

Uterus and Cervix Metastasis of Lung Cancer: A Case Report

Chun-Yao Huang¹, Yi-Hsin Lee², Lim Kun Eng³ and Yao-Kuang Wu^{1,4,*}

¹Department of Pulmonary Medicine, Taipei Tzu-Chi Hospital, Buddhist Tzu-Chi Medical Foundation, Taiwan, Republic of China

²Department of Pathology, Taipei Tzu-Chi Hospital, Buddhist Tzu-Chi Medical Foundation, Taiwan, Republic of China

³Department of Medical Imaging, Taipei Tzu-Chi Hospital, Buddhist Tzu-Chi Medical Foundation, Taiwan, Republic of China

⁴School of Medicine, Tzu-Chi University, Hualien, Taiwan, Republic of China

Abstract

A 57-year-old, postmenopausal woman was diagnosed with lung adenocarcinoma, T4N3M1b, stage IV with brain and bone metastases, in 2008. Five years following of chemotherapy and target therapy (Epidermal Growth Factor Receptor Inhibitors), the patient complained of increasing problems with lower abdominal pain, urination incontinence and abnormal vaginal bleeding. The magnetic resonance imaging examination revealed only infiltrative soft tissue tumor in the uterus, whole layered and extrauterine extension with urinary bladder involvement. There were no other abnormalities noted in the pelvic area such as colon, rectum or urological tract. Histological and immunohistochemical examinations of endocervical and endometrial biopsies revealed metastatic adenocarcinoma, with the staining reactivity as primary lung neoplasm. This is the first report of coincident metastases endometrium and cervix from primary lung cancer.

Keywords: Tracheobronchial compression; Tortuosity and dilation; Thoracic arteries; Connective tissue abnormalities

Case Report

A 57-year-old postmenopausal woman was diagnosed as adenocarcinoma of the lung (Figures 1 and 2) in May 2008 and received target therapy (Epidermal Growth Factor Receptor Inhibitors). The patient had suffered from pain in the lower part of the abdomen, pelvic area, spontaneous urination, and abnormal vaginal bleeding since March 2013. In addition, she suffered from diabetes mellitus type II and hypertension. On her initial evaluation, endometrial myomas measuring 3.1×2.7 and 3.3×2.8 cm were found by transvaginal sonography. The magnetic resonance imaging of pelvis (Figure 3) revealed infiltrative soft tissue tumor in the uterus with whole layered and extrauterine extension. The urinary bladder, peritoneal soft tissue in right lower abdomen, and cul-de-sac are involved. Endocervical and endometrium dilation and curettage excisional biopsies are done and sent for pathologic examination.

The pathologic finding of endocervical and endometrial biopsies (Figures 4a and 5a) revealed adenocarcinoma composed of proliferation of irregular neoplastic glands with infiltrative growth pattern. Stromal fibrosis and foci of calcification are seen. Immunohistochemically, the tumor glandular cells are positive for thyroid transcription factor-1 (TTF-1) (1:300, Leica, United Kingdom) (Figures 4b and 5b) and cytokeratin (CK) (1:200, Leica, United Kingdom), and negative for estrogen receptor (100x, Leica, United Kingdom) and progesterone receptor (400x, Leica, United Kingdom) (Figures 5c and 5d). The results were in favor of metastatic adenocarcinoma, with lung origin. In a complete clinical work-up, no other primary tumors such as breast, ovarian or urinary tract were found. Due to the disease rapid progression, the patient was expired after three months.

Discussion

Lung cancer continues to be a worldwide epidemic and major public issue, with increasing incidence in the female population. The most frequent metastatic sites are the regional lymph nodes and surrounding areas as well as liver, adrenal gland, bones and brain [1]. To our knowledge, coincident metastases in the uterus and cervix of primary lung cancer have not been previously reported.

Abnormal uterine bleeding is the cardinal symptom of endometrial cancer. Seventy-five to 90 percent of women with endometrial carcinoma present with abnormal uterine bleeding [2,3]. Endometrial

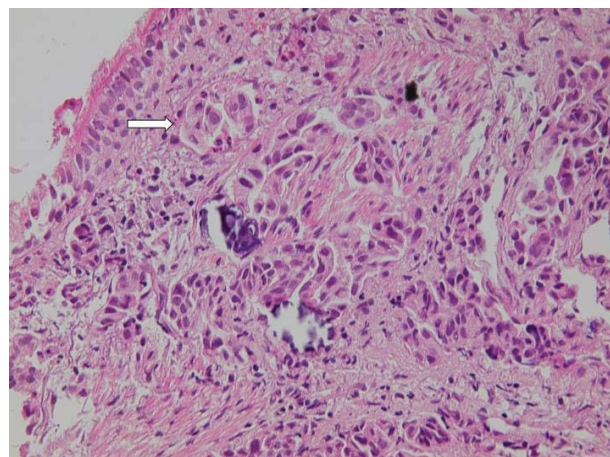


Figure 1: Lung biopsy (2008) shows bronchial tissue with infiltration of tumor glands (white arrow). (Hematoxylin and eosin stain, 400X).

carcinoma is a histologic diagnosis made based upon the results of evaluation of an endometrial biopsy or hysterectomy specimen. The differential diagnosis of endometrial carcinoma or hyperplasia includes other conditions that present with abnormal uterine bleeding. Women with presumed uterine bleeding should be evaluated to confirm that the source of the blood is the uterus and not another part of the genital tract or the anus or rectum. In this case, the magnetic resonance imaging examination revealed only infiltrative soft tissue tumor in the

***Corresponding author:** Yao-Kuang Wu, Division of Pulmonary Medicine, Taipei Tzu-Chi Hospital, Buddhist Tzu-Chi Medical Foundation, No. 289, Jianguo Road, Xindian City, New Taipei City, Taiwan, Republic of China, Tel: +886-2-6628-9779, extn. 5709; Fax: +886-2-6628-9009; E-mail: drbfci@yahoo.com.tw

Received July 27, 2015; **Accepted** August 18, 2015; **Published** August 24, 2015

Citation: Huang CY, Lee YH, Eng LK, Wu YK (2015) Uterus and Cervix Metastasis of Lung Cancer: A Case Report. J Pulm Respir Med 5: 282. doi:10.4172/2161-105X.1000282

Copyright: © 2015 Huang CY, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

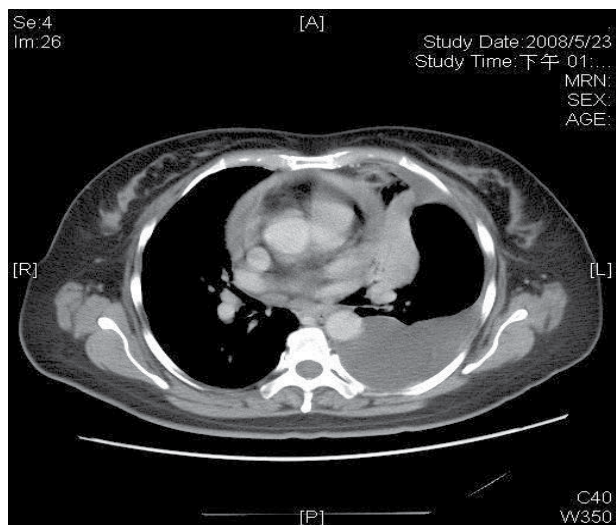


Figure 2: Left lower lung mass with malignant pleural effusion.

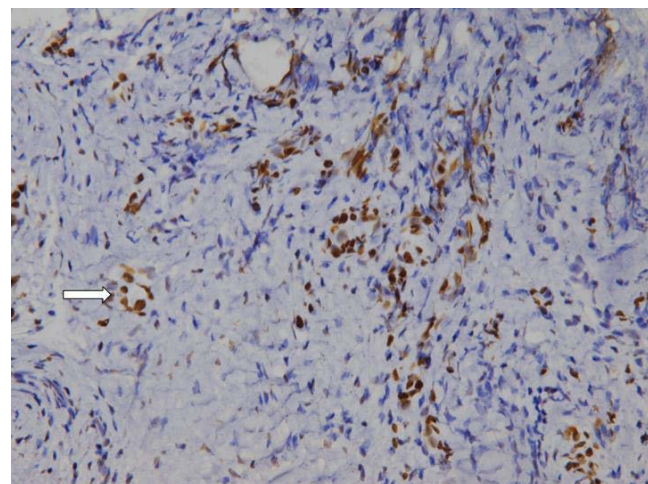


Figure 4b: The tumor cells are positive for TTF-1 (Immunohistochemical stain, 400X).

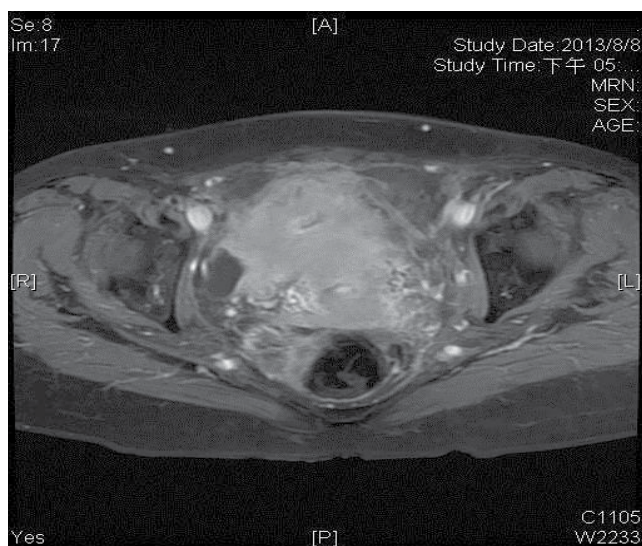


Figure 3: Infiltrative tumor in the uterus.

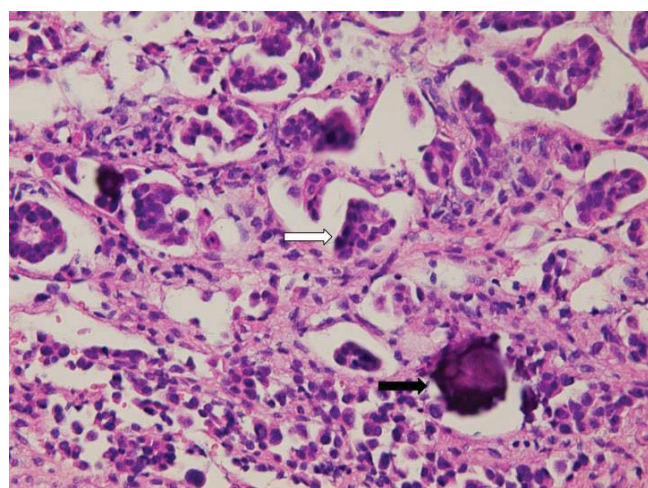


Figure 5a: Endometrial biopsy (2013) shows tumor glands (white arrow) infiltration in fibrous stroma with calcification (black arrow). (Hematoxylin and eosin stain, 200X).

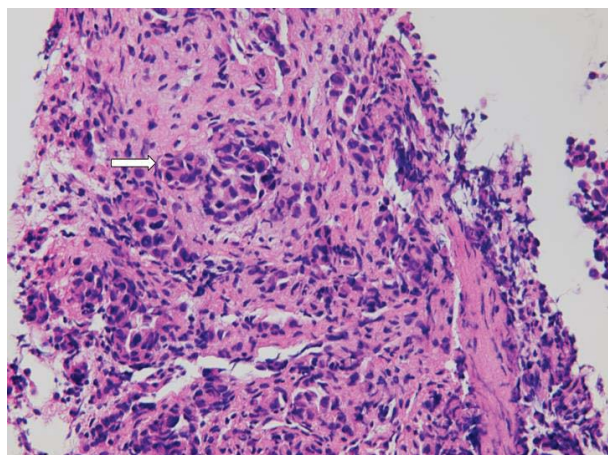


Figure 4a: Cervical biopsy (2013) shows tumor glands (white arrow) infiltration in fibrous stroma. (Hematoxylin and eosin stain, 400X).

uterus, whole layered and extrauterine extension with urinary bladder involvement. There were no other abnormalities noted in the pelvic area such as colon, rectum or urological tract.

The female genital tract is an infrequent site of metastasis, in particular from extragenital primary tumors such as lung cancer. Ovarian metastases have been described as disseminations of lung adenocarcinoma [4-6]; rare cases of secondary localizations in adnexa, cervix and vagina were also observed in the literature [7], but none of these had coincident uterus and cervix involvement. Metastases to the female genital tract are infrequent but, regardless of site, the survival rate is poor. We present a case of uterus and cervix coincident metastasis from a primary lung cancer. To our knowledge, the case is the first reported case. Our case provides an example that, in women with unclear symptoms and findings in the small pelvis, the formation of such metastases should be taken into account. To identify the primary site of a metastatic uterus tumor, clinicians should not forget the lungs since the incidence of lung cancer in females is increasing and survival

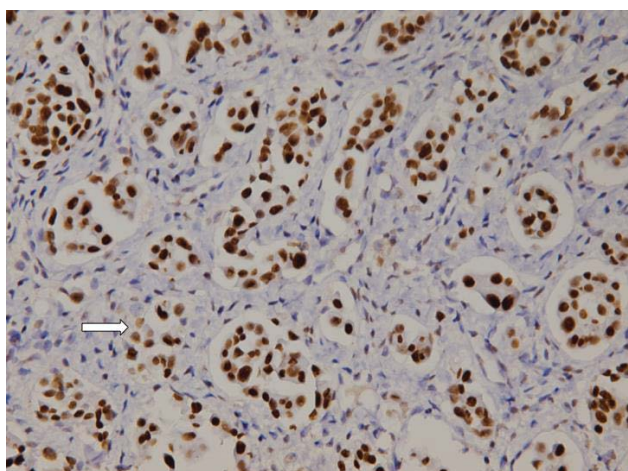


Figure 5b: The tumor cells are positive for TTF-1 (Immunohistochemical stain, 400X).

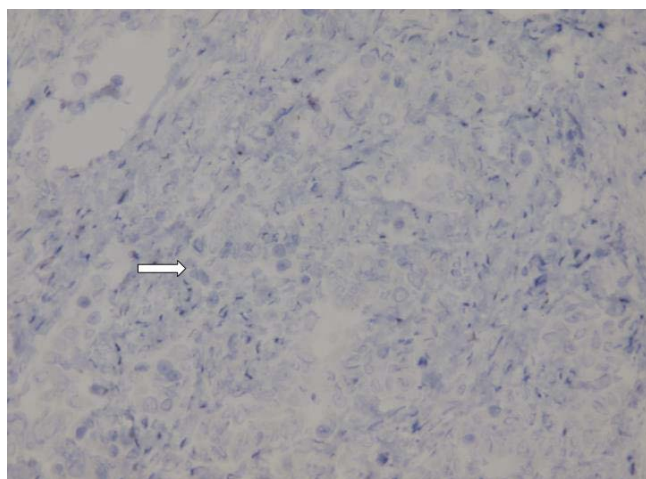


Figure 5c: The tumor cells are negative for ER (Immunohistochemical stain, 400X).

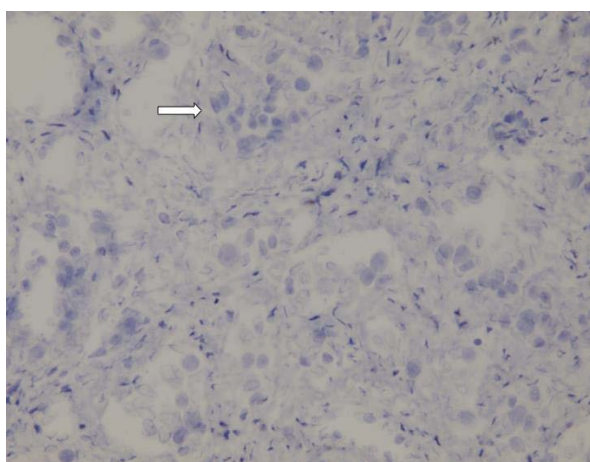


Figure 5d: The tumor cells are negative for PR (Immunohistochemical stain, 400X).

has increased after target therapy used in lung cancer treatment.

Cytokeratins (CK) 20 and 7 have been used successfully in studies determining primary location of adenocarcinoma from metastases. Yeh et al. [8] found that the monoclonal antibody panel for TTF-1, CK7 and CK20 may facilitate discrimination between primary and metastasized adenocarcinoma and identify tumor of pulmonary origin. Furthermore, a monoclonal antibody panel for TTF-1, CK7, CK20, estrogen receptors and progesterone receptors may facilitate discrimination between primary and metastasized uterus adenocarcinoma and the identification of pulmonary origin. In our immunohistochemical investigations of the uterus tumor tissue demonstrated intense positive thyroid transcription factor1 (TTF-1) and cytokeratin (CK), negative vimentin, estrogen receptor (ER) and progesterone receptor (PR). These reports support the immunohistological findings and support that the origin of the uterus metastases described was the adenocarcinoma of the lung.

References

1. Harrison's 14: Principles of Internal Medicine.
2. Kimura T, Kamiura S, Yamamoto T, Seino-Noda H, Ohira H, et al. (2004) Abnormal uterine bleeding and prognosis of endometrial cancer. *Int J Gynaecol Obstet* 85: 145-150.
3. Seebacher V, Schmid M, Polterauer S, Heffler-Frischmuth K, Leipold H, et al. (2009) The presence of postmenopausal bleeding as prognostic parameter in patients with endometrial cancer: a retrospective multi-center study. *BMC Cancer* 9: 460.
4. Irving JA, Young RH (2005) Lung carcinoma metastatic to the ovary: a clinicopathologic study of 32 cases emphasizing their morphologic spectrum and problems in differential diagnosis. *Am J Surg Pathol* 29: 997-1006.
5. Castadot P, Magné N, Berghmans T, Drowart A, Baeyens L, et al. (2005) [Ovarian metastasis and lung adenocarcinoma: a case report]. *Cancer Radiother* 9: 183-186.
6. Chen MY, Jung SM, Ng KK, Chang TC (2006) Pulmonary papillary serous adenocarcinoma with intraperitoneal and ovarian tumors: identification of primary site. A case report. *Int J Gynecol Cancer* 16 Suppl 1: 231-235.
7. Parini CL, Mathis D, Leath CA (2007) Occult metastatic lung carcinoma presenting as locally advanced uterine carcinosarcoma on positron emission tomography/computed tomography imaging. *Int J Gynecol Cancer* 17: 705-734.
8. Yeh KY, Chang JW, Hsueh S, Chang TC, Lin MC (2003) Ovarian metastasis originating from bronchioloalveolar carcinoma: a rare presentation of lung cancer. *Jpn J Clin Oncol* 33: 404-407.