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Chest

Rapidly progressing lepidic pulmonary metastases from a treated poorly differentiated hepatocellular carcinoma demonstrating new pathologic features of cholangiocarcinoma: A potential diagnostic pitfall that may mimic pneumonia

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ABSTRACT

Although the lung is a common site for metastatic disease from extrathoracic malignancies, a pattern of lepidic growth of these metastases is considered rare. A 67-year-old man with a history of partial hepatectomy for hepatocellular carcinoma (HCC) presented to our hospital with dyspnea and a nonproductive cough. Chest radiographs and computed tomography imaging demonstrated consolidation in the right upper lobe and an ipsilateral pleural effusion. Findings were initially suspected to be secondary to infection, given the radiographic appearance and the rapid development from a normal computed tomography 3 months previously. However, the patient did not have convincing clinical evidence of pneumonia, and after little change after antibiotic therapy, a thoracentesis and pleural biopsy were performed that were positive for malignancy. Although immunostaining and morphology closely resembled the patient's primary HCC, new pathologic features of cholangiocarcinoma were found. We herein report the first case of rapidly progressing lepidic pulmonary metastases from an HCC that dedifferentiated into a hepatocholangiocarcinoma.

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Introduction

The lungs are the second most common site for metastatic disease. Pulmonary metastases are seen in 20%-54% of extrathoracic malignancies with isolated pulmonary metastasis observed in 20% of cases [1]. Early diagnosis of pulmonary metastatic disease is crucial for disease staging and treatment planning with high-resolution computed tomography (HRCT), a sensitive and widely available imaging modality. Typical computed tomography (CT) imaging patterns of pulmonary metastatic disease have been widely described, including multiple solid round nodules of varying sizes and a random distribution (hematogenous spread), smooth interlobular septal thickening with perilymphatic micronodules (lymphangitic carcinomatosis), and solid masses within the bronchial lumen (endobronchial spread) [2–5]. Rarer, atypical patterns of metastatic disease, including lepidic spread of metastatic malignancy along intact alveolar walls, have been reported and may mimic benign entities such as pneumonia or other malignancies such as primary pulmonary adenocarcinoma (formerly bronchioalveolar carcinoma) [6,7]. Overlap of the imaging characteristics of these entities may complicate or delay diagnosis. Therefore, recognition of this atypical pattern of metastases and avoidance of this potential pitfall are crucial. We herein report, to the best of our knowledge, the first case of lepidic spread of pulmonary metastases from a poorly differentiated hepatocellular carcinoma (HCC) with the pulmonary metastases demonstrating acquisition of new pathologic features of cholangiocarcinoma.

Case report

A 67-year-old Caucasian man was admitted to our hospital with abnormal thoracic findings on routine outpatient surveillance CT imaging for HCC, which he had been diagnosed with 7 months previously. At that time, magnetic resonance imaging had demonstrated a 2.3 × 2.0 cm (anteroposterior × transverse) segment VIII liver lesion with arterial hyperenhancement, washout kinetics, and a peripheral enhancing capsule with imaging features in keeping with an HCC confirmed on pathology obtained after partial hepatectomy (Fig. 1). No portal venous invasion, inferior vena cava invasion, or findings of distant metastases were observed at that time. Before this hospital admission, the patient reported 2 weeks of intermittent shortness of breath and a nonproductive cough. Chest auscultation revealed diminished breath sounds in the right midlung zone with tactile fremitus. Vital signs were within normal limits without fever or tachypnea. Laboratory data on admission demonstrated a mildly increased white count of 12,000/μL but otherwise were within normal limits. Chest radiographs demonstrated consolidation within the right middle and lower lung zones with a unilateral right pleural effusion, findings that were new from radiographs dated 7 months previously and the

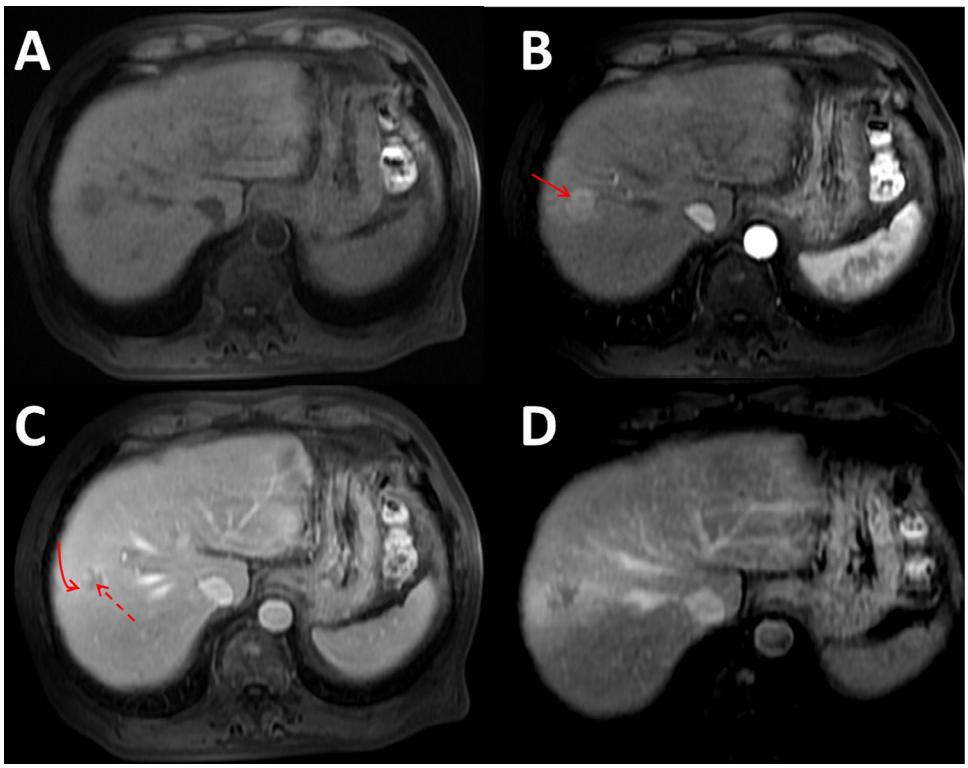

Fig. 1 – Axial magnetic resonance images of the liver in the precontrast (A), arterial (B), portal venous (C), and delayed phases (D) demonstrate a hepatic segment VIII T1 hypointense lesion demonstrating hyperenhancement on arterial phase imaging (solid arrow), washout kinetics on portal venous-phase imaging (dashed arrow), and an enhancing capsule (curved arrow) with imaging features in keeping with a hepatocellular carcinoma.