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Selection of targeted therapy in a patient with non-small-cell lung adenocarcinoma and multiple driver mutations

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ABSTRACT

Lung cancer remains the leading cause of cancer-related mortality, with non-small-cell lung cancer (NSCLC) as the predominant type. Adenocarcinoma is the most frequent subtype, especially among non-smokers. Advances in molecular profiling have enabled the identification of clinically actionable mutations, such as epidermal growth factor receptor (EGFR) mutations, anaplastic lymphoma kinase (ALK) rearrangements, and programmed death-ligand 1 (PD-L1) expression, allowing for personalized therapy. We present a 56-year-old male with dyspnea and a persistent dry cough. Chest MSCT revealed a left lung mass, and cytology confirmed adenocarcinoma with EGFR Exon 18 G719X mutation, ALK positivity, and PD-L1 expression of 5%. The disease was staged as T4N1M1A with vertebral metastases. The patient received alectinib for four months without improvement; follow-up imaging showed recurrence with pleural metastasis. This case highlights the therapeutic challenge of multiple driver mutations. Treatment decisions should consider clonal dominance, resistance mechanisms, and the efficacy of the drug. Multidisciplinary and individualized approaches remain essential.

ABSTRAK

Kanker paru merupakan penyebab utama kematian terkait kanker, dengan *non-small-cell lung cancer* (NSCLC) sebagai tipe tersering. Adenokarsinoma adalah subtipe terbanyak, terutama pada pasien bukan perokok. Perkembangan dalam profil molekuler memungkinkan identifikasi mutasi yang dapat ditargetkan seperti *epidermal growth factor receptor* (EGFR), anaplastic lymphoma kinase (ALK), dan ekspresi *programmed death-ligand 1* (PD-L1), sehingga membuka peluang terapi personalisasi. Kami melaporkan pria 56 tahun dengan keluhan sesak napas dan batuk kering kronis. MSCT toraks menunjukkan massa paru kiri, dan sitologi menegakkan adenokarsinoma dengan mutasi EGFR Exon 18 G719X, ALK positif, serta ekspresi PD-L1 5%. Stadium penyakit ditetapkan T4N1M1A dengan metastasis vertebra. Pasien mendapat alectinib selama empat bulan tanpa perbaikan; pemeriksaan ulang menunjukkan rekurensi dengan metastasis pleura. Kasus ini menekankan tantangan terapi pada NSCLC dengan multi-driver mutation. Pemilihan terapi perlu mempertimbangkan dominasi klonal, mekanisme resistensi, serta profil efektivitas obat. Pendekatan multidisiplin dan individual tetap krusial.

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Non-small-cell lung cancer;
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