



Contents lists available at ScienceDirect

## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)

# A case report of successful diagnosis of a pulmonary nodule by a survey of oncogenic mutations; primary lung carcinoma or pulmonary metastasis?

Akira Haro<sup>a,\*</sup>, Erina Kuramitsu<sup>a</sup>, Ichiro Yamamoto<sup>b</sup>, Yasuro Fukuyama<sup>a</sup><sup>a</sup> Department of Thoracic Surgery, Nakatsu Municipal Hospital, Nakatsu Municipal Hospital, 173 Shimoikenaga, Nakatsu, Oita 871-8511, Japan<sup>b</sup> Department of Diagnostic Pathology, Nakatsu Municipal Hospital, Nakatsu Municipal Hospital, 173 Shimoikenaga, Nakatsu, Oita 871-8511, Japan

## ARTICLE INFO

## Article history:

Received 1 September 2016

Accepted 30 October 2016

Available online 3 November 2016

## Keywords:

NRAS

Colorectal carcinoma

Mutation

Metastatic lung tumor

Primary lung carcinoma

## ABSTRACT

**INTRODUCTION:** The number of patients diagnosed with solid carcinomas is increasing, and the most common site of metastasis is the lungs. It is often difficult to make a differential diagnosis between primary lung carcinoma and metastatic lung tumor in using histological examination and by determining their immunohistological status.

**PRESENTATION:** A 64-years-old man presented with dyspnea with chest computed tomography (CT) findings of a pulmonary tumor, and afterwards suffered from a sudden bowel hemorrhaged due to colorectal carcinoma. The histological diagnosis of a pulmonary tumor was poorly differentiated adenocarcinoma. Both Thyroid transcription factor-1 (TTF-1) and Cytokeratin20 (CK20) were immunohistologically negative. Of the some oncogenic mutations investigated, a neuroblastoma RAS viral oncogen homolog (NRAS) codon13 G13D mutation was detected in both the colorectal carcinoma and the pulmonary tumor tissue samples. Based on the result, the pulmonary tumor was diagnosed as a metastasis derived from colorectal carcinoma.

**DISCUSSION:** Recently, examination of the oncogenes of solid carcinomas has been clinically investigated in primary lung carcinoma and in colorectal carcinomas. The clinical advantage of the oncogenic mutation survey is to identify the site, and the type, of amino acid change in detail. This case is a rare successful case of a survey of the oncogenes for giving a differential diagnosis.

**CONCLUSION:** A survey of the oncogenic genes is very useful to make a differential diagnosis between primary lung carcinoma and metastatic lung tumor.

© 2016 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

The number of patients diagnosed with solid carcinomas is increasing, and the most common site of metastasis is the lungs. It is often difficult to give a differential diagnosis between primary lung carcinoma and metastatic lung tumor [1], especially in the case of solitary pulmonary tumor with lymphadenopathy. In these cases, clinical diagnosis is made using histological examination of the tumor and by determining their immunohistological status using specific markers, such as TTF-1. However, both diagnostic methods are inexact, and so, most patients with undifferentiated pulmonary tumors are treated using empirical chemotherapy regimens.

Recently, examination of the oncogenes of solid carcinomas, including primary lung carcinoma, has been undertaken. Epidermal growth factor receptor (EGFR) mutation or anaplastic lymphoma receptor (ALK) rearrangement has been clinically investigated in

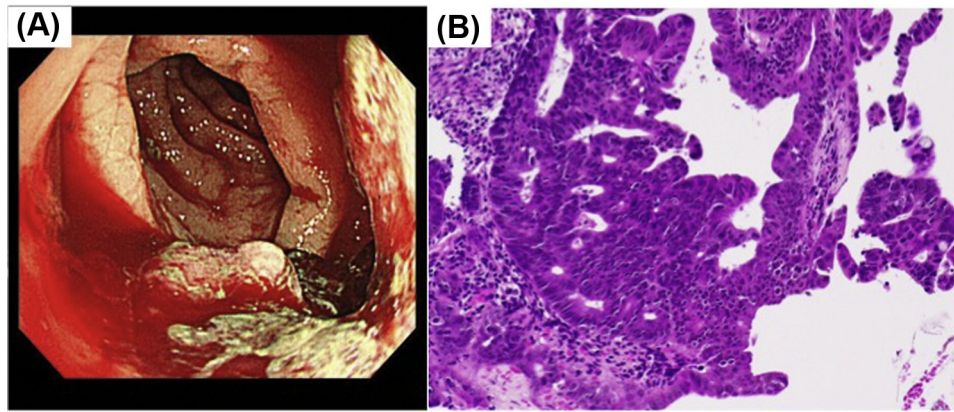
primary lung adenocarcinoma, and the Kirsten rat sarcoma viral oncogen homolog (KRAS) and NRAS mutations have been investigated in colorectal carcinomas. As such, patients with wild KRAS benefit from treatment using anti-EGFR therapies, such as panitumumab or cetuximab [2]. In the present case study, we present a case of successful diagnosis of a metastatic lung tumor derived from colorectal carcinoma by a survey of the oncogenic gene, NRAS.

## 2. Case report

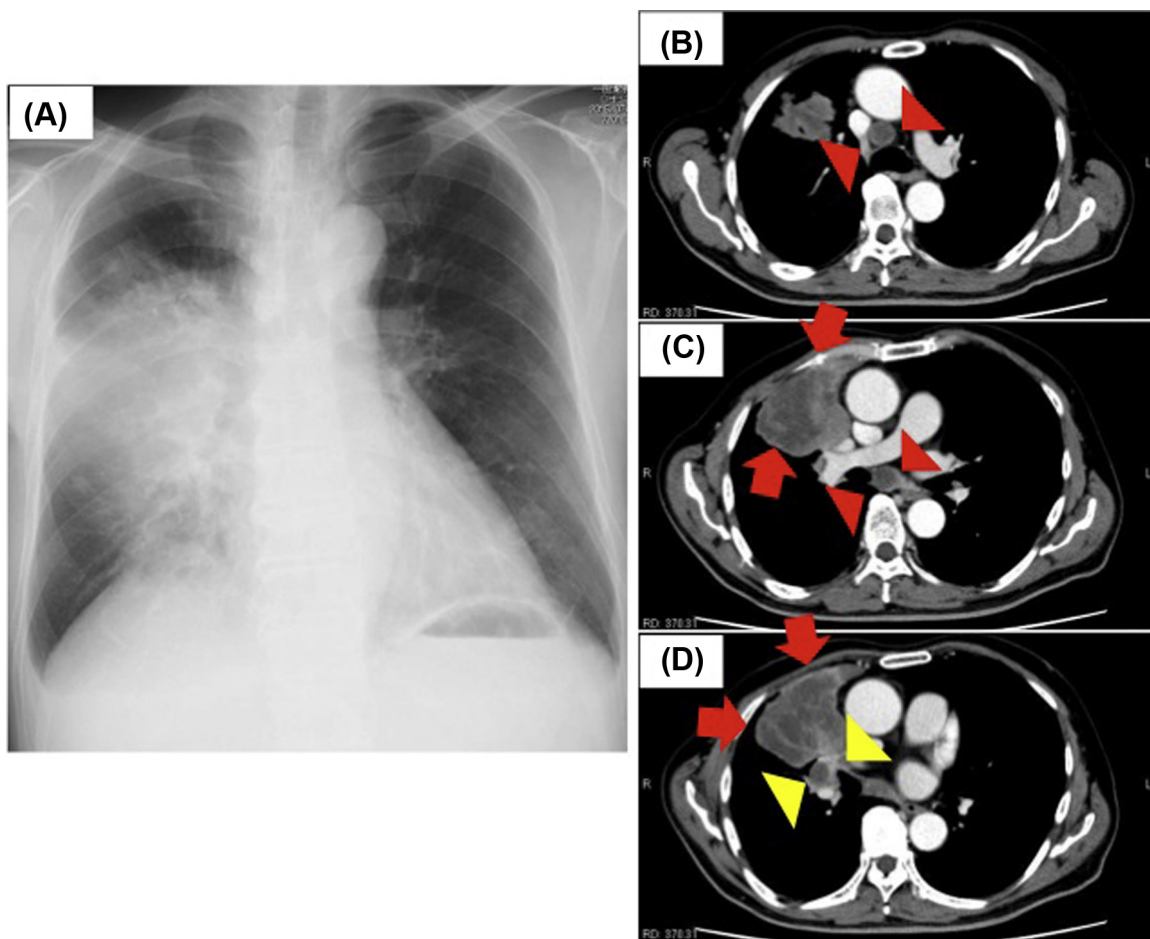
A 64-years-old man presented with dyspnea. He had acute cardiac insufficiency, and chest X-ray and chest CT showed cardiac dilatation and a right side pulmonary tumor with right mediastinal and hilar lymphadenopathy and bilateral pleural effusion. Following his recovery from the acute cardiac insufficiency, he suffered from a sudden bowel hemorrhaged due to colorectal carcinoma (Fig. 1). The hemorrhage was locally controlled using radiation therapy (40 Gy/16 Fr) combined with oral S-1. After recovery from the heart failure and bowel hemorrhage, chest CT revealed that the size of the pulmonary tumor had increased in size to 10.4 cm

\* Corresponding author.

E-mail address: [aharo@surg2.med.kyushu-u.ac.jp](mailto:aharo@surg2.med.kyushu-u.ac.jp) (A. Haro).



**Fig. 1.** Panel A: Colonoscopy revealed a bowel hemorrhage from the colorectal carcinoma. Panel B: Hematoxylin-eosin stain showed well-to-moderately differentiated tubular adenocarcinoma. ( $\times 200$ ).



**Fig. 2.** Panel A: Chest X-ray revealed the right tumor and the infiltration shadows around the tumor. Panel B, and C and D: Chest CT revealed a pulmonary tumor (C and D; red arrows), hilar (D; yellow arrowheads) and mediastinal (B and C; red arrowheads) lymphadenopathy is enhanced by contrast medium.

(Fig. 2). A tissue biopsy of the pulmonary tumor was performed via bronchoscopy (Fig. 3A). The histological diagnosis was poorly differentiated adenocarcinoma (Fig. 3B). We could not make a differential diagnosis between primary lung carcinoma and metastatic lung tumor from colorectal carcinoma because both TTF-1 and CK20 were immunohistologically negative (Fig. 3C and D). As such, chemotherapy of carboplatin and irinotecan was given to the patient as irinotecan is effective for both primary lung carcinoma and colorectal carcinoma.

To make a more informed diagnosis, we furthermore investigated the EGFR mutation and ALK rearrangement of the primary lung carcinoma, and the KRAS and NRAS mutations of the colorectal carcinoma. Of the oncogenic mutations investigated, a NRAS codon13 G13D mutation was detected in both the colorectal carcinoma and the pulmonary tumor tissue samples. Based on the result, the pulmonary tumor was diagnosed as a metastasis derived from colorectal carcinoma. Four cycles of chemotherapy resulted in a partial response until a new bone metastasis appeared in the

Download English Version:

<https://daneshyari.com/en/article/5733338>

Download Persian Version:

<https://daneshyari.com/article/5733338>

[Daneshyari.com](https://daneshyari.com)