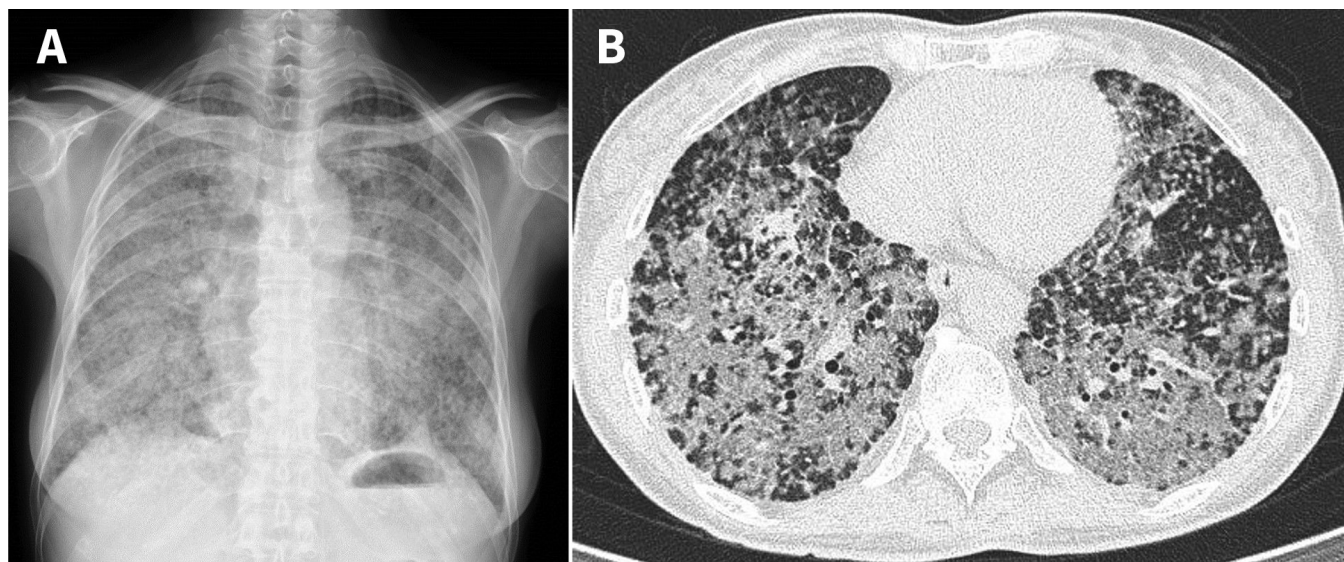


# Miliary pattern on chest imaging caused by adenocarcinoma

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**Figure 1:** (A) Chest radiograph and (B) computed tomography scan of a 55-year-old woman with lung adenocarcinoma. Both images show a miliary pattern with diffusely distributed, ground-glass opacities overlaying multiple small nodules throughout all lung fields.

**A** 55-year-old, nonsmoking woman without underlying disease presented to the emergency department with a 3-month history of productive cough, dyspnea, night sweats and 4 kg weight loss. On examination, her temperature was 36.8°C, heart rate was 75 beats per minute, blood pressure was 92/73 mmHg, and respiratory rate was 15 breaths per minute. Her peripheral oxygen saturation was 95% on 3 L/min of oxygen. We heard bilateral inspiratory crackles on chest auscultation and did not observe any clubbing of her digits. Her eosinophil count was 7.7% (normal 0%–6%) and her C-reactive protein level was normal. Chest radiography and computed tomography showed a miliary pattern of many small nodules throughout all lung fields (Figure 1 and video Appendix 1, available at [www.cmaj.ca/lookup/doi/10.1503/cmaj.211410/tab-related-content](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.211410/tab-related-content)) Real-time polymerase chain reaction (RT-PCR) testing for SARS-CoV-2 was negative.

Our differential diagnoses included tuberculosis, fungal infection and malignant disease. We suspected pulmonary tuberculosis, but 3 sputum smears were negative for acid-fast bacilli, and cultures of sputum and bronchoalveolar lavage fluid were nega-

tive for *Mycobacterium tuberculosis* and fungi. Bronchoscopic biopsy of the right upper lung showed highly differentiated primary lung adenocarcinoma. Whole-body computed tomography and magnetic resonance imaging of the brain did not find any evidence of metastasis outside the lung. Testing with RT-PCR revealed exon 19 deletion in the epidermal growth factor receptor (*EGFR*). The patient was treated with osimertinib, an *EGFR* tyrosine kinase inhibitor. One month later, her resting oxygen requirement had decreased to 1 L/min and the size of the pulmonary nodules had decreased.

Adenocarcinoma with mutations of *EGFR* is observed in 10%–20% of non-Asian patients with non-small cell lung cancer. It is more frequent in women, nonsmokers or light smokers, and in people of Asian descent.<sup>1</sup> The presence of *EGFR* mutations in lung adenocarcinoma is associated with miliary metastases.<sup>2,3</sup> Compared with chemotherapy, *EGFR* tyrosine kinase inhibitors dramatically improve the response rates and overall survival of patients with advanced non-small cell lung cancer and *EGFR* mutations.<sup>1,4</sup> Thus, molecular screening after diagnos-

ing lung adenocarcinoma is necessary to identify targetable oncogenic alterations.

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**Competing interests:** None declared.

This article has been peer reviewed.

The authors have obtained patient consent.

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A video of the chest computed tomography of a 55-year-old woman, showing the miliary pattern caused by lung adenocarcinoma with an *EGFR* mutation, is in Appendix 1, available at [www.cmaj.ca/lookup/doi/10.1503/cmaj.211410/tab-related-content](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.211410/tab-related-content)

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Clinical images are chosen because they are particularly intriguing, classic or dramatic. Submissions of clear, appropriately labelled high-resolution images must be accompanied by a figure caption. A brief explanation (300 words maximum) of the educational importance of the images with minimal references is required. The patient's written consent for publication must be obtained before submission.

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