SCLC) is an aggressive neuroendocrine malignancy characterized by rapid progression and early metastasis. Its clinical and radiological manifestations may overlap with pulmonary tuberculosis, creating a diagnostic challenge in tuberculosis-endemic settings. This overlap may be particularly misleading in young adults, in whom primary lung malignancy is rarely suspected. Case Presentation: A 22-year-old man presented with a persistent cough, intermittent fever, and an unintentional weight loss of approximately 5–7 kg. Based on his clinical presentation and chest radiographic findings, he was initially diagnosed with clinically presumed pulmonary tuberculosis and received intensive-phase antituberculosis therapy. Despite a slight reduction in cough, his general condition and body weight did not improve. He subsequently developed unilateral cervical lymphadenopathy and swelling of the left cheek, left upper extremity, and both lower extremities. Histopathological examination of a cervical lymph-node biopsy revealed malignant cells, while computed tomography of the chest demonstrated a right lung mass, multiple lymphadenopathies, and pleural effusion. The patient underwent therapeutic thoracentesis, systemic chemotherapy, and supportive care. This case highlights the potential for SCLC to mimic pulmonary tuberculosis, even in a very young patient. Lack of meaningful improvement after empirical antituberculosis treatment, progressive lymphadenopathy, pleural effusion, or clinical deterioration should prompt immediate diagnostic reassessment. Integrating microbiological evaluation, cross-sectional imaging, and timely tissue biopsy is essential to reduce diagnostic delay and facilitate earlier oncological management.

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## INTRODUCTION

Lung cancer remains one of the most frequently diagnosed malignancies and the leading cause of cancer-related mortality worldwide. According to the Global Cancer Observatory estimates for 2022, approximately 2.5 million new lung cancer cases and 1.8 million associated deaths occurred globally, underscoring its substantial public health burden (Bray et al., 2024). Small cell lung cancer (SCLC) accounts for approximately 10%–15% of all lung cancers and represents a distinct neuroendocrine malignancy characterized by rapid tumor growth, early metastatic dissemination, and a high propensity for recurrence. Although SCLC is initially sensitive to chemotherapy and radiotherapy, most patients present with advanced disease, and long-term survival remains poor (Rudin et al., 2021; Wang et al., 2019).

SCLC is strongly associated with tobacco exposure and is predominantly diagnosed in older adults with a substantial smoking history. Consequently, its occurrence in young adults is highly unusual and may reduce the clinician's initial suspicion of pulmonary malignancy. The clinical manifestations of SCLC are frequently nonspecific and may include persistent cough, dyspnea, chest pain, hemoptysis, fatigue, and unintentional weight loss. Advanced disease may also present with mediastinal or peripheral lymphadenopathy, pleural effusion, lobar collapse, respiratory failure, or symptoms associated with distant metastases (Rudin et al., 2021; Wang et al., 2019). Because these manifestations overlap with those of infectious pulmonary diseases, the diagnosis of SCLC may be particularly challenging in regions where tuberculosis is prevalent.

Pulmonary tuberculosis remains a major infectious cause of morbidity and mortality worldwide. Its common manifestations include prolonged cough, fever, night sweats, weight loss, and abnormal thoracic imaging findings (Liu et al., 2023; Pai et al., 2016). Radiological abnormalities such as pulmonary consolidation, hilar or mediastinal lymphadenopathy, pleural effusion, and mass-like lesions may be observed in both tuberculosis and lung malignancy. In high-burden settings, this clinical and radiological overlap may encourage an initial diagnosis of tuberculosis, particularly when malignancy is considered unlikely because of the patient's young age. However, reliance on clinical and radiological findings without microbiological confirmation may lead to empirical antituberculosis treatment and delay histopathological diagnosis of an underlying malignancy.

Diagnostic reassessment is therefore essential when a patient treated for presumed pulmonary tuberculosis shows no meaningful clinical improvement, develops progressive lymphadenopathy, or demonstrates radiological progression. Histopathological or cytological confirmation remains fundamental for establishing the diagnosis of SCLC and distinguishing it from tuberculosis, lymphoma, other neuroendocrine tumors, and small round-cell malignancies (Rudin et al., 2021; Wang et al., 2019). A systematic approach integrating clinical history, microbiological testing, cross-sectional imaging, tissue sampling, and treatment-response evaluation may reduce diagnostic delay and facilitate timely oncological management.

This report describes a 22-year-old man who initially received treatment for clinically presumed pulmonary tuberculosis based on respiratory symptoms, weight loss, and thoracic radiological findings. The absence of substantial clinical improvement and the subsequent development of cervical lymphadenopathy prompted further evaluation. Histopathological and radiological investigations ultimately established a diagnosis of advanced right-sided SCLC accompanied by multiple lymphadenopathy, malignant pleural effusion, right lung atelectasis, and acute hypoxemic respiratory failure. This case highlights the importance of maintaining a broad differential diagnosis and reconsidering pulmonary malignancy in patients with a tuberculosis-like presentation, even when their age and initial clinical profile appear atypical for lung cancer.

## CASE PRESENTATION

### Patient Information and Initial Presentation

A 22-year-old man presented with a persistent cough lasting approximately one month, accompanied by intermittent fever and an unintentional weight loss of approximately 5–7 kg. He initially sought care at a local village health facility, where symptomatic treatment was provided. Because his symptoms did not improve, he was referred to a community health center for further evaluation.

At the community health center, investigations for suspected pulmonary tuberculosis were initiated, including a molecular rapid test for *Mycobacterium tuberculosis*, a tuberculin skin test, and chest radiography. The detailed results of the molecular and tuberculin tests were not available in the source document. Based on the persistent respiratory symptoms, marked weight loss, and chest radiographic findings considered suggestive of tuberculosis, the patient was clinically diagnosed with pulmonary tuberculosis and started on the intensive phase of antituberculosis therapy. During treatment, the patient attended routine follow-up visits. He reported nausea and vomiting, while the cough showed only slight improvement. His body weight remained low, and no substantial improvement in his general condition was observed. The exact antituberculosis regimen, dosages, treatment duration, and adherence data were not documented in the available source material.

### Clinical Progression

Approximately one week before further evaluation, the patient developed swelling of the left cheek, left upper extremity, and both lower extremities. Liver and renal function tests were reported to be within normal limits, although the numerical laboratory values were unavailable. Physical examination subsequently identified progressively enlarged unilateral cervical lymph nodes. These findings, together with the lack of meaningful clinical response to antituberculosis treatment, were considered inconsistent with the expected clinical course of uncomplicated pulmonary tuberculosis.

A cervical lymph-node biopsy was therefore performed. Histopathological examination demonstrated malignant cells, although the detailed microscopic features and immunohistochemical profile were not

included in the source document. A subsequent contrast-enhanced computed tomography scan of the chest revealed a right pulmonary mass associated with multiple lymphadenopathies and pleural effusion, raising suspicion of primary lung malignancy. The patient was then referred to Dr. Saiful Anwar Regional General Hospital, Malang, for definitive diagnostic evaluation and management.

## Diagnostic Assessment

At the referral hospital, the patient underwent bronchoscopy, further histopathological assessment, and advanced radiological evaluation. These investigations established the diagnosis of advanced small cell lung carcinoma of the right lung. The disease was accompanied by multiple lymphadenopathies involving the mediastinal, supraclavicular, axillary, and inguinal regions. Additional documented complications included right-sided pleural effusion classified in the hospital record as malignant, right lung atelectasis, and acute hypoxemic respiratory failure.

The patient was also documented as having cancer-related cachexia, severe protein–energy malnutrition, leukocytosis, and mild hyponatremia. However, detailed laboratory values, arterial blood gas findings, tumor dimensions, TNM classification, and results of metastatic evaluation were not available in the source document. Similarly, the pathological specimen used to establish the definitive diagnosis, the immunohistochemical markers, and the proliferative index were not reported.

**Table 1. Diagnostic Turning Points and Their Clinical Significance**

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| Diagnostic phase | Case-specific finding | Clinical significance | Recommended manuscript wording |
|---|---|---|---|
| Initial presentation | Persistent cough, intermittent fever, and unintentional weight loss of approximately 5–7 kg. | These findings are compatible with both pulmonary tuberculosis and lung malignancy. | Describe the presentation as nonspecific and avoid implying etiological confirmation. |
| Initial tuberculosis assessment | A molecular rapid test, tuberculin skin test, and chest radiography were performed; detailed results were unavailable in the source document. | The absence of reported microbiological results limits assessment of the initial tuberculosis diagnosis. | Use the term "clinically presumed pulmonary tuberculosis" rather than "confirmed tuberculosis." |
| Course during antituberculosis treatment | The cough improved slightly, but body weight and general condition did not improve meaningfully. | Partial improvement in a nonspecific symptom does not validate the working diagnosis. | Emphasize overall clinical response rather than isolated symptom fluctuation. |
| Emerging diagnostic red flags | Unilateral cervical lymphadenopathy and swelling of the left cheek, left upper extremity, and both lower extremities developed. | New progressive findings were discordant with the expected uncomplicated treatment course and prompted reassessment. | Present these findings as the diagnostic turning point. |
| Tissue diagnosis | Cervical lymph-node biopsy demonstrated malignant cells. | Tissue sampling redirected the diagnostic pathway from infection toward malignancy. | Add the full histopathological and immunohistochemical findings when available. |
| Cross-sectional imaging | Chest CT showed a right lung mass, multiple lymphadenopathies, and pleural effusion. | The combined findings strongly supported advanced thoracic malignancy. | Report lesion dimensions, nodal stations, and pleural findings if retrievable. |
| Referral-hospital diagnosis | Further evaluation established advanced right-sided SCLC with multistation lymphadenopathy, malignant pleural effusion, right lung atelectasis, and acute hypoxemic respiratory failure. | The final diagnosis explained the progressive systemic and respiratory manifestations. | State the pathological basis and formal stage when verified. |
| Management and follow-up | The patient underwent therapeutic thoracentesis, systemic chemotherapy, and supportive care. | Management addressed both tumor burden and symptomatic complications. | Add the chemotherapy regimen, treatment cycles, response, adverse events, and latest outcome when available. |

*Note. All case-specific information is derived from the available source manuscript. Unavailable results are explicitly identified and should not be inferred.*

## Therapeutic Intervention and Follow-Up

During the course of the disease, the patient experienced recurrent pleural effusions associated with progressive dyspnea. Therapeutic thoracentesis was performed when clinically indicated to relieve respiratory symptoms. The volume and cytological characteristics of the pleural fluid were not available. Following the definitive diagnosis, the patient commenced systemic chemotherapy at the referral hospital and continued to receive periodic oncological follow-up and supportive care. The specific chemotherapy regimen,

number of treatment cycles, treatment-related adverse events, radiological response, and survival outcome were not documented in the available source material. At the latest point described in the source document, the patient remained under active chemotherapy and clinical monitoring.

**Patient and Family Perspective**

The unexpected transition from an initial diagnosis of pulmonary tuberculosis to advanced lung cancer had a substantial psychological impact on the patient and his family. The patient's mother initially experienced shock and difficulty accepting the diagnosis, particularly because of the patient's young age. Following counseling and education from the healthcare team, the family gradually accepted the diagnosis and remained actively involved in supporting the patient throughout referral, diagnostic procedures, chemotherapy, and supportive treatment.

**Clinical Timeline**

| Clinical stage | Main events |
|---|---|
| Initial presentation | Persistent cough lasting approximately one month, intermittent fever, and unintentional weight loss of approximately 5–7 kg. |
| First healthcare visit | Symptomatic treatment was provided at a local village health facility; symptoms did not improve. |
| Community health-center evaluation | A molecular rapid test for tuberculosis, a tuberculin skin test, and chest radiography were performed. Detailed test results were not available in the source document. |
| Initial diagnosis and treatment | The patient was clinically diagnosed with pulmonary tuberculosis and started on intensive-phase antituberculosis therapy. |
| During antituberculosis treatment | The cough improved only slightly. Nausea and vomiting occurred, body weight remained low, and the general condition did not improve substantially. |
| Clinical deterioration | Swelling developed in the left cheek, left upper extremity, and both lower extremities. Progressive unilateral cervical lymphadenopathy was subsequently identified. |
| Further diagnostic evaluation | A cervical lymph-node biopsy demonstrated malignant cells. Chest computed tomography showed a right lung mass, multiple lymphadenopathies, and pleural effusion. |
| Referral-hospital assessment | Bronchoscopy, further histopathological assessment, and advanced radiological evaluation were performed at Dr. Saiful Anwar Regional General Hospital, Malang. |

| Clinical stage | Main events |
|---|---|
| Definitive diagnosis | Advanced right-sided small cell lung carcinoma with mediastinal, supraclavicular, axillary, and inguinal lymphadenopathy, right malignant pleural effusion, right lung atelectasis, and acute hypoxemic respiratory failure. |
| Treatment and follow-up | Therapeutic thoracentesis was performed for recurrent symptomatic pleural effusion. The patient subsequently received systemic chemotherapy, periodic oncological follow-up, and supportive care. |

Note. The timeline was reconstructed from the available case-reflection document. Exact calendar dates and several detailed test results were not available.

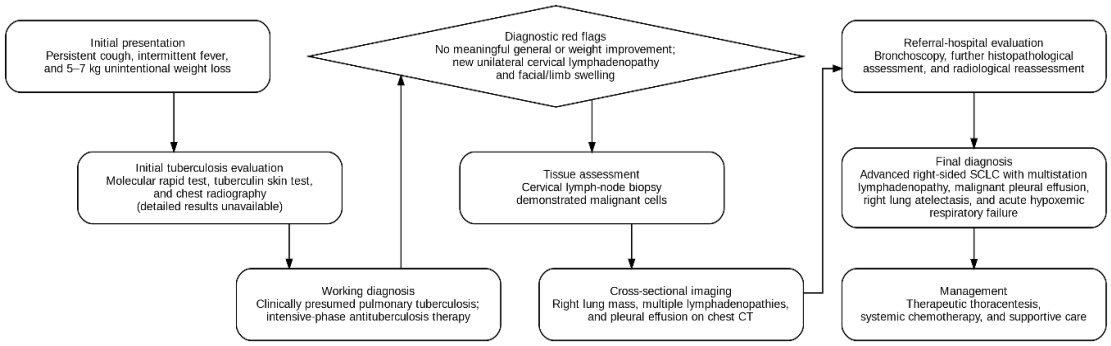


**Figure 1. Diagnostic Pathway from Presumed Pulmonary Tuberculosis to Advanced Small Cell Lung Cancer**

## DISCUSSION

Small cell lung cancer is a high-grade neuroendocrine malignancy characterized by rapid proliferation, early lymphatic and hematogenous dissemination, and a marked tendency to relapse after initial treatment. Although it constitutes a smaller proportion of lung cancers than non-small cell lung cancer, SCLC is associated with disproportionately high mortality because many patients present with extensive-stage disease at diagnosis (Rudin et al., 2021; Wang et al., 2019). The present case is clinically notable because SCLC was diagnosed in a 22-year-old man, an age at which primary lung malignancy is rarely considered during the initial assessment of respiratory symptoms.

SCLC occurs predominantly in older individuals and is strongly associated with cumulative tobacco exposure. Therefore, persistent cough and weight loss in a young adult living in a tuberculosis-endemic setting may initially be attributed to an infectious disease rather than malignancy. Nevertheless, age should not be used as an exclusion criterion for cancer, particularly when the disease course is progressive or inconsistent with the initial diagnosis. In this patient, young age may have reduced the pretest suspicion of lung cancer and contributed to an initial diagnostic pathway centered on pulmonary tuberculosis.

**Diagnostic overlap between pulmonary tuberculosis and SCLC**

Pulmonary tuberculosis and lung cancer share several clinical manifestations, including persistent cough, fever, constitutional symptoms, anorexia, weight loss, dyspnea, hemoptysis, and deterioration in general condition. Thoracic imaging may also show overlapping abnormalities, including consolidation, lymph-node enlargement, pleural effusion, atelectasis, and mass-like lesions (Liu et al., 2023; Pai et al., 2016). This overlap is particularly important in countries with a high burden of tuberculosis, where epidemiological context may strongly influence clinical reasoning.

In the present case, the combination of prolonged cough, intermittent fever, substantial weight loss, and chest radiographic findings considered compatible with tuberculosis supported the initial diagnosis of clinically presumed pulmonary tuberculosis. However, the available source document does not provide the results of the molecular rapid test, tuberculin skin test, sputum smear examination, or mycobacterial culture. Consequently, the microbiological basis of the initial diagnosis cannot be evaluated. This limitation is clinically relevant because radiographic findings alone cannot reliably distinguish tuberculosis from malignancy. Current tuberculosis practice emphasizes the importance of bacteriological confirmation whenever appropriate specimens and diagnostic facilities are available. A negative molecular or smear result does not completely exclude tuberculosis, but the absence of microbiological confirmation should increase the need for clinical surveillance and diagnostic reassessment, particularly when atypical findings emerge. Empirical antituberculosis treatment should not become a substitute for reconsidering alternative diagnoses when the clinical response is inadequate.

**Failure to respond to treatment as a diagnostic warning**

A central lesson from this case is the importance of reassessing a working diagnosis when the patient's clinical course does not correspond to the expected therapeutic response. Although the patient reported a slight reduction in cough after antituberculosis treatment, his low body weight and poor general condition persisted. He subsequently developed unilateral cervical lymphadenopathy and swelling of the left cheek, left upper limb, and both lower limbs. These new findings represented important warning signs requiring expansion of the differential diagnosis.

A minor improvement in a nonspecific symptom should not be interpreted as confirmation of the original diagnosis. Cough may fluctuate spontaneously or improve following symptomatic treatment, whereas persistent weight loss, progressive lymphadenopathy, pleural effusion, and respiratory deterioration suggest ongoing systemic disease. In such circumstances, continuation of the initial treatment without further investigation may result in diagnostic delay. The development of cervical lymph-node enlargement provided an accessible site for tissue sampling. Histopathological examination demonstrated malignant cells and redirected the diagnostic process toward malignancy. Subsequent computed tomography identified a right lung mass, multiple lymphadenopathies, and pleural effusion. These findings illustrate the

value of tissue diagnosis when clinical and radiological features remain ambiguous.

**Cognitive factors in the diagnostic process**

This case also demonstrates the potential influence of cognitive bias in clinical decision-making. The initial combination of tuberculosis-compatible symptoms, residence in a high-burden setting, and the patient's young age may have encouraged anchoring on tuberculosis. Once this initial impression was established, subsequent symptoms could have been interpreted within the same diagnostic framework. Premature closure may occur when the diagnostic process is stopped after an apparently plausible explanation has been identified. In this case, the absence of meaningful improvement and the appearance of new clinical abnormalities appropriately prompted diagnostic reopening. The case therefore reinforces that a diagnosis should be treated as a dynamic working hypothesis rather than an irreversible conclusion.

Several practical questions may help reduce diagnostic delay in similar circumstances:

- Has the presumed tuberculosis diagnosis been microbiologically confirmed?
- Is the clinical response proportional to the duration and adequacy of treatment?
- Are new findings compatible with tuberculosis, or do they suggest an alternative disease?
- Is there an accessible lesion for biopsy?
- Has the imaging been reassessed after clinical deterioration?

**Importance of pathological confirmation**

The definitive diagnosis of SCLC requires pathological confirmation. Histologically, SCLC is typically composed of small malignant cells with scant cytoplasm, finely granular chromatin, nuclear molding, high mitotic activity, extensive necrosis, and a high proliferative index. Immunohistochemical markers such as synaptophysin, chromogranin A, CD56, INSM1, cytokeratin, and Ki-67 may support neuroendocrine differentiation and help distinguish SCLC from other small-cell or poorly differentiated malignancies (Rudin et al., 2021; Wang et al., 2019).

Pathological documentation is especially important in a patient as young as the individual described in this case. The differential diagnosis may include lymphoma, metastatic neuroendocrine carcinoma, poorly differentiated non-small cell carcinoma, and other small round-cell tumors. However, the available document only states that the cervical lymph-node biopsy revealed malignant cells and that further investigations at the referral hospital established SCLC. The microscopic description, immunohistochemical panel, Ki-67 index, and definitive specimen source were not available. These data should be incorporated into the final manuscript whenever they can be retrieved from the pathology report.

**Advanced presentation and disease-related complications**

At the referral hospital, the patient was diagnosed with right-sided SCLC accompanied by mediastinal, supraclavicular, axillary, and inguinal lymphadenopathy, right pleural effusion, right lung atelectasis, and acute

hypoxemic respiratory failure. Cachexia, severe protein–energy malnutrition, leukocytosis, and mild hyponatremia were also documented. These manifestations indicate a substantial tumor burden and systemic physiological impact. SCLC frequently disseminates early, and comprehensive staging is essential because treatment strategy and prognosis differ between limited-stage and extensive-stage disease. Contemporary staging commonly integrates the TNM system with the practical limited-stage/extensive-stage classification. Evaluation may include contrast-enhanced computed tomography of the chest and upper abdomen, brain magnetic resonance imaging, and positron emission tomography when clinically available and appropriate (Dingemans et al., 2021; Ganti et al., 2021).

In this case, the disease was described as advanced, but the exact TNM classification and metastatic workup were not reported. Inguinal lymphadenopathy is particularly important because it may indicate distant nodal spread, although pathological confirmation and complete staging information would be required for precise classification. Similarly, the pleural effusion was recorded as malignant, but the available document does not state whether this designation was based on positive cytology, pleural biopsy, or clinical-radiological judgment. The swelling of the face and upper limb may have reflected venous or lymphatic obstruction related to extensive thoracic or nodal disease. However, bilateral lower-limb swelling could also be associated with hypoalbuminemia, malnutrition, venous thrombosis, cardiac dysfunction, or other systemic conditions. Because these investigations were not documented, the mechanism of edema should not be inferred definitively.

**Therapeutic considerations**

SCLC is generally sensitive to initial chemotherapy and radiotherapy, but treatment outcomes remain limited by early dissemination and frequent recurrence. For extensive-stage SCLC, platinum-based chemotherapy combined with etoposide has long been a standard systemic approach. The addition of immune checkpoint inhibitors to first-line chemotherapy has improved survival outcomes in selected patients and has become part of contemporary treatment strategies (Dingemans et al., 2021; Ganti et al., 2021; Horn et al., 2018; Paz-Ares et al., 2019). The patient in this report underwent systemic chemotherapy and therapeutic thoracentesis for recurrent symptomatic pleural effusion. However, the chemotherapy agents, doses, number of cycles, use of immunotherapy or radiotherapy, treatment tolerance, and objective response were not stated. These details are necessary to assess whether treatment was consistent with current recommendations and to describe the clinical outcome accurately.

Supportive care is particularly important in patients presenting with respiratory failure, malignant pleural effusion, cachexia, and severe malnutrition. Management may include oxygen therapy, pleural drainage, nutritional intervention, symptom control, infection assessment, psychosocial support, and early palliative-care involvement. Supportive treatment should be integrated with oncological therapy rather than reserved exclusively for the terminal phase of illness.

**Psychosocial and family considerations**

The change from presumed tuberculosis to advanced lung cancer caused considerable emotional distress for the patient's family. The mother initially experienced shock and difficulty accepting the diagnosis but later remained actively involved in the patient's care after receiving counseling from the healthcare team. This response is understandable because cancer in a young adult can disrupt expectations related to education, employment, independence, and family roles. Clear communication is essential when a diagnosis changes substantially. Clinicians should explain why the initial diagnosis was reconsidered, what new evidence supports malignancy, what uncertainties remain, and what treatment options are available. Transparent communication may help preserve trust and support shared decision-making during a rapidly progressive illness.

**Clinical implications**

This case offers several clinically relevant lessons. First, pulmonary malignancy should remain within the differential diagnosis of persistent respiratory symptoms even in a young adult. Second, tuberculosis-compatible radiological findings should be interpreted alongside microbiological, clinical, and pathological evidence. Third, lack of meaningful response to antituberculosis therapy should prompt timely reconsideration of the diagnosis. Fourth, newly developing lymphadenopathy or pleural effusion should lead to tissue sampling whenever feasible. Finally, uncommon patient characteristics should reduce neither diagnostic vigilance nor the need for histopathological confirmation.

## LIMITATIONS

This report is limited by incomplete access to the original diagnostic and therapeutic records. The detailed results of tuberculosis testing, chest radiography, computed tomography measurements, histopathological morphology, immunohistochemical markers, cytological assessment of pleural fluid, TNM stage, chemotherapy regimen, and follow-up outcomes were unavailable. These limitations restrict assessment of the initial tuberculosis diagnosis, definitive pathological classification, disease extent, treatment response, and prognosis. The final manuscript should explicitly acknowledge these limitations and incorporate verified data if the original hospital records become accessible.

Small cell lung cancer should remain a differential diagnosis in patients with persistent respiratory and constitutional symptoms, even in young adults living in tuberculosis-endemic settings. In this case, the lack of meaningful improvement after antituberculosis treatment, together with progressive cervical lymphadenopathy, pleural effusion, and respiratory deterioration, prompted further evaluation and led to the diagnosis of advanced right-sided SCLC. This case highlights the importance of timely diagnostic reassessment when the clinical course is inconsistent with the initial diagnosis. Integrating microbiological, radiological, and histopathological findings is essential to avoid diagnostic delay and facilitate earlier oncological management.

**Key Clinical Message**

In tuberculosis-endemic settings, patients treated for presumed pulmonary tuberculosis who show inadequate clinical response, progressive lymphadenopathy, pleural effusion, or radiological progression should undergo prompt diagnostic reassessment, including histopathological evaluation where feasible.

**Patient and Family Perspective**

The change from an initial diagnosis of presumed pulmonary tuberculosis to advanced small cell lung cancer caused considerable emotional distress for the patient and his family. The patient's mother initially experienced shock and difficulty accepting the diagnosis, particularly because of the patient's young age. After receiving counseling and explanations from the healthcare team, the family gradually accepted the patient's condition and remained actively involved throughout the diagnostic process, referral, chemotherapy, thoracentesis, and follow-up care. A direct first-person statement from the patient was not available in the source document. Therefore, this section reflects the family's reported experience.

## DECLARATIONS

**Ethics Approval**

Ethical approval was not required from the Institutional Review Board of Faculty of Medicine and Health Sciences, Maulana Malik Ibrahim State Islamic University, Malang for the publication of this case report. All patient-identifying information was removed to maintain confidentiality.

**Consent for Publication**

Written informed consent was obtained from the patient for the publication of this case report and any accompanying clinical information or images.

**Conflict of Interest**

The author declares no conflicts of interest related to the publication of this case report.

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**Data Availability**

The clinical data supporting this case report are included within the manuscript. Additional anonymized information may be available from the corresponding author upon reasonable request, subject to institutional regulations and patient-confidentiality requirements.

**Patient Confidentiality**

All identifying information was removed or anonymized during manuscript preparation to protect the patient's privacy.

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