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A rare case of lung squamous cell carcinoma coexisting with pulmonary MALT lymphoma presenting as a progressive pGGN

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Abstract

Pulmonary extranodal marginal zone lymphoma of the mucosa-associated lymphoid tissue (MALT) presenting as a progressive pure ground-glass nodule (GGN) coexisting with lung squamous cell carcinoma has not been reported. A 65-year-old male presented with a progressive lung GGN in the left upper lobe identified six and a half years ago but showed no symptoms. The patient had a history of tuberculosis, squamous cell carcinoma, and stomach MALT lymphoma. The patient was diagnosed with lung squamous cell carcinoma coexisting with pulmonary MALT lymphoma through computed tomography (CT)-guided lung biopsy. A progressive lung GGN presenting in a patient with squamous cell carcinoma does not always indicate multiple primary lung adenocarcinoma, especially when given a specific medical history. The development of MALT lymphoma in the lung presenting as GGNs suggests a possible association between these two entities.

Introduction

Persistent pure ground-glass lung nodules with increasing solid components and size usually indicate lung adenocarcinoma [1,2], defined as multiple primary lung cancer (MPLC) when accompanied by lung squamous cell carcinoma. Extranodal marginal zone lymphoma of the mucosa-associated lymphoid tissue (MALT) is a relatively rare disease with a type of extranodal low-grade B-cell non-Hodgkin lymphoma, which occurs frequently in the stomach. Case series and retrospective analysis published in the literature have suggested that extra-gastrointestinal MALT-type lymphoma may affect any organ in the body including the intestines, salivary glands, thyroid, lung, ocular adnexa, and less frequently skin, urinary bladder, and gonads [3]. But, the feature on chest computed tomography (CT) with MALT lymphomas occurring in the lung always appearing as typical nodules or areas of consolidation and presenting as deteriorating pure ground-glass nodule (pGGN) invasive is rare [4]. Here, we present an extremely rare case of coexistence of lung squamous cell carcinoma with MALT lymphoma presenting as progressive lung GGNs.

Case Report

A 65-year-old man with a progressive lung GGN in the left upper lobe for six and a half years and no symptoms presented to our hospital. The patient had a past clinical diagnosis of tuberculosis in the right upper lobe, and the pGGN (14 × 13 mm) was found on 25 February 2013 (Fig. 1A1, A2). Right upper lung lesion was partly absorbed after anti-tuberculosis treatment for nine months. Unfortunately, the shadow on the right upper lobe increased and was found on repeated chest CT on 21 June 2015 (Fig. 1B1, B2), and was diagnosed as squamous cell carcinoma through CT-guided lung biopsy. The patient underwent right upper lobe resection and lymph node dissection on 20 July 2015. The post-operative diagnosis was moderately differentiated squamous cell carcinoma, T2aN0M0 Ib. No recurrence of lung cancer in whole body was confirmed based on the results of 11 repeated CT

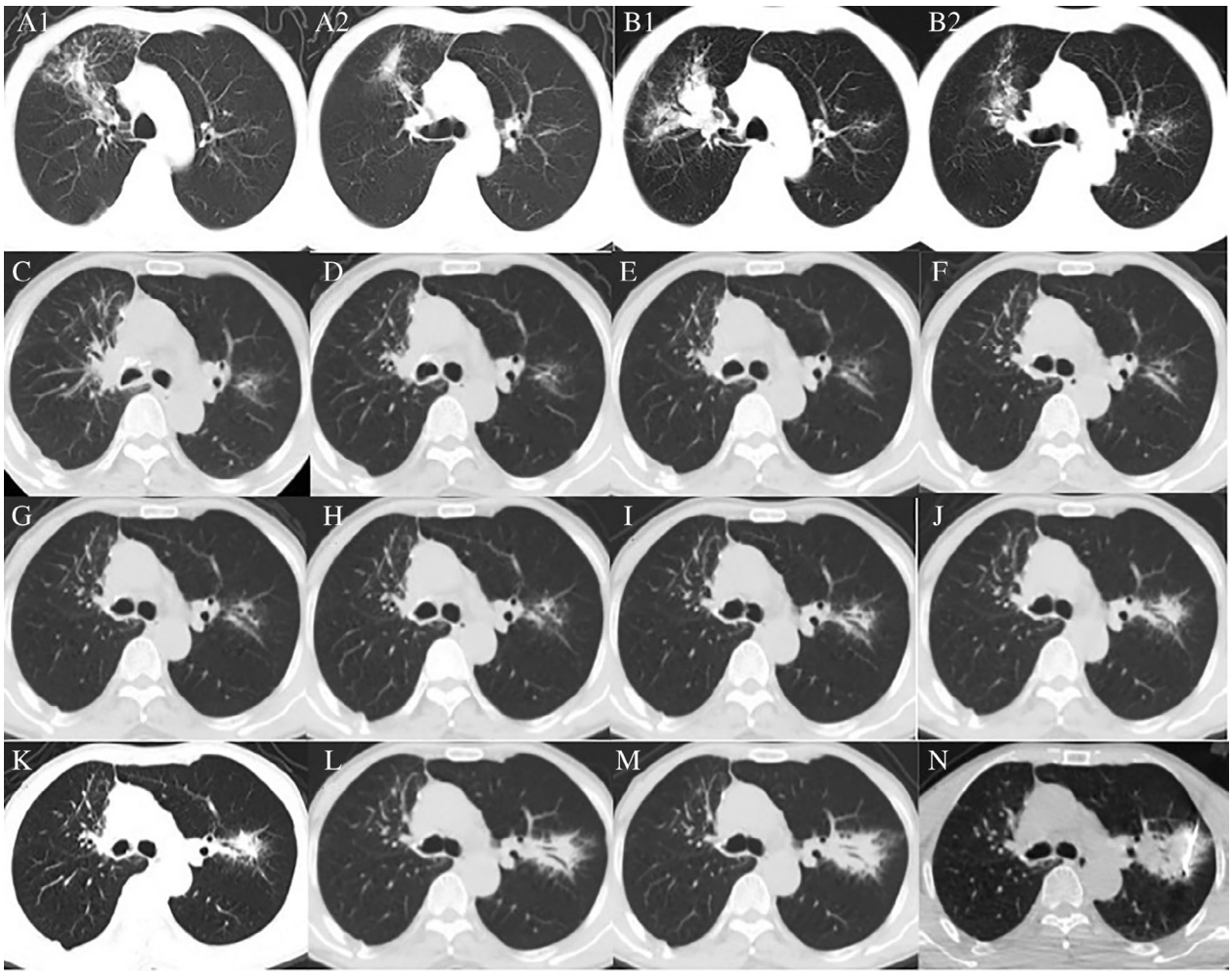

Figure 1. Feature on chest computed tomography (CT) scan in different time periods. (A1, A2) 25 February 2013. (B1, B2) 21 June 2015. (C) 23 October 2015. (D) 2 March 2016. (E) 6 July 2016. (F) 2 November 2016. (G) 1 March 2017. (H) 16 August 2017. (I) 7 March 2018. (J) 10 October 2018. (K) 15 November 2018. (L) 17 May 2019. (M) 13 December 2019. (N) 13 December 2019.

scans taken from 23 October 2015 to 4 December 2019, but the size of pGGN gradually increased and the density progressively became solid without any change after antibiotic treatment (Fig. 1C–M). This increased shadow was considered as adenocarcinoma without any positive finding by bronchoscope. Eventually, the ground-glass shadow on the left upper lobe was diagnosed as extranodal marginal zone lymphoma of the MALT by CT-guided needle biopsy on 13 December 2019 with pathological immunohistochemistry showing CD20 (+), CD3 cells (+), CD10 (−), bcl-6 (−), bcl-2 (+), CD21, CD23 cells (+), mum-1 (+), CK epithelial cells (+), Ki-67 5% (+), Pax-5 (+), CyclinD1 (−), sox-11 (−), and CD5 few (+) (Fig. 2A–F). After reviewing his medical history again, the patient underwent three gastroscopies due to intermittent abdominal pain and melaena from 6 June 2017 to 19 September 2018. Finally, he was diagnosed with MALT lymphoma with immune phenotype showing CD3 (−), CD5 (−), CD10 (−), Ki-67 (3% +), CD20 (+ + +), and CyclinD1 (−) (Fig. 2G, H; note: low-grade malignant). But, he had no further therapy and follow-up after anti-HP treatment for one month. The patient was diagnosed with coexisting lung squamous cell carcinoma combined with pulmonary MALT lymphoma and was transferred to the Department of Hematology in our hospital for further treatment after the pGGN was first discovered more than six years ago.

Discussion

With the development of clinical utilization with CT in recent years, the detection rate of pulmonary nodules has increased tremendously [5]. Previous reports demonstrated that most of the persistent GGNs are pre-invasive adenocarcinoma, with 20–30% of them growing to invasive

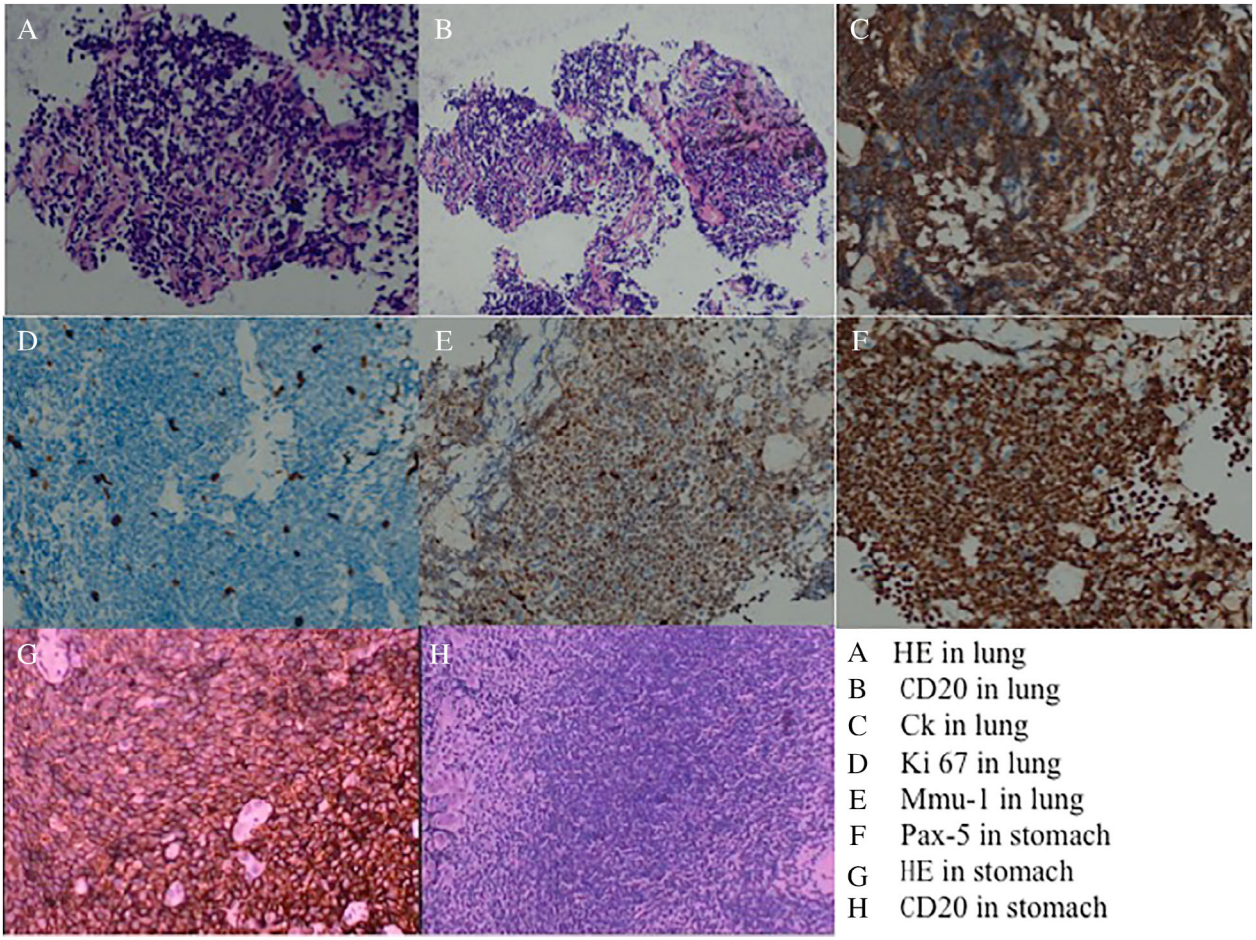

Figure 2. The result of immunohistochemistry in lung (13 December 2019) and stomach (30 September 2018).

adenocarcinoma due to multistep progression [6–8]. The growth pattern of this case is consistent with the growth pattern of GGN adenocarcinoma, making it easy to be misdiagnosed as lung adenocarcinoma. Recent advances have led to an increased detection of multiple lung adenocarcinomas [9]. MPLC refers to lung cancer in which two or more primary lesions occur simultaneously or successively in different parts of the lung in the same patient. This patient combined with lung squamous cell carcinoma was especially easy to be diagnosed with MPLC based on the histological characteristics of the tumours, tumour location, and interval from resection [10]. According to the principle of multiple primary cancer treatment, such patients may be admitted to further surgical resection [11]. Fortunately, this patient was diagnosed as MALT lymphoma by CT-guided lung biopsy, effectively avoiding unnecessary surgery, because surgery has not been shown to achieve superior results than less invasive approaches in MALT [12].

MALT with lymph node or bone marrow involvement at presentation carries a worse prognosis, but this is not the case for those with involvement of multiple mucosal sites [12,13]. During the course of the disease in this patient, the relationship between stomach MALT lymphomas and lung ground-glass opacity was ignored, leading to a definitely delayed diagnosis six and a half years later. Progressive lung GGN combined with squamous cell carcinoma is not always multiple primary lung adenocarcinoma especially combined with uncommon medical history. MALT lymphomas can also emerge in many other locations such as lung presenting as GGN, suggesting a possible association between these two entities.

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References

1. Naidich DP, Bankier AA, MacMahon H, et al. 2013. Recommendations for the management of subsolid pulmonary nodules detected at CT: a statement from the Fleischner Society. Radiology 266(1):304–317.
2. Lee JH, Park CM, Kim H, et al. 2017. Persistent part-solid nodules with solid part of 5 mm or smaller: can the 'follow-up and surgical resection after interval growth' policy have a negative effect on patient prognosis? Eur. Radiol. 27(1): 195–202.
3. Shrestha B, Kim B, and Huffstetler A. 2016. An unusual presentation of gastric mucosa-associated lymphoid tissue (MALT)-type lymphoma. J. Community Hosp. Intern. Med. Perspect. 6(4):31707.
4. Noguchi S, Yatera K, Kido T, et al. 2013. Pulmonary mucosa-associated lymphoid tissue (MALT) lymphoma with multiple thin-walled pulmonary cysts: a case report and review of the literature. Intern. Med. 52(20):2325–2329.
5. Horeweg N, van Rosmalen J, Heuvelmans MA, et al. 2014. Lung cancer probability in patients with CT-detected pulmonary nodules: a prespecified analysis of data from the NELSON trial of low-dose CT screening. Lancet Oncol. 15 (12):1332–1341.
6. Cho J, Kim ES, Kim SJ, et al. 2016. Long-term follow-up of small pulmonary ground-glass nodules stable for 3 years: implications of the proper follow-up period and risk factors for subsequent growth. J. Thorac. Oncol. 11: 1453–1459.
7. Kobayashi Y, Mitsudomi T, Sakao Y, et al. 2015. Genetic features of pulmonary adenocarcinoma presenting with ground-glass nodules: the differences between nodules with and without growth. Ann. Oncol. 26:156–161.
8. Matsuguma H, Mori K, Nakahara R, et al. 2013. Characteristics of subsolid pulmonary nodules showing growth during follow-up with CT scanning. Chest 143:436–443.
9. Ishikawa Y, Nakayama H, Ito H, et al. 2014. Surgical treatment for synchronous primary lung adenocarcinomas. Ann. Thorac. Surg. 98(6):1983–1988.
10. Martini N, and Melamed MR. 1975. Multiple primary lung cancers. J. Thorac. Cardiovasc. Surg. 70(4):606–612.
11. Kozower BD, Larner JM, Detterbeck FC, et al. 2013. Special treatment issues in non-small cell lung cancer: diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest 143(5 Suppl.):369–399.
12. Zucca E, Arcaini L, Buske C, et al. 2020. Marginal zone lymphomas: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. Ann. Oncol. 31(1):17–29.
13. Ding X, Makino T, Koezuka S, et al. 2017. Primary extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue with multiple pure ground-glass opacities: a case report. J. Cardiothorac. Surg. 12(1):2.