doi • 10.5578/tt.68341
Tuberk Toraks 2019;67(2):142-145
Geliş Tarihi/Received: 18.05.2019 • Kabul Ediliş Tarihi/Accepted: 29.05.2019

OLGU SUNUMU
CASE REPORT

An autopsied NSCLC patient with huge adrenal gland metastasis with rapid growth and local invasion

Satoshi HAGIMOTO[1]
Kunihiko MIYAZAKI[1]
Shinya SATO[1]
Takahide KODAMA[1]
Hiroaki SATOH[2]

[1] *Division of Respiratory Medicine, Ryugasaki Saiseikai Hospital, Ryugaski, Japan*
[1] Ryugaski Saiseikai Hastanesi, Solunum Bölümü, Ryugaski, Japonya
[2] *Division of Respiratory Medicine, Mito Medical Center, Tsukuba University, Mito, Japan*
[2] Tsukuba Üniversitesi, Mito Tıp Merkezi, Solunum Bölümü, Mito, Japonya

Cite this arcticle as: *Hagimoto S, Miyazaki K, Sato S, Kodama T, Satoh H. An autopsied NSCLC patient with huge adrenal gland metastasis with rapid growth and local invasion. Tuberk Toraks 2019;67(2):142-5.*

Yazışma Adresi (Address for Correspondence)

Dr. Hiroaki SATOH
Miya-machi 2-3-1
MITO - JAPAN
e-mail: hirosato@md.tsukuba.ac.jp

SUMMARY

An autopsied NSCLC patient with huge adrenal gland metastasis with rapid growth and local invasion

The adrenal gland is a common site for metastasis from non-small-cell lung cancer (NSCLC). Adrenal metastases are usually solitary, asymptomatic and diagnosed incidentally during staging of patients with lung adenocarcinoma. Huge but sole adrenal gland metastasis with rapid growth and local invasion is extremely rare and those occurring in the setting of NSCLC have not been reported previously. Herein we describe a 66 year old male patient with NSCLC who had huge but sole adrenal gland metastasis with rapid growth and local invasion and extension into stomach, pancreas and left kidney. Interestingly there was no increase in the primary lesion of NSCLC. These findings were confirmed by autopsy. Despite the occurrence of an adrenal gland metastasis with considerable size being rare, it should be considered in the differential diagnosis, even if there is no involvement of the other organ and the primary lesion is of a small size.

Key words: *Non-small cell lung cancer; adrenal gland metastasis; rapid growth; local invasion*

ÖZET

Hızlı büyüme ve lokal invazyonla birlikte dev adrenal bez metastazı olan otopsili KHDAK hastası

Adrenal bez, küçük hücreli dışı akciğer kanseri (KHDAK)'nden kaynaklanan metastaz için yaygın bir bölgedir. Adrenal metastazlar genellikle soliter, asemptomatiktir ve akciğer adenokarsinomlu hastaların evrelemesi sırasında

tesadüfen teşhis edilir. Hızlı büyüme ve lokal invazyonla birlikte büyük ancak tek adrenal bez metastazı oldukça nadirdir ve KHDAK ortamında ortaya çıkanlar daha önce bildirilmemiştir. Burada KHDAK'lı 66 yaşında erkek hastayı hızlı büyüme ve lokal invazyon ve mide, pankreas ve sol böbreğe yayılma ve yayılmayla birlikte büyük ancak tek adrenal bez metastazı olan bir hasta tanımladık. İlginç olarak, KHDAK'ın primer lezyonunda bir artış olmadı. Bu bulgular otopsiyle doğrulandı. Büyüklüğü nadir görülen adrenal bez metastazı görülmesine rağmen, diğer organ tutulumu olmasa ve primer lezyon küçük bir boyutta olsa bile ayırıcı tanıda düşünülmelidir.

Anahtar kelimeler: *Küçük hücreli olmayan akciğer kanseri; adrenal bez metastazı; hızlı büyüme; yerel istila*

INTRODUCTION

Adrenal gland metastasis from lung cancer occur far more often than expected (1). Distant metastases at the time of presentation of non-small-cell lung cancer (NSCLC) are a frequent clinical problem. Approximately 30-40% of NSCLC patients present with metastatic disease at the time of diagnosis (2,3). The most common metastatic site is bone, followed by the lungs, brain, liver and adrenal glands (4). Although metastasis to bilateral adrenal glands is not uncommon, however, huge adrenal gland metastasis with rapid growth, local invasion and extension into the inferior vena cava as well as abdominal lymph nodes or liver seemed to rarely be found in NSCLC (5-7). In addition, adrenal gland metastasis was usually associated with diffuse systemic spread. We herein report an autopsied NSCLC case of huge but sole adrenal gland metastasis with rapid growth, local invasion and extension into the inferior vena cava as well as abdominal lymph nodes and liver.

CASE REPORT

A 66 year old male presented at the Ryugasaki Saiseikai Hospital with appetite loss that had persisted for 3 months. Physical examination was unremarkable. A chest radiograph and computed tomography (CT) scan revealed a mass in the upper lobe of the left lung with mediastinal lymph nodes, which were expanding directly at the esophagus, with the compression and narrowing of the esophagus (Figure 1). CT guided transesophageal mediastinal lymph node biopsy was performed, and a diagnosis of pulmonary adenocarcinoma was obtained. The patient received concurrent chemoradiotherapy with 6 courses carboplatin and paclitaxel and achieved partial response. As left adrenal gland metastasis was found on an abdominal CT scan taken 15 months after the initial presentation, irradiation to the metastatic lesion was performed (68Gy/34Fr) and achieved good response. Regrowth of the metastatic lesion was found at 38 months after the initial presentation and the patient had additional chemotherapy with docetaxel and

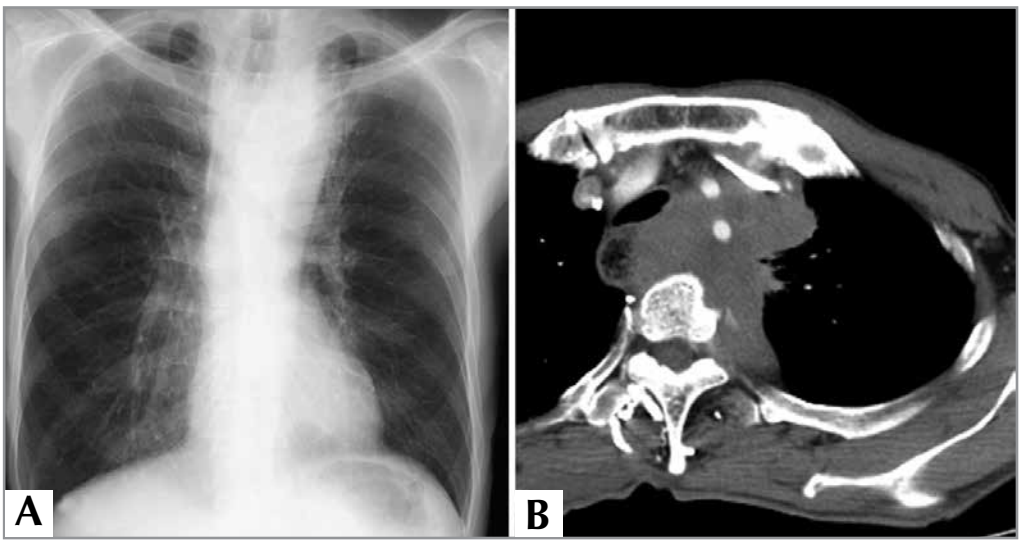

Figure 1. A chest radiograph **(A)** and computed tomography scan **(B)** revealed a mass in the upper lobe of the left lung with mediastinal lymph nodes, which were expanding directly at the esophagus, with the compression and narrowing of the esophagus.

bevacizumab. However, enlargement of the metastatic lesion and direct invasion into stomach and pancreas was found on abdominal CT scan (Figure 2). The patient died of lung cancer one month later.

Autopsy examination demonstrated the left upper lobe of the lung was firmly adhered to the chest wall. The left upper lobe of the lung collapsed extensively at the apex, and had adhered to the surrounding chest wall and large blood vessels. A hard and white fibrous lesion around the chest wall and surrounding the large blood vessel was widely recognized, and it also reached the part around the esophagus. Histologically, the left upper lobe was mostly collapsed and fibrotic. And high degree of fibrosing lesion was widely observed in the chest wall, the perivascular vessel periphery, and around the esophagus. No residual tumor was observed, it is thought that the tumor disappeared by treatment. The left retroperitoneal organ and surrounding tissues had extensive adhesions. On the cut surface, a white, solid, and border unclear tumor of 60 x 55 x 32 mm size was found in the portion where the left adrenal gland above the left kidney would have existed.

Histologically, tumor cells with eosinophilic cytoplasmic tumor cells proliferated with vesicular nests, small clumps, and cord-like shapes. Tumors were accompanied by hyaline-like fibrosis in the surroundings. Tumor invasion was found in the stomach wall, pancreas, left kidney. Immunohistochemical analysis revealed CK7 (+), HNF4α (-), p53 (+). Similarity was confirmed by comparison with specimens taken from the primary lesion at the time of diagnosis of lung adenocarcinoma. We considered that the influence of poor fixation condition of specimen was the reason for weak positive of TTF-1 and considered not contradictory as metastasis of lung adenocarcinoma.

DISCUSSION

Adrenal gland metastasis of lung cancer is thought to occur via the hematogenous route as is the case for other organ metastases (8). Recent imaging studies as well as autopsy studies illustrate that adrenal gland metastasis from lung cancer occur far more often than expected on the basis of organ size and blood flow (4). We previously investigated whether specific organ metastasis at presentation was of prognostic significance in NSCLC patients (4). Adrenal gland metastasis was one of the unfavorable prognostic factors and was associated with a poor PS in the study, although adrenal gland metastasis per se rarely presents with severe symptoms and only few patients with adrenal gland metastasis eventually develop adrenal insufficiency (4,9,10). The precise etiology of adrenal gland metastasis being an unfavorable prognostic factor remain unclear.

It seemed that the adrenal gland has a higher affinity for the spread of lung cancer than other organs, and that other organ metastasis might occur via adrenal gland metastasis (4). In the present case, however, an adrenal metastatic tumor from lung cancer grew to a considerable size without metastasis to other organs. The present case is consistent with the 'seed and soil' theory.

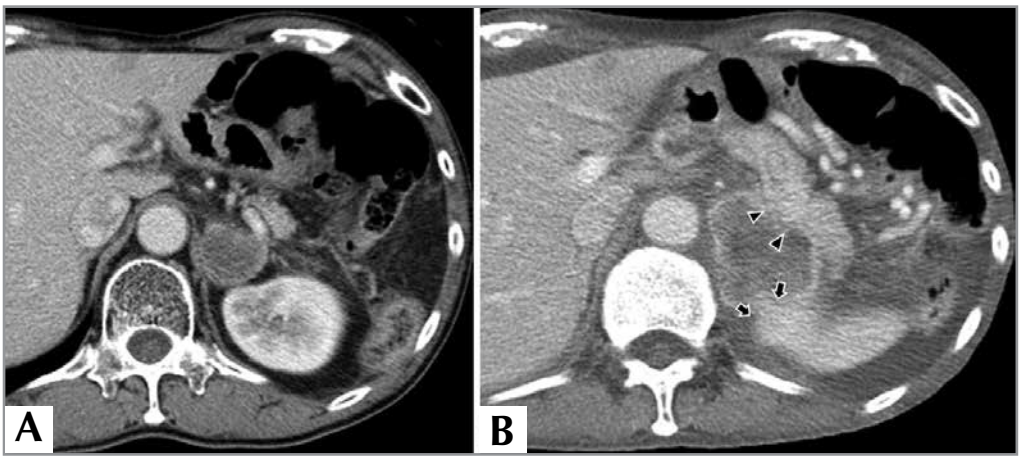

Figure 2. An abdominal computed tomography scan revealed a left adrenal gland metastasis at July 2014 **(A)**, and enlargement of the adrenal gland metastasis and direct invasion into pancreas (arrows) and left kidney (arrow heads) **(B)**.

Generally, there is a high suspicious for malignancy if adrenal tumors are larger than 6 cm (11). Large clinically asymptomatic adrenal masses are treated surgically and then diagnosed by histopathological examination. Surgical resection of the adrenal gland metastasis was considered in this case, but did not perform because disease was classified as metastatic disease, although it was evaluated as a sole and small-sized metastasis. Huge adrenal gland metastasis with rapid growth, local invasion and extension into the inferior vena cava as well as abdominal lymph nodes or liver were rarely found in lung adenocarcinoma. In the present case, adrenal gland metastasis was a small lesion at the time of detection, but it increased rapidly. Adrenal metastatic lesions from lung cancer rarely become huge mass. These findings suggested that neoplastic diseases other than adrenal gland metastasis of lung cancer should be distinguished. However, autopsy findings demonstrated that the initial diagnosis of adrenal gland metastasis from lung adenocarcinoma was incorrect. A large adrenal mass composed of adenocarcinoma cells with positive TTF-1, which were consistent with those of primary lesion of the lung, was confirmed as adrenal gland metastasis from lung adenocarcinoma.

In conclusion, despite the occurrence of an adrenal gland metastasis with considerable size being rare, it should be considered in the differential diagnosis, even if there is no involvement of the other organ and the primary lesion is of a small size.

CONFLICT of INTEREST

The authors reported no conflict of interest related to this article.

AUTHORSHIP CONTRIBUTIONS

Concept/Design: SH, HS

Analysis/Interpretation: KM, HS

Data Acquisition: SH, KM, SS

Writting: SH, HS

Critical Revision: TK

Final Approval: All of authors.

REFERENCES

1. *Marabella P, Takita H. Adenocarcinoma of the lung: clinico-pathological study. J Surg Oncol 1975;7:205-12.*
2. *Matsuda A, Matsuda T, Shibata A, Katanoda K, Sobue T, Nishimoto H. (Japan Cancer Surveillance Research Group). Cancer incidence and incidence rates in Japan in 2008: a study of 25 population-based cancer registries for the Monitoring of Cancer Incidence in Japan (MCIJ) project. Jpn J Clin Oncol 2014;44:388-96.*
3. *Little AG, Gay EG, Gaspar LE, Stewart AK. National survey of non-small cell lung cancer in the United States: epidemiology, pathology and patterns of care. Lung Cancer 2007;57:253-60.*
4. *Tamura T, Kurishima K, Nakazawa K, Kagohashi K, Ishikawa H, Satoh H, et al. Specific organ metastases and survival in metastatic non-small-cell lung cancer. Mol Clin Oncol 2015;3:217-21.*
5. *Muñoz A, López-Vivanco G, Mañé JM, Fernández R, Díaz-Aguirregoitia J, Saiz M, et al. Metastatic non-small-cell lung carcinoma successfully treated with pre-operative chemotherapy and bilateral Adrenalectomy. J Clin Oncol 2006;36:731-4.*
6. *Hasan R, Harold KL, Matthews BD, Kercher KW, Sing RF, Heniford BT. Outcomes for laparoscopic bilateral adrenalectomy. J Laparoendosc Adv Surg Tech A 2002;12:233-6.*
7. *Urschel JD, Finley RK, Takita H. Long-term survival after bilateral adrenalectomy for metastatic lung cancer: a case report. Chest 1997;112:848-50.*
8. *Károlyi P. Do adrenal metastases from lung cancer develop by lymphogenous or hematogenous route? J Surg Oncol 1990;43:154-6.*
9. *Toloza EM, Harpole L, McCrory DC. Noninvasive staging of non-small cell lung cancer: a review of the current evidence. Chest 2003;123(Suppl 1):137S-46S.*
10. *Mohammad K, Sadikot RT. Adrenal insufficiency as a presenting manifestation of nonsmall cell lung cancer. South Med J 2009;102:665-7.*
11. *Grumbach MM, Biller BM, Braunstein GD, Campbell KK, Carney JA, Godley PA, et al. Management of the clinically inapparent adrenal mass ("incidentaloma") Ann Intern Med 2003;138:424-9.*