



ORIGINAL RESEARCH PAPER

Surgery

PREOPERATIVE NEOADJUVANT GEFITINIB USED IN A NON-SMALL CELL LUNG CANCER PATIENT WITH SINGLE LIMITED BRAIN METASTASES: A CASE REPORT

KEY WORDS: Neoadjuvant Gefitinib, Non-small Cell Lung Cancer With Brain Metastases

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ABSTRACT Neoadjuvant epidermal growth factor receptor tyrosine kinase inhibitor (EGFR-TKI) therapy for patients with non-small cell lung cancer (NSCLC) and limited and resectable distant metastases is a new clinical option. We present a patient with NSCLC and brain metastases who underwent craniotomy for tumor resection, followed by gefitinib as neoadjuvant therapy for 2 months, and subsequent thoracoscopic lobectomy with mediastinal lymph node dissection as a last resort.

CASE REPORT

A 73-year-old man with hypertension on regular medication initially presented with sudden onset of right hemiparesis. After serial examinations in our hospital including brain imaging (Fig. 1), chest computed tomography (CT), and CT-guided lung biopsy, he was diagnosed with moderately-differentiated lung adenocarcinoma with brain metastases, clinical stage IVA, T2bN2M1b (according to American Joint Committee on Cancer staging, 8th edition). The epidermal growth factor receptor (EGFR) test was positive (frame deletions in exon 19).

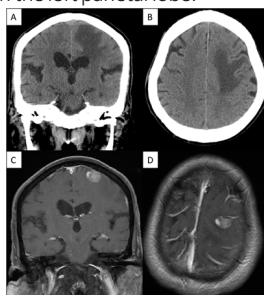
He underwent left craniotomy for tumor resection due to persistent right hemiparesis. Gefitinib 250 mg once daily was prescribed. Two months later, the patient was asymptomatic, and CT revealed response including mediastinal lymph nodes greater than 30%. Video-assisted thoracoscopic right upper lobectomy and mediastinal lymph node dissection was then performed. The postoperative pathologic stage was T3N0 with clean surgical margins. The patient continued to take gefitinib for maintenance treatment and has had 6 months of disease-free survival since surgery.

The management strategy for patients with non-small cell lung cancer with brain metastases varies and requires a multi-disciplinary approach accounting for individual characteristics of both patient and tumor. Surgical resection for patients with single, resectable brain metastases has significant survival benefits. (1).

EGFR-TKI treatment has been used in patients with advanced NSCLC harboring activating EGFR mutations (2), but is rarely used as neoadjuvant therapy. Here, we presented a patient who received gefitinib as neoadjuvant therapy after craniotomy for brain metastases and curative thoracotomy with lobectomy and mediastinal lymph node dissection 2 months after taking gefitinib. This is a useful treatment option for patients with advanced NSCLC and brain metastases.

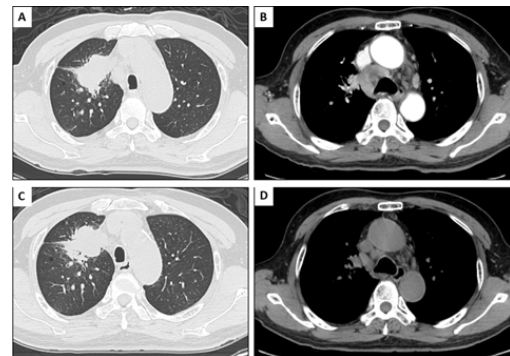
FIGURES 1. Brain imaging

A,B: Brain computed tomography (CT) revealed left parietal lobe white matter edema.
C,D: Brain magnetic resonance imaging (MRI) revealed an enhancing nodule in the left parietal lobe.



FIGURES 2, Chest CT at different time points

A,B: Before gefitinib treatment. A 5.0-cm mass is located in the right upper lobe with mediastinal lymph node enlargement.
C,D: After gefitinib treatment for 2 months. The tumor shrank to 4.2 cm, with decreased size of mediastinal lymph nodes.



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