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Case Report

A rare presentation of lung adenocarcinoma as posterior tracheal mass

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Abstract

Background: Lung adenocarcinoma is the kind of non-small cell lung cancer (NSCLC) that is most common. It accounts for around 40% of all instances of lung cancer and is the most prevalent subtype among nonsmokers, despite its strong association with smoking. Adenocarcinomas frequently occur in advanced stages, which has a worse prognosis and fewer treatment choices. Their clinical appearance varies greatly.
Case Illustration: A 69-year-old lady who does not smoke has had a dry cough for a year, which has gotten worse over the past two months. She should see an ENT expert because her cough is accompanied by hoarseness and snoring. A laryngoscope reveals paresis of right vocal cord and a right tracheal mass on CXR. A neck CT reveals a thickened posterior tracheal wall with a suspicion of malignancy and lateral bowing of right vocal cord, but with no abnormality in chest CT. She was then referred to our pulmonology department for tissue sampling using bronchoscopy. Bronchoscopy showed an infiltrative stenoting with a suspicion due to malignancy. A forceps biopsy obtained via bronchoscopy reveals an adeno/adenosquamous carcinoma morphology. Further immunohistochemistry test shows a positive Napsin-A and negative TTF-1 and p40 consistent with adenocarcinoma with wild-type EGFR mutation. She was then treated with systemic chemotherapy as per our local protocol. After 3 series of chemotherapy, she came to our department for a follow-up with significant improvement in her symptoms.
Conclusion: The high number of cases of lung adenocarcinoma, accompanied with subtle clinical presentation which often delay the diagnosis, should prompt clinicians to be more aware for the possibility of the disease even with no obvious abnormality in chest imaging.

Keywords: Lung adenocarcinoma, Tracheal mass, Lung cancer

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1. Introduction

Lung cancer remains one of the most common and lethal malignancies worldwide, accounting for a significant percentage of cancer-related mortality. Among its subtypes, lung adenocarcinoma is the most prevalent form of non-small cell lung cancer (NSCLC), comprising approximately 40% of cases. It is strongly associated with smoking but is also frequently observed in non-smokers, particularly females.[1] Despite advances in diagnostic and therapeutic modalities, lung adenocarcinoma often presents at advanced stages, which complicates treatment and worsens prognosis. Early and accurate diagnosis is therefore critical to improving patient outcomes.

Unusual clinical presentations of lung adenocarcinoma, such as posterior tracheal masses, are exceedingly rare and pose significant diagnostic challenges. Tracheal involvement may manifest subtly and can be easily overlooked on routine imaging, leading to delays in diagnosis. In particular, patients presenting with non-specific symptoms, such as chronic cough, hoarseness, and vocal cord paresis, may not immediately raise suspicion for malignancy, especially in the absence of significant radiological abnormalities.

This case report describes a rare instance of lung adenocarcinoma presenting as a posterior tracheal mass in a non-smoking female patient. It highlights the diagnostic

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challenges associated with this atypical presentation and underscores the importance of integrating advanced diagnostic tools, such as bronchoscopy and immunohistochemistry, to confirm the diagnosis. By situating the findings within the broader context of tracheal tumors and their differential diagnoses, this report aims to contribute to the growing awareness of rare presentations of lung adenocarcinoma and the need for heightened clinical vigilance.

2. Case Report

A 69-year-old woman complained of a nonproductive cough that had been going on for a year but had been getting worse during the past two months when she visited our Pulmonary Clinic. Since two months ago, the unproductive cough has been getting worse and is accompanied by hoarseness. There was no hemoptysis, shortness of breath, post-nasal discharge (PND), dyspnea on exertion (DOE), orthopnea, and swollen legs. Fever, sore throat, runny nose, night sweats, anosmia, ageusia, weight loss, or bladder and bowel abnormalities were all denied. Patient had a history of COVID-19 six months ago. There is no previous or family history of asthma, tuberculosis (TB), cardiac disease, persistent cough, and shortness of breath. She does not smoke, but her husband has smoked for 40 years. The patient had gone to health care for treatment however the cough had not been improving. A lump in the right paratracheal area was visible on the chest x-ray. After that, the patient was told to visit the ENT clinic so that a CT scan of his chest could be performed, which revealed a posterior tracheal tumor.Her vital signs were as follows: temperature 36.7, SpO2 96-97% with room air, pulse 88 x/m, respiratory rate 20 x/m, and GCS E4V5M6 upon physical examination. The results of the general physical examination were normal. A right tracheal mass and cardiomegaly were discovered during a chest x-ray examination. (**Figure 1**)

Pathology biopsy revealed a non-small cell carcinoma with the impression of adenocarcinoma and adenosquamous carcinoma. Immunohistochemistry showed positive results for napsin-A (+) in the cytoplasm, P40 (-) in the tumor cell nuclei, TTF-1 (-) in the tumor cell nuclei, thus immunophenotype suggested an adenocarcinoma. Additionally, the status of EGFR mutations in the wild type form was noted.

Thorax CT scan with contrast (**Figure 2**) shows thickening of the posterior side of the tracheal wall and lateral bowing of the right vocal cords in accordance with a vocal cord palsy on the right side Fiberoptic bronchoschopy (FOB) showed infiltrative stenoting, suggesting for malignancy (**Figure 3**)

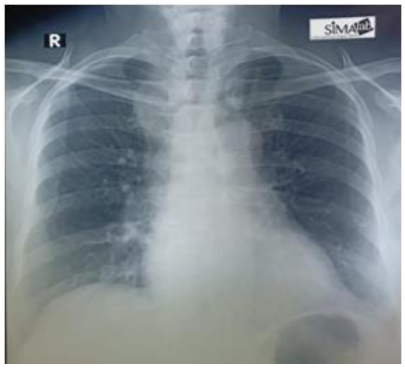

Figure 1: Chest X-ray

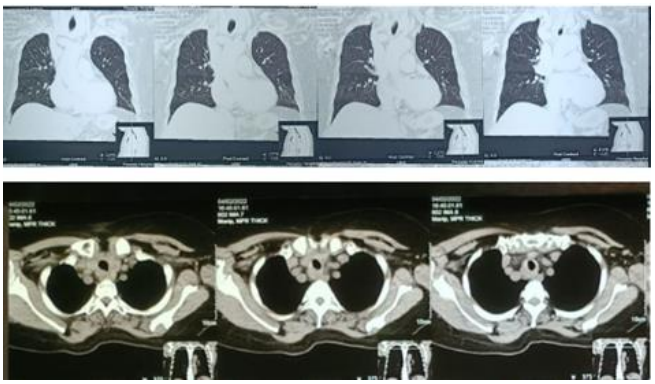

Figure 2: Chest CT scan with contrast

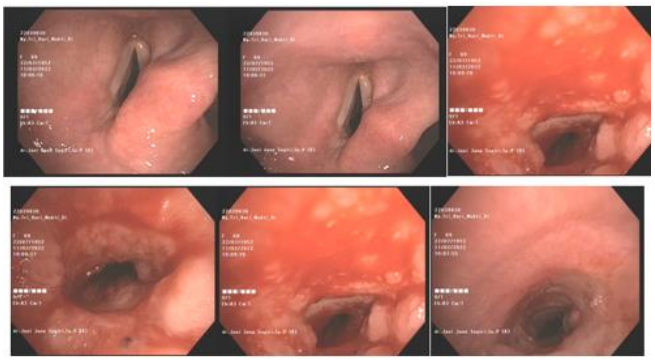

Figure 3: Fiberoptic bronchoschopy (FOB) showed infiltrative stenoting, suggesting for malignancy

3. Discussion

Lung cancer is the leading cause of cancer-related mortality globally, with its aggressive nature contributing to rapid metastasis. While smoking remains the principal etiological factor for lung cancer, both active and passive exposure to tobacco increases the risk of developing this malignancy. Other risk factors include genetic mutations, environmental pollutants, and comorbidities such as chronic obstructive pulmonary disease (COPD) and tuberculosis.[2,3] Passive smoking, for instance, has been associated with a 1.14–5.20-fold increased risk of lung cancer compared to non-smokers.[4] Lung cancer is categorized into two main subtypes: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC), the latter comprising approximately 85% of cases. Among NSCLC subtypes, adenocarcinoma is

the most common, often occurring in non-smokers, particularly females.[5,6] Although smoking is a major risk factor, genetic mutations, particularly in the EGFR, KRAS, and p16 genes, are frequently observed in adenocarcinoma, influencing both prognosis and treatment decisions.[7]

The clinical presentation of lung adenocarcinoma is often insidious, leading to delays in diagnosis. Common symptoms such as chronic cough, hoarseness, and dyspnea can be mistaken for less serious conditions, particularly in the absence of overt radiological abnormalities. In this case, the patient initially presented with a persistent cough and hoarseness, with imaging revealing a right tracheal mass, lateral bowing of the vocal cords, and tracheal wall thickening. These findings, along with the patient's lack of smoking history, necessitated further diagnostic workup, ultimately confirming the diagnosis of adenocarcinoma.[8,9]

The advanced stage at diagnosis remains a significant challenge, with up to 70% of lung cancer patients presenting with stage III or IV disease.[10] Early detection is critical for improving survival outcomes, as the prognosis worsens with later-stage diagnosis. Radiological evaluations, including chest X-ray, CT, and fiberoptic bronchoscopy, are essential for detecting lung malignancies and assessing tumor characteristics. In this case, fiberoptic bronchoscopy revealed an infiltrative stenosing lesion suggestive of malignancy, which was confirmed by biopsy.[8]

Treatment strategies for NSCLC depend on the stage of the disease. Surgical resection is the treatment of choice for early-stage lung cancer, whereas advanced stages may require a combination of chemotherapy, targeted therapy, and immunotherapy. Platinum-based chemotherapy is standard for patients with advanced disease, and the selection of specific agents depends on the tumor's genetic mutations.[11] The identification of EGFR mutations, as in the present case, can guide targeted therapies and improve treatment outcomes.

Tracheal masses as an initial presentation of lung adenocarcinoma are exceedingly rare. Metastatic spread to the trachea occurs infrequently (0.44% of NSCLC cases), usually through peribronchial lymphatic involvement.[12] Tracheal obstruction caused by neoplastic growth can lead to symptoms such as dyspnea, stridor, and hoarseness, as observed in this patient. Fiberoptic bronchoscopy remains the most accurate diagnostic tool for endoluminal lesions and is essential for staging and therapeutic planning. [9]

4. Conclusion

We present a rare case of lung adenocarcinoma in a 69-year-old non-smoking female, initially diagnosed with a persistent dry cough and hoarseness. Despite the absence of typical radiological signs, imaging revealed a right tracheal mass and vocal cord paralysis, prompting further diagnostic evaluation. Fiberoptic bronchoscopy confirmed an infiltrative lesion, and biopsy results showed adenocarcinoma with wild-type EGFR mutation. Immunohistochemical analysis was positive for Napsin-A and negative for TTF-1 and p40, consistent with an EGFR mutation-positive adenocarcinoma. Following three cycles of chemotherapy, the patient demonstrated significant symptom improvement. This case highlights the importance of considering lung cancer in the differential diagnosis, even in the absence of clear chest imaging abnormalities, particularly in non-smokers.

5. Conflict of Interest

None.

6. Sources of Funding

None.

References

1. Cersosimo RJ. Lung cancer: A review. *Am J Health Syst Pharm*. 2002;59(7):611–42.
2. O'Keeffe LM, Taylor G, Huxley RR, Mitchell P, Woodward M, Peters SAE. Smoking as a risk factor for lung cancer in women and men: a systematic review and meta-analysis. *BMJ Open*. 2018;8(10):e021611.
3. Zappa C, Mousa SA. Non-small cell lung cancer: current treatment and future advances. *Transl Lung Cancer Res*. 2016;5(3):288–300.
4. Malhotra J, Malvezzi M, Negri E, Vecchia CL, Boffetta P. Risk factors for lung cancer worldwide. *Eur Respir J*. 2016;48(3):889–902.
5. Travis WD, Brambilla E, Riely GJ. New pathologic classification of lung cancer: relevance for clinical practice and clinical trials. *J Clin Oncol Off J Am Soc Clin Oncol*. 2013;31(8):992–1001.
6. Robot RY, Durry MF, Kairupan CF. Morfologi, Patogenesis, dan Imunoterapi Kanker Paru Tipe Adenokarsinoma. *Med Scope J*. 2021;3(1):74–82.
7. Hua X, Chen J, Wu Y, Sha J, Han S, Zhu X. Prognostic role of the advanced lung cancer inflammation index in cancer patients: a meta-analysis. *World J Surg Oncol*. 2019;17(1):177.
8. Collins LG, Haines C, Perkel R, Enck RE. Lung cancer: diagnosis and management. *Am Fam Physician*. 2007;75(1):56–63.
9. Madariaga MLL, Gaissert HA. Overview of malignant tracheal tumors. *Ann Cardiothorac Surg*. 2018;7(2):244–54.
10. Yousefzadeh H, Jabbari Azad F, Rastin M, Banihashemi M, Mahmoudi M. Expression of Th1 and Th2 Cytokine and Associated Transcription Factors in Peripheral Blood Mononuclear Cells and Correlation with Disease Severity. *Rep Biochem Mol Biol*. 2017;6(1):102–11.
11. Scagliotti GV, Fossati R, Torri V, Crinò L, Giaccone G, Silvano G, et al. Randomized study of adjuvant chemotherapy for completely resected stage I, II, or IIIA non-small-cell Lung cancer. J Natl Cancer Inst. 2003 Oct 1;95(19):1453–61. (
12. Ngo AVH, Walker CM, Chung JH, Takasugi JE, Stern EJ, Kanne JP, et al. Tumors and Tumorlike Conditions of the Large Airways. Am J Roentgenol. 2013 Aug;201(2):301–13.

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