

Case  
Report

# Endobronchial Seeding of Squamous Lung Carcinoma with Mediastinal Lymph Involvement Node after EBUS: A Case Report

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**In locally advanced non-small-cell lung cancer (NSCLC), mediastinal staging is the cornerstone of the therapeutic decision and echoendoscopy is the most practiced exam to assess the lymph node involvement. We describe a rare case of endobronchial involvement by cells originating from a metastatic lymph node after endobronchial ultrasound (EBUS). A 64-year-old man was diagnosed with a squamous cell lung cancer with mediastinal nodal involvement proven by EBUS. The patient received neoadjuvant chemotherapy with partial response and was scheduled for a lobectomy. Before surgery, a fibroscopy was performed which demonstrated a 1-cm polypoid lesion settled on the internal face of the main right bronchus corresponding to the EBUS puncture site. The histological analysis confirmed tumoral cell in this lesion. The patient was rejected for surgery and undergo chemoradiation. This case highlights the need for a careful endoscopic control before surgical resection in case of prior positive EBUS followed by an interval of time.**

**Keywords:** mediastinal staging, endoscopy, EBUS, tumoral seeding, lung cancer

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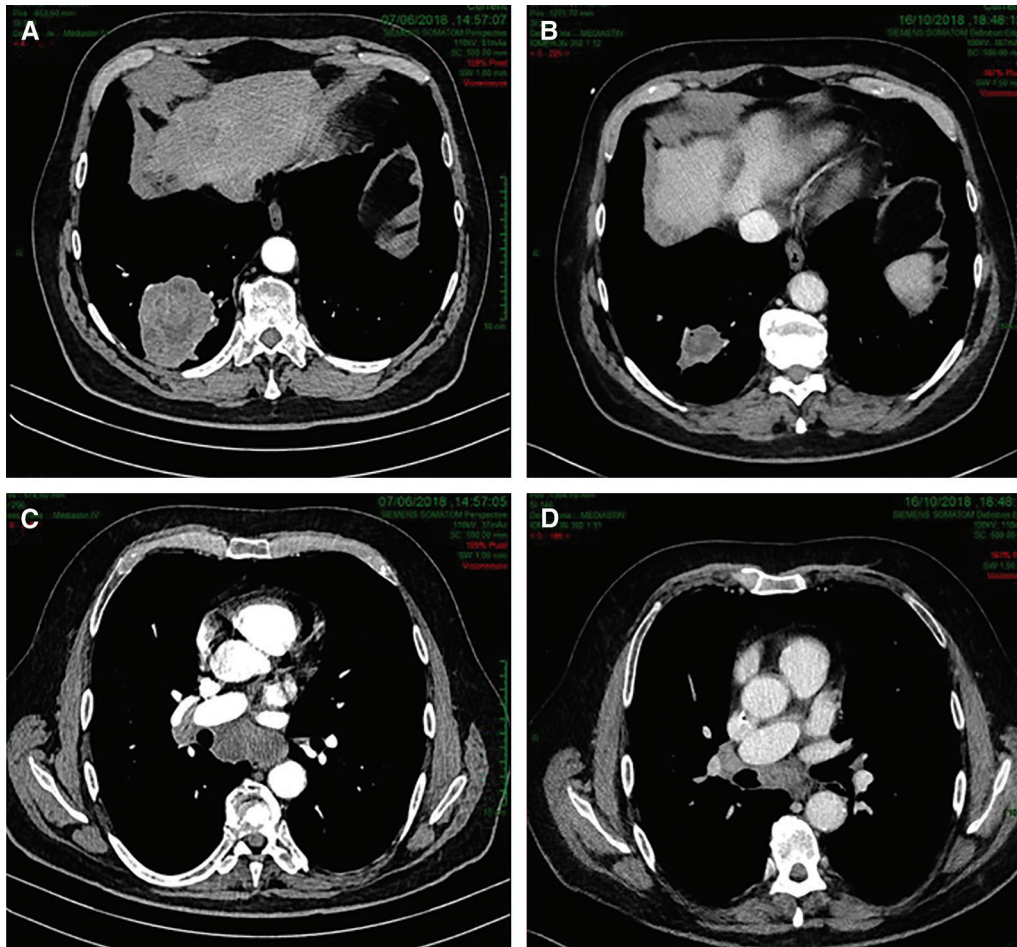
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## Introduction

Locally advanced non-small-cell lung cancer (NSCLC) is a complex disease that requires multidisciplinary treatment.<sup>1)</sup> Mediastinal staging is the cornerstone of the decision and echoendoscopy is the most practiced exam to assess the lymph node involvement. We describe a strikingly rare case of bronchial involvement by cells originating from a metastatic lymph node after endobronchial ultrasound (EBUS).

## Case Presentation

A 64-year-old man, 22 pack-years former smoker, visited our hospital with a recurring pulmonary infection. Computed tomography (CT) detected a lung tumor of 97 mm of diameter in the right lower lobe and an enlargement of 4R (16 mm) and 7 (46 mm) (**Fig. 1**).



**Fig. 1** CT scan of the main tumor and mediastinal lymph nodes before chemotherapy (A and C) and after four cycles of chemotherapy (B and D). CT: computed tomography

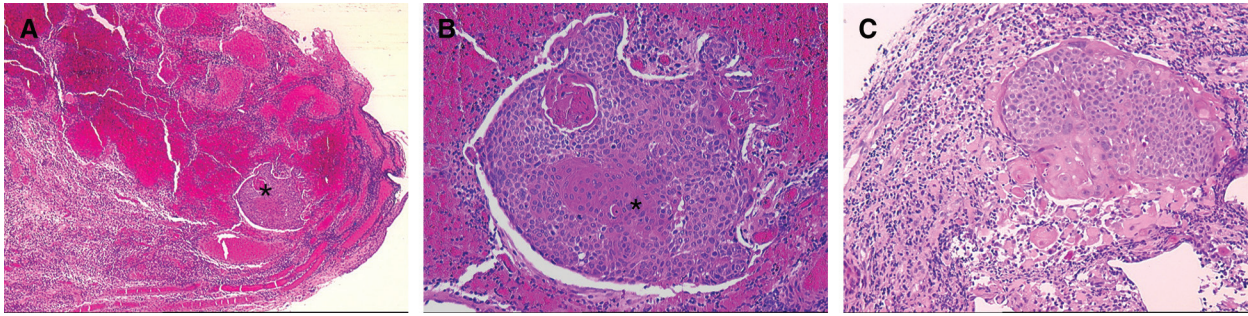
A tumoral obstruction in the right lower lobe bronchus was first observed, due to a squamous-cell lung cancer p63 and CK5/6 positive and PD-L1 negative. No abnormality was found in the main and intermediate bronchi. The positron emission tomography–computed tomography (PET-CT) found a hypermetabolism in the main tumor (SUV 20) and in the 4R (SUV 5.4) and 7 (SUV 12) areas. The brain magnetic resonance imaging (MRI) was normal. An EBUS was performed, using 22 gauges needles, with five passages in 4R and seven lymph node areas. Squamous cells were confirmed in the seven but not in the 4R cytology. Of note, no endobronchial lesion was observed respectively on carina and the main bronchus. After four courses of paclitaxel carboplatine, the patient experimented a partial response (main tumor 51 mm vs 97 mm, max SUV 7.8; station 7 lymph node 40 mm vs 46 mm, max SUV 12). Before surgery, a bronchoscopy was performed that demonstrated a centimetric polypoid, stalk shape lesion settled on the medial wall of the main right bronchus. This lesion was entirely

resected with endoscopic forceps by grasping the basis of the stalk. Pathological analysis revealed a tiny amount of squamous cells carcinoma engulfed into an early inflammatory repair tissue. These squamous cells were well differentiated with keratinized cytoplasm (**Fig. 2A and 2B**). This was consistent with the previous biopsy. Two weeks later, the fibroscopy disclosed the relapse of the polypoid lesion in regard of the suspected insertion site of the EBUS in the main right bronchus, surrounded by several whitish granulations (**Fig. 3**). The endoscopic biopsy confirmed the dissemination of the squamous cell carcinoma (**Fig. 2C**).

The pulmonary surgery was thus cancelled, and the patient started with a radio-chemotherapy. The patient is now under consolidation with durvalumab without relapse.

## Discussion

Whenever feasible, endoscopic procedures, by far less invasive than mediastinoscopy, are now initially used to



**Fig. 2** Histopathological pattern of the bronchial polypoid lesion in the main right bronchus. (A) A single sheet of well-differentiated squamous-cell carcinoma is visible (asterisk) within the inflammatory repair tissue of acute vascular phase. (B) High-power magnification of the carcinomatous sheet with keratinization (asterisk) and (C) involvement of the bronchial polypoid inflammatory bud by scattered carcinomatous cells



**Fig. 3** Endoscopic aspect of the polypoid lesion relapsing in the main right bronchus

assess pathological analysis of hypermetabolic or enlarged mediastinal lymph nodes.<sup>1)</sup> Thoracic biopsies including CT-scan-guided biopsies are well known to be associated with a seeding risk of tumor cells 0.012–0.061%.<sup>2)</sup> However, no definitive risk factor related to needle size, tumor size, or tumor location has been identified.<sup>3)</sup> Tumor seeding has been well described during echo endoscopy of the digestive track for cancer<sup>4)</sup> but few descriptions have been made in thoracic oncology.<sup>5)</sup> Strikingly in our case, both endoscopic and pathological patterns suggested the seeding of the tumoral cells secondarily to this diagnostic procedure. One may hypothesize the mechanical role of necrosis facilitating the flow of tumor cells along the route of the prior endoscopic needle. The pathological documentation of mediastinal lymph node remains mandatory for therapeutic options in NSCLC.

## Conclusion

This case highlights the need for a careful endoscopic control before a radical surgical resection is decided, in case of prior positive EBUS followed by an interval of time.

## Disclosure Statement

The authors have no conflicts to declare.

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