A never-smoking 26-year-old woman presented at an outpatient clinic in February 2011 with cough, back pain, and weight loss. A computed tomography (CT) scan demonstrated a mass in the left lung, multiple bone, liver, and adrenal gland metastases. A liver biopsy revealed an adenocarcinoma originating from the lung (thyroid transcription factor-1 positive, EGFR and K-RAS wild type).

She was treated with cisplatin and pemetrexed, with stable disease after two cycles. Treatment continued with two cycles carboplatin and paclitaxel with again stable disease.

In the period from March till June she was radiated two times for symptomatic bone metastases. Next, she received erlotinib for 2 months, until progression occurred with a new metastasis in her right eye. In September, 1 month later, she gradually developed a paresis in both legs because of vertebral metastases that was treated with a single fraction of 8 Gy radiation.

In October 2011, the tumor was tested positive for echinoderm microtubule-associated protein-like 4-anaplastic lymphoma kinase translocation by fluorescence in situ hybridization. Crizotinib 250 mg twice daily was started. After 3 days of treatment, she deteriorated and developed respiratory failure because of a right-sided pneumonia and pulmonary embolism on top of her massive tumor deposition throughout her body. She was transferred to the intensive care unit for noninvasive ventilation, antibiotics, and low-molecular heparin, in addition to crizotinib. Two days later, she reported sight in her previously blind right eye. Within a week, she was discharged to our regular ward and home in the next week.

After 6 weeks, she returned to our outpatient clinic in a good condition. Her preexisting paresis remained stable. CT showed a partial response (55% tumor decrease, Response Evaluation Criteria in Solid Tumors 1.1, Fig. 1B). At 12 and 18 weeks, further clinical improvement was observed and with positron emission tomography/CT imaging a near-complete response (>90% tumor decrease) was noticed (Fig. 1C). At 6 months fluorodeoxyglucose uptake increased slightly in a few liver metastases, with a continuing partial response on CT (Fig. 1D). The patient is still receiving crizotinib at 47 weeks.

**DISCUSSION**

In different cancer types genetic aberrations are found driving cells into a malignant phenotype and provide proliferation advantages. In non–small-cell lung cancer (NSCLC) a subgroup of patients (2%–7%) with an ALK rearrangement has been identified. Specific inhibitors targeting this disrupted pathway have been studied. At present, the best studied drug is crizotinib, which shows promising results in NSCLC patients with fluorescence in situ hybridization–proven ALK rearrangements. The 2-year overall survival reached 54% (95% confidence interval, 40–66) with crizotinib, whereas the 2-year survival for crizotinib-naive ALK-positive controls was 36% (95% confidence interval, 19–54). The 57% response rate to crizotinib in this group and 84% disease control rate at 8 weeks are major improvements compared with those with traditional chemotherapeutics.

Within 5 days of crizotinib treatment, vision started to recover from an ocular metastasis. This rapid tumor response is in line with a previous report.

Our case highlights the potential of crizotinib treatment in patients with stage IV NSCLC, who harbor the EML4–ALK fusion gene, even with organ failure because of comorbidities in addition to a preexisting extensively metastasized disease.
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