Case Report

A rare case of mediastinal metastasis of ovarian carcinoma diagnosed by endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA)

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Abstract: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) has become a minimally invasive tool with excellent diagnostic accuracy and low risk of complications in the diagnosis of thoracic diseases, including lung cancers and primary mediastinal lesions. Occasionally, EBUS-TBNA may be useful in identifying thoracic metastasis from distant tumors. Here we report an interesting and rare case of mediastinal metastasis of ovarian carcinoma diagnosed by EBUS-TBNA.

Keywords: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA); endoscopic ultrasound fine needle aspiration; ovarian carcinoma and mediastinal lymph node

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Introduction

Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) has emerged as a minimally invasive method with excellent diagnostic accuracy and low risk of complications in the diagnosis of thoracic diseases (1). In general, EBUS-TBNA is mostly indicated for patients with suspect lung cancer, specifically those who has central thoracic disease with negative bronchoscopy or in the suspicion of advanced disease with mediastinal lymphadenopathy (2,3).

Similarly, EBUS-TBNA can also be important in the evaluation of benign and malignant mediastinal diseases, such as sarcoidosis and lymphoma (4-6). Furthermore, this procedure may be useful in the suspicion of thoracic metastasis from distant tumors, such as gastrointestinal and gynecological cancers. For this propose, we report an interesting and rare case of mediastinal metastasis of ovarian carcinoma diagnosed by EBUS-TBNA.

Case report

A 54-year-old woman with 15 kg weight loss, abdominal and chest pain for the past 3 months was submitted to a chest and abdominal computed tomography (CT). The exam demonstrated multiple mediastinal and abdominal lymph nodes without other abnormalities (*Figure 1*). Due to this findings, the patient was referred for EBUS-TBNA (EBUS, Fujinon Corporation, Japan), revealing multiple enlarged mediastinal lymph nodes, measuring about 3 cm × 2 cm, located in subcarinal and bilateral para-tracheal regions (*Figure 2*). EBUS-TBNA (*Figure 3*) of the subcarinal lymph node (SonoTip® EBUS Pro needle, Medi-Globe Corporation, Germany) demonstrated partial replacement of the tissue by a metastatic epithelial neoplasm, composed of large atypical cells forming glandular structures (*Figure 4*). Immunohistochemical reactions showed positivity for CA125 and CK7 being negative for all other markers tested, confirming the diagnosis of ovarian carcinoma (*Figure 5*).

Discussion

Thoracic lymph nodes are often present on imaging studies and it may correspond a benign or malignant

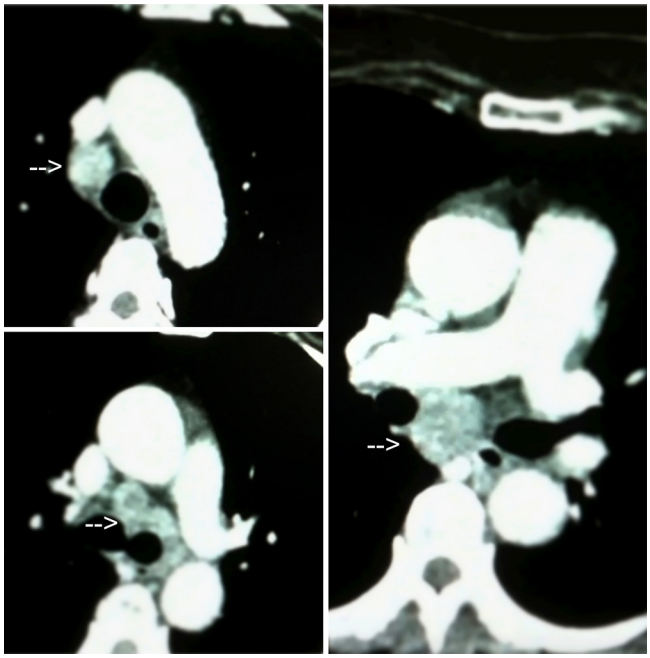

Figure 1 Computed tomography images of the multiple enlarged mediastinal lymph nodes.

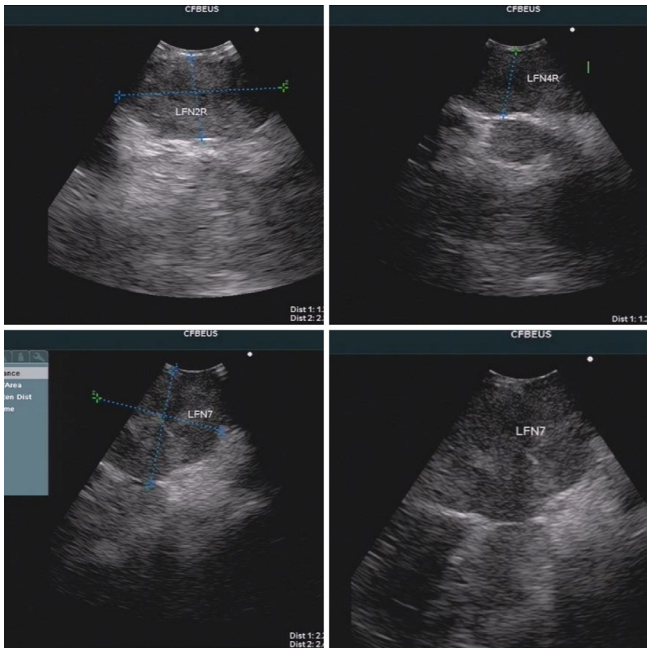

Figure 2 Endobronchial ultrasound views of lymph nodes located in subcarinal/bilateral para-tracheal regions.

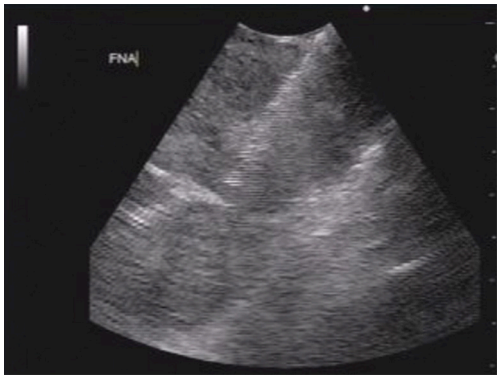

Figure 3 Endobronchial ultrasound-guided transbronchial needle aspiration of the subcarinal lymph node.

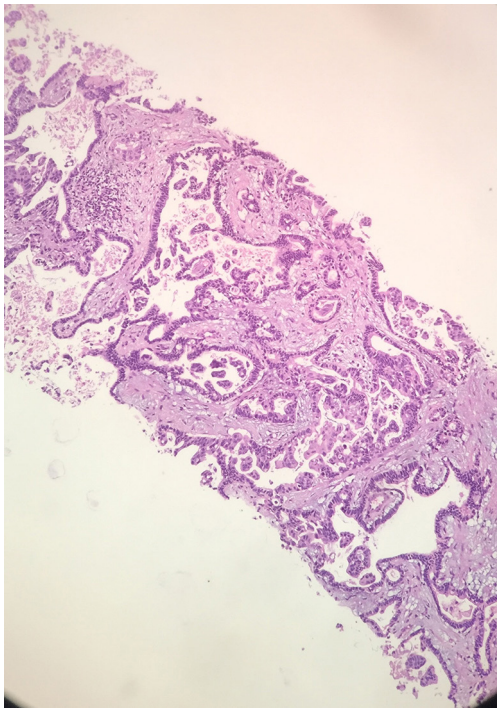

Figure 4 Hematoxylin and eosin section of the lymph node showing partial replacement by metastatic carcinoma (magnification, ×100).

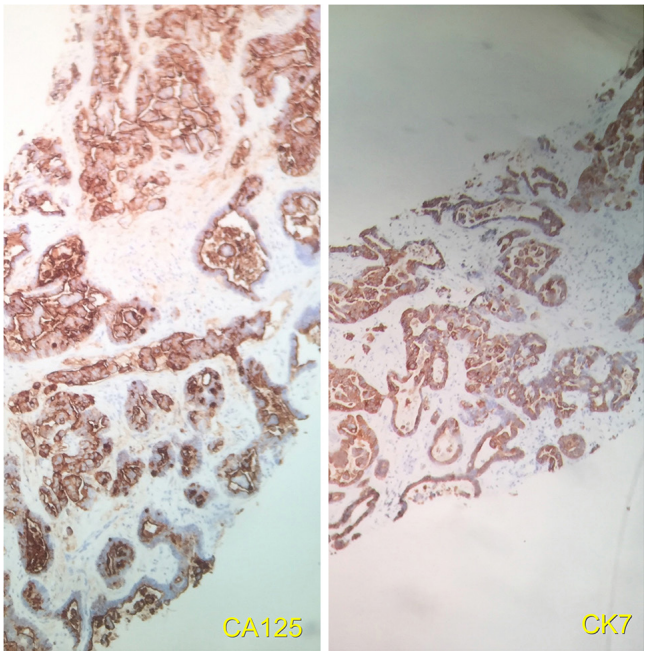

Figure 5 Immunohistochemistry for CA125 (magnification, ×400) and CK7 (magnification, ×100) showing positivity for the antigens.

disease. The correct staging and pathological analysis are important steps in patient management. For this propose, it's possible to perform a surgical invasive method or a non-invasive method, such as endoscopic ultrasound (EUS) and endoscopic ultrasound endobronchial (EBUS) (7-11).

EUS can be an interesting alternative in the presence of lymph nodes located on the upper/lower left paratracheal stations (2L and 4L), subaortic station [5], subcarinal station [7], para-esophageal station [8], pulmonary ligament stations (9R and 9L) (8,12,13). Moreover, EBUS is most suitable in situations where there is involvement of upper and lower paratracheal bilateral stations (2R, 2L, 4R and 4L), subcarinal station [7] hilar stations (10R and 10L) and interlobar stations (11R and 11L). Through both methods it is possible to collect material by fine needle aspiration for cytological, histological and immunohistochemistry/molecular biology analysis, with excellent results and low rates of complications (14-16).

In case of symptomatic patients with multiple lymphadenopathy or lymph nodes larger than 1 cm should be suggested the diagnosis of primary mediastinal malignancy or metastasis from other organs. In this case report, it was initially proposed the diagnosis of lymphoma, due to the presence of multiple enlarged abdominal and thoracic lymph nodes and no other findings on the chest and abdomen CT scan. However, EBUS-TBNA and pathological study confirmed the unexpected diagnosis of mediastinal metastasis of ovarian carcinoma.

Ovarian carcinoma remains one of the main causes of cancer mortality in women. The prognosis is closely related to the stage at diagnosis. The tumor can spread by local extension, lymphatic, hematogenous and transdiaphragmatic dissemination. Outside the peritoneal cavity, ovarian cancer may rarely spread to the pleural cavity, lungs and mediastinum. Mediastinal involvement is a rare phenomenon in patients with ovarian cancer and only a few cases have been reported in the literature (17-23).

Conclusions

EUS and EBUS have emerged as a safe and accurate technique for the diagnosis of both benign and malignant thoracic diseases. Accurate identification of the presence of mediastinal involvement and pathological confirmation are important for determining prognosis and selecting appropriate treatment of this patients. In this case report, we could demonstrate a rare case of mediastinal metastasis of ovarian carcinoma diagnosed by EBUS-TBNA.

Acknowledgements

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. Chandra S, Nehra M, Agarwal D, et al. Diagnostic accuracy of endobronchial ultrasound-guided transbronchial needle biopsy in mediastinal lymphadenopathy: a systematic review and meta-analysis. Respir Care 2012;57:384-91.
2. Dong X, Qiu X, Liu Q, et al. Endobronchial ultrasound-guided transbronchial needle aspiration in the mediastinal staging of non-small cell lung cancer: a meta-analysis. Ann Thorac Surg 2013;96:1502-7.
3. Gu P, Zhao YZ, Jiang LY, et al. Endobronchial ultrasound-guided transbronchial needle aspiration for staging of lung cancer: a systematic review and meta-analysis. Eur J Cancer 2009;45:1389-96.
4. Carbonari A, Camunha M, Marioni F, et al. Mediastinal

sarcoidosis diagnosed by endobronchial ultrasound in a patient with Sjögren's syndrome. Endosc Ultrasound 2015;4:268-9.
5. Ozgul MA, Cetinkaya E, Kirkil G, et al. Lymph node characteristics of sarcoidosis with endobronchial ultrasound. Endosc Ultrasound 2014;3:232-7.
6. Senturk A, Babaoglu E, Kilic H, et al. Endobronchial ultrasound-guided transbronchial needle aspiration in the diagnosis of lymphoma. Asian Pac J Cancer Prev 2014;15:4169-73.
7. Guo J, Liu Z, Sun S, et al. Endosonography-assisted diagnosis and therapy of gastrointestinal submucosal tumors. Endosc Ultrasound 2013;2:125-33.
8. Ioncica AM, Bektas M, Suzuki R, et al. Role of EUS-FNA in Recurrent Lung Cancer: Maximum Results with Minimum (minimally invasive) Effort. Endosc Ultrasound 2013;2:102-4.
9. Fujii LL, Levy MJ. Basic techniques in endoscopic ultrasound-guided fine needle aspiration for solid lesions: Adverse events and avoiding them. Endosc Ultrasound 2014;3:35-45.
10. Hébert-Magee S. Basic technique for solid lesions: Cytology, core, or both? Endosc Ultrasound 2014;3:28-34.
11. Petrone MC, Arcidiacono PG. Basic technique in endoscopic ultrasound-guided fine needle aspiration for solid lesions: How many passes? Endosc Ultrasound 2014;3:22-7.
12. Costache MI, Iordache S, Karstensen JG, et al. Endoscopic ultrasound-guided fine needle aspiration: from the past to the future. Endosc Ultrasound 2013;2:77-85.
13. Colella S, Vilmann P, Konge L, et al. Endoscopic ultrasound in the diagnosis and staging of lung cancer. Endosc Ultrasound 2014;3:205-12.
14. Herth FJ. Endobronchial ultrasound: first choice for the mediastinum. Endosc Ultrasound 2013;2:179-80.
15. Modi K, Dhillon S, Kumar A, et al. Leiomyosarcoma of the pulmonary artery diagnosed by endobronchial ultrasound-guided transbronchial needle aspiration. Endosc Ultrasound 2014;3:249-51.
16. Schuhmann M, Eberhardt R, Herth FJ. Endobronchial ultrasound for peripheral lesions: a review. Endosc Ultrasound 2013;2:3-6.
17. Ragusa M, Vannucci J, Capozzi R, et al. Isolated cardiophrenic angle node metastasis from ovarian primary. report of two cases. J Cardiothorac Surg 2011;6:1.
18. Cheng B, Lu W, Xiaoyun W, et al. Extra-abdominal metastases from epithelial ovarian carcinoma: an analysis of 20 cases. Int J Gynecol Cancer 2009;19:611-4.
19. Carvalho J Jr, Formighieri B, Filippi S, et al. Location of recurrent asymptomatic ovarian cancer through endoscopic ultrasound. Endosc Ultrasound 2015;4:63-5.
20. Montero CA, Gimferrer JM, Baldo X, et al. Mediastinal metastasis of ovarian carcinoma. Eur J Obstet Gynecol Reprod Biol 2000;91:199-200.
21. Lu Y, Goldblatt JC. Multiple mediastinal metastasis of ovarian carcinoma. Heart Lung Circ 2005;14:118-20.
22. Kim KW, Choi HJ, Kang S, et al. The utility of multi-detector computed tomography in the diagnosis of malignant pleural effusion in the patients with ovarian cancer. Eur J Radiol 2010;75:230-5.
23. Hynninen J, Auranen A, Carpén O, et al. FDG PET/CT in staging of advanced epithelial ovarian cancer: frequency of supradiaphragmatic lymph node metastasis challenges the traditional pattern of disease spread. Gynecol Oncol 2012;126:64-8.

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