



Adenocarcinoma of the lung mimicking interstitial lung disease

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ABSTRACT

Atypical radiologic and clinical patterns may be observed within subgroups of lung adenocarcinoma. A 74-year-old man with progressive dyspnea and productive cough unresponsive to antibiotherapy showed bilateral interstitial changes in the lung parenchyma on computed tomography. We here report a patient followed up with a prediagnosis of interstitial lung disease but eventually diagnosed with lung adenocarcinoma following transthoracic lung biopsy.

Keywords: Adenocarcinoma,
interstitial, pneumonia

Introduction

Adenocarcinoma is the most common histological subtype of non-small-cell lung cancer. In our country, lung cancer is the most common subtype, constituting approximately 45-50% of lung cancer cases, and its relative frequency is increasing. More than 70% of cases are diagnosed at an advanced stage (1). Primary lung carcinomas may present with various radiological appearances. In particular, in subgroups of lung adenocarcinoma, atypical radiologic and clinical patterns may be observed (2). While lung adenocarcinomas frequently present as solitary nodules, patchy, lobar, or multilobar infiltration with air bronchograms that are often indistinguishable from pneumonia and rarely as bilateral reticulonodular involvement, giving the

impression of interstitial lung disease (ILD) may also be observed (3,4). In such situations, the most precise and rapid methods for diagnosis should be the priority, and definite treatment should start as soon as possible. In this article, we report a patient under follow-up with a prediagnosis of ILD but eventually diagnosed as primary lung carcinoma by transthoracic lung biopsy (TTLB).

Case Presentation

A 74-year-old man was admitted to the outpatient clinic with complaints of cough with sputum and increasing dyspnea that did not improve despite antimicrobial treatment with cephalosporin. He had a history of working in a cement factory many years ago and was diagnosed with hypertension, diabetes mellitus, and



chronic renal failure. He had no history of smoking or alcohol use. Physical examination revealed only diffuse rales in bilateral lungs. FEV1, FVC, and FEV1/FVC were 60% (1.52L), 60% (2L) and 73.40, respectively. Arterial blood gas analysis revealed no hypoxia or hypercarbia. The biochemical test results were within the normal range. Procalcitonin and C-reactive protein levels were normal. Radiography revealed bilateral diffuse nonhomogeneous opacity in the middle and lower zones (Figure 1). Thorax computed tomography (CT), including high-resolution CT sections, revealed diffuse ground-glass areas (GGA), interstitial changes in bilateral lung parenchyma, and marked emphysematous changes in the upper lobes (Figure 1). On the other hand, similar findings with some progressions were observed on the thoracic CT obtained 9 months ago.

Severe acute respiratory syndrome-coronavirus-2-polymerase chain reaction tests were negative, and the patient

was hospitalized with a preliminary diagnosis of pneumonia. Despite antimicrobial treatment with a combination of macrolide and cephalosporin, no improvement was observed in lung images. Bronchoalveolar lavage (BAL) was obtained from the right middle lobe. BAL fluid-based cytology showed increased polymorphonuclear leukocyte count, no microbial growth on culture, and no atypical cells, leaving no definitive diagnosis. Rheumatologic markers were also negative. To exclude ILD and malignancy, a tru-cut parenchymal biopsy using a transthoracic approach was performed from the middle lobe of the right lung because of diffuse bilateral interstitial and alveolar infiltration on thorax CT. ILD was not confirmed on histological examination. On the other hand, the specimens were positive for TTF-1 and napsin A. In addition, a lepidic, micropapillary lesion was reported (Figure 2). According to the pathologist, the biopsy revealed a limited area, and the morphologic findings were consistent

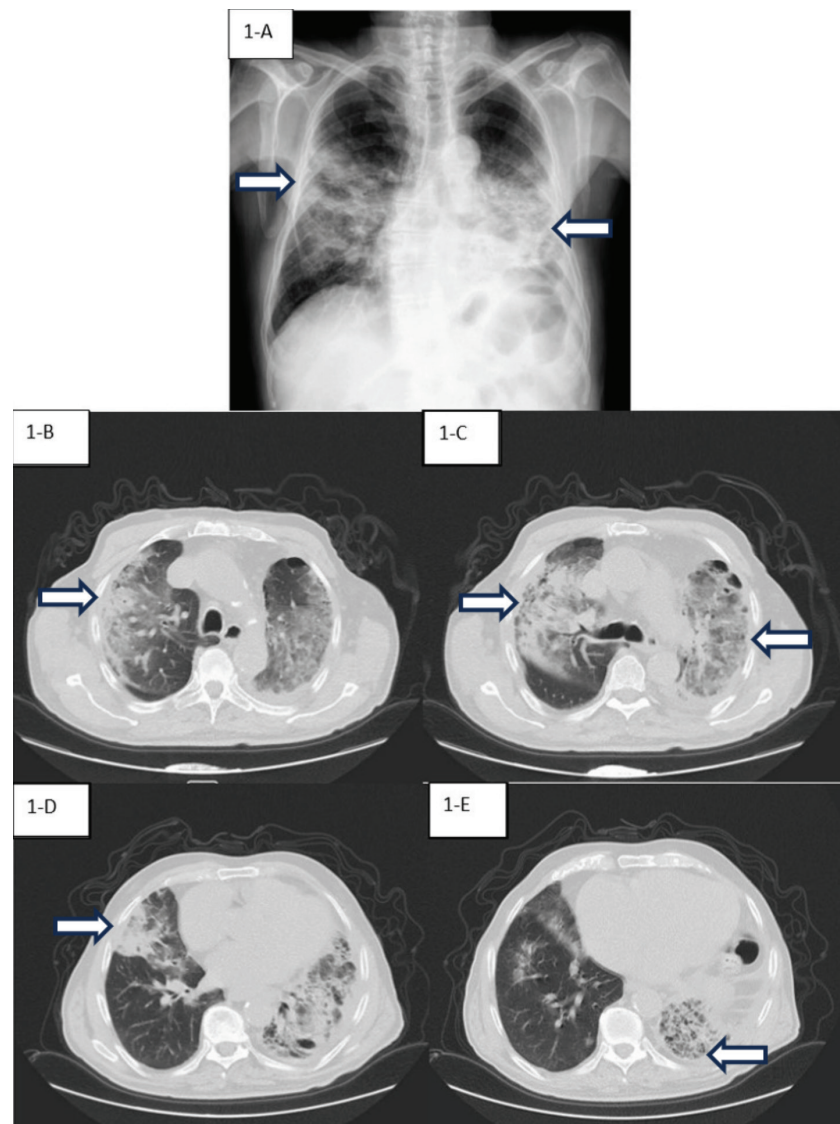


Figure 1. A) Non-homogeneous opacity increase in bilateral middle and lower zones on chest radiography. B-E) Bilateral ground-glass opacities, consolidation areas, and interstitial pattern on thoracic computed tomography

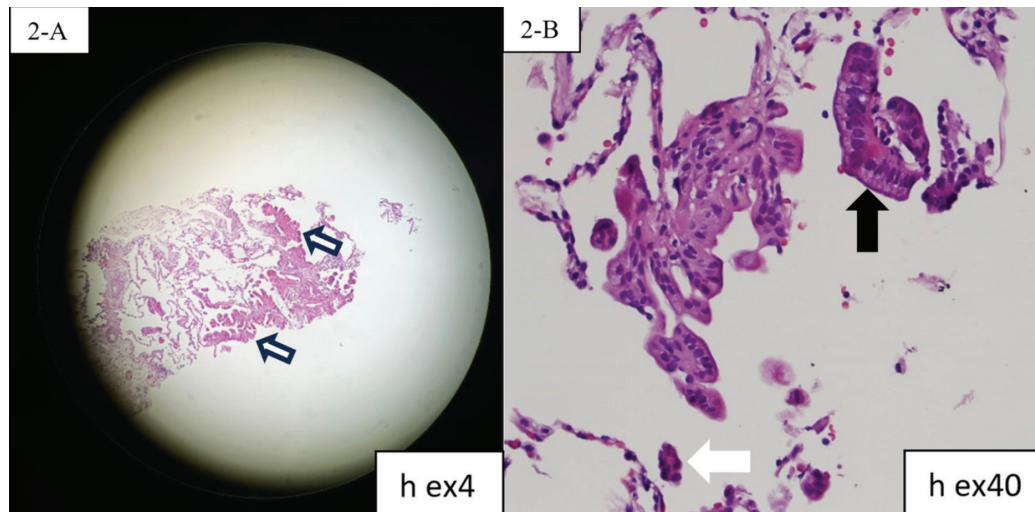


Figure 2. A) Pathological image; both arrows point to lepidic pattern and micropapillary pattern (right lung middle lobe tru-cut biopsy) [hematoxylin-eosin (H-E), x4]. B) Lepidic pattern (black arrow), micropapillary pattern (white arrow) (H-E, x40)

with minimally invasive adenocarcinoma when combined with the patient's epicrisis. Based on clinical, radiological, and pathological findings, the patient was diagnosed with lung adenocarcinoma. Rebiopsy was not planned. The sample obtained by the tru-cut biopsy was insufficient for a mutation analysis and, therefore, could not be performed. The patient was referred to the chemotherapy unit.

Discussion

Adenocarcinoma is the most common histologic subtype of lung cancer and is the leading cause of mortality worldwide. Approximately 90% of invasive lung adenocarcinomas have a complex heterogeneous histopathological structure (5). Depending on the histologic subtype, radiological appearances may vary broadly. Radiologically, it is most often a solitary or multiple nodule. However, lobar or multilobar localization, consolidation, GGA, centrilobular or bronchocentric lesions with a nodule or mass appearance, or reticular opacities may develop (1).

Detterbeck et al. (6) described a pneumonic-type lung adenocarcinoma presenting with pneumonia-like infiltration or consolidations in the lung that may present with dyspnea, cough, and fever and is characterized by GGA or consolidation resembling infectious or ILD on thorax CT. Because of these features, lung adenocarcinomas are often called "masqueraders" (7). In these cases, diagnosis should be made as soon as possible using the most accurate tools to provide timely treatment.

The current study presents a rare case of lung adenocarcinoma with bilateral GGA, consolidated areas, and a reticular interstitial pattern (3). In the differential diagnosis, infectious causes, collagen vascular diseases, and acute

exacerbations of ILD were considered prediagnosis. Mir et al. (8) made a diagnosis of adenocarcinoma after 2 years of follow-up of a consolidation covering almost the entire left lower lobe without worsening the patient's clinical status and without significant change in the size of the lesion. Despite antimicrobial therapy, the existence of bilateral multilobar consolidation and GGA on lung imaging suggested malignancy. Detailed anamnesis (occupational-environmental exposure), radiologic imaging, sputum analysis, serologic tests, pulmonary function tests, bronchoscopy, BAL, transbronchial lung biopsy, and video-assisted thoracoscopic surgery (VATS) are the recommended diagnostic methods (9). A prompt tissue sampling should be performed to provide a clear diagnosis. In this study, the diagnosis was TTLB. At the diagnostic stage, VATS may be preferred to TTLB because a mutation analysis will require more samples.

Conclusion

Adenocarcinoma of the lung may present with atypical radiologic and clinical findings. This report emphasizes the importance of adenocarcinoma in the differential diagnosis of ILD.

Ethics

Informed Consent: The patient provided written, informed consent.

Authorship Contributions

Surgical and Medical Practices: S.K.C., N.K., T.B., G.G.G., Concept: S.K.C., N.K., Design: S.K.C., Data Collection or Processing: S.K.C., Analysis or Interpretation: S.K.C., N.K., Literature Search: S.K.C., Writing: S.K.C.

Conflict of Interest: No conflict of interest was declared by the authors.

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