CLINICAL IMAGE

Remission of advanced *EGFR*-positive lung adenocarcinoma after short and intermittent erlotinib therapy

Sławomir Mańdziuk[1], Kamila Wojas-Krawczyk[2], Juliusz Pankowski[3], Magdalena Jakubiak[3], Leszek Buk[4], Paweł Krawczyk[2], Janusz Milanowski[2]

1 Department of Oncology and Chemotherapy, Public Clinical Hospital, Lublin, Poland
2 Department of Pneumonology, Oncology, and Allergology, Medical University of Lublin, Lublin, Poland
3 Department of Pathology, Pulmonary Hospital, Zakopane, Poland
4 Department of Radiology, Medical University of Lublin, Lublin, Poland

Spontaneous regression of lung cancer is rarely observed, and its mechanism has not been elucidated so far.[1-3] We describe remission of *EGFR*-positive lung adenocarcinoma after very short and intermittent erlotinib therapy.

A 78-year-old nonsmoking woman presented to a family physician in March 2014 because of chronic cough. She was referred to a specialist for further diagnostic workup. During bronchoscopy, a tumor tissue sample from the left main bronchus was obtained. A histopathological examination showed TTF-1(+), CK7(+), and p63(–) lung adenocarcinoma. Thoracic and abdominal computed tomography (CT) showed a tumor in the upper lobe of the left lung (38 × 36 mm; FIGURE 1A). CT scans revealed enlargement of hilar and aortopulmonary window lymph nodes (30 × 20 mm and 10 × 11 mm, respectively; FIGURE 1B). A metastatic tumor (26 × 20 mm) was found in the left suprarenal gland (FIGURE 1C). The tumor was classified as stage IV. The laboratory tests showed no abnormalities. A molecular examination showed activating *EGFR* mutation in exon 19. Thus, the patient was scheduled for first-line EGFR tyrosine kinase inhibitor (EGFR-TKI) therapy using erlotinib (150 mg/d), which was started in April 2014. However, the patient's compliance with therapy was poor.

After 7 days of therapy, the patient stopped erlotinib owing to conjunctival and corneal dryness. The following week, she resumed erlotinib therapy as per the doctor's instructions. After the next 7 days of treatment, she reported sudden severe cough and decided to discontinue the therapy, which left her without any treatment for 5 months. The patient was lost to follow-up. In October 2014, she took the remaining 15 tablets erlotinib without any medical consultation. In January 2015, she decided to control the progress of the disease despite the absence of symptoms. A CT scan showed remission of the primary and metastatic lesions. Fibrosis and a significant reduction in the size of primary tumor and the retraction of the bronchial tree, regression of hilar lymph nodes, and complete remission of suprarenal gland metastasis were observed (FIGURE 1DEF). The patient remains in good condition without any treatment.

In the present case, remission was observed after intermittent and very short erlotinib treatment. Our patient received 15 tablets of erlotinib, and after 6 months she continued therapy only for 15 days. Hagihara et al.[4] also described complete response after 21 days of sorafenib therapy in patients with advanced hepatocellular carcinoma with multiple metastasis. Complete remission of the tumors was observed. We speculate that initial erlotinib saturation achieved after the use of 15 tablets was sufficient to decrease tumor mass and let erlotinib penetrate the lung cancer tissue. The registration trials of erlotinib showed that in patients with lung cancer receiving 150 mg of erlotinib per day, the main active metabolites were present in their tumor tissue at a concentration of 160 ng/g of the tissue. It could be sufficient to eliminate tumor mass. Moreover, we believe that in our case the tumor was composed only of *EGFR*-positive cells, which might explain the spontaneous remission after such a short therapy. However, our case shows that the exact mechanism of action of this drug is still unknown. More studies are needed to explain this phenomenon.

Correspondence to:
Paweł Krawczyk, MD, PhD, Klinika Pneumonologii, Onkologii i Alergologii, Uniwersytet Medyczny w Lublinie, ul. Jaczewskiego 8, 20-954 Lublin, Poland, phone: +48 81 724 42 93, fax: +48 81 724 42 83, e-mail: krapa@poczta.onet.pl
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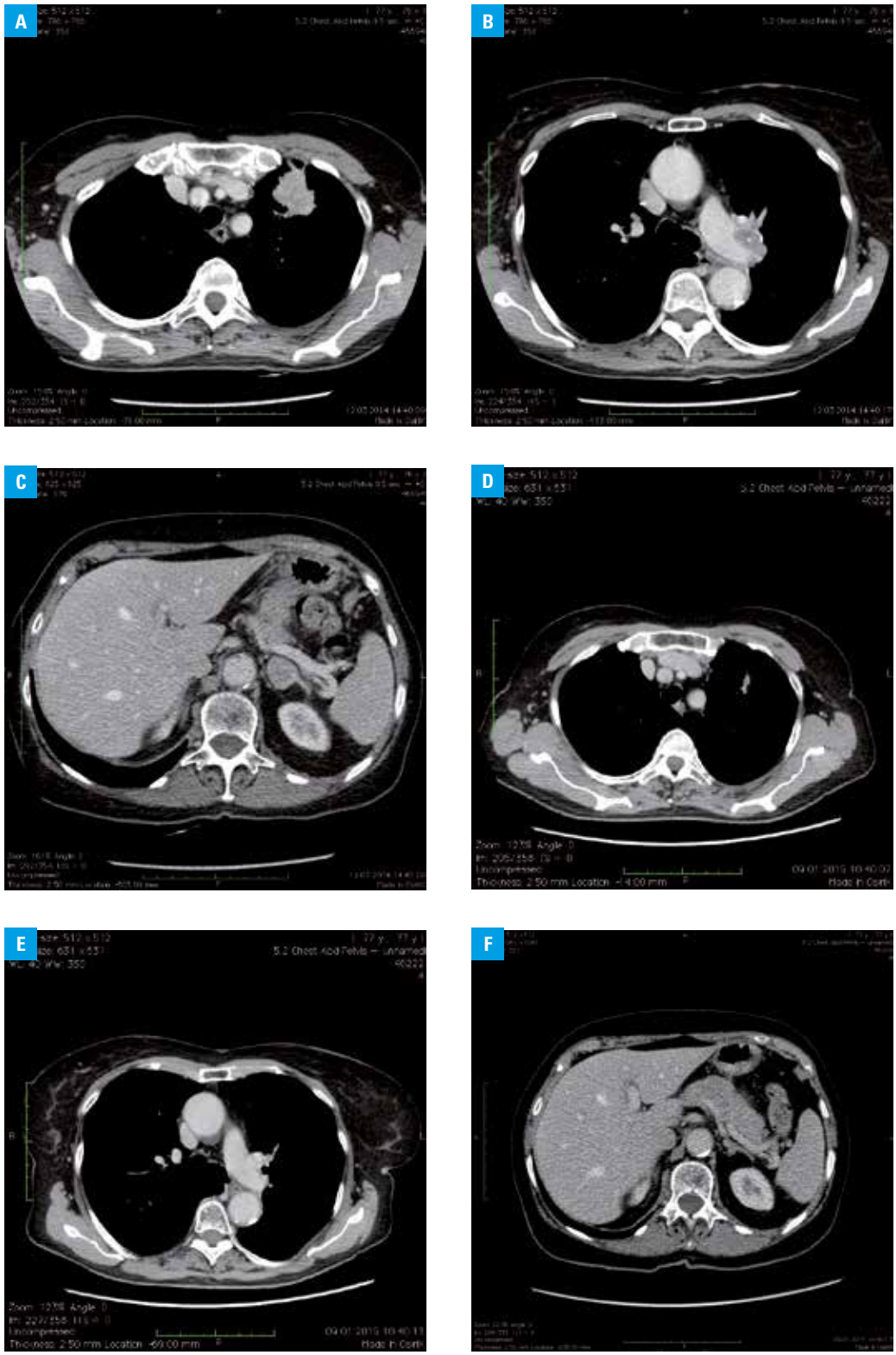

FIGURE 1 Computed tomography (CT) scans performed in March 2014, showing lung tumor (**A**), lymph nodes (**B**), and suprarenal gland metastasis (**C**); CT scans performed in January 2015, showing a reduction of tumor size (**D**), regression of lymph nodes (**E**), and no metastasis in the suprarenal gland (**F**)

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