

Diagnosis of Small Cell Lung Cancer through the Biopsy of Spleen Metastases: Rapid Communication

Marek Choraży, Marta Majcher and Katarzyna Fedyszyn-Urbanowicz

Department of Clinical Oncology and Internal Medicine, St. Leszczyński Hospital, Katowice 40-074, Poland

Received: October 08, 2014 / Accepted: October 18, 2014 / Published: December 25, 2014.

Abstract: Metastases of lung cancer to the spleen are a great rarity and described sporadically. The authors describe the case of the left lung cancer in which the histopathological diagnosis was made only on the base of the biopsy material taken from the metastatic lesion in the spleen. Interestingly, the location of the primary cancer site made it impossible to obtain the specimens and only a single distant metastatic lesion was found in the spleen. The case presented above is an example that metastasis can occur in every organ, sometimes can be isolated in the least probable organs, and when such organ is available for biopsy, it can be useful for pathological diagnosis.

Key words: Computer tomography, ultrasound guided fine-needle biopsy, lung cancer diagnosis.

1. Introduction

On most occasions, pathological diagnosis is conducted on the basis of histopathological examination of a tumor. Additionally, similar results can be obtained during the process of collecting specimens either surgically or during a biopsy. Occasionally, the diagnosis involves collecting a sample via the biopsy of the metastasis into the organ [1, 2]. Splenic metastases are very rare and mostly diagnosed at the terminal phase of the disease or at the time of autopsy. The histological examination, if it is done, is usually made after splenectomy. The few described reports of percutaneous splenic biopsies in the diagnosis of splenic metastases are fragmentary and very poor. It is related to the fact that splenic metastases are secondary lesions, generally being found in patients with other metastases (particularly situated in the liver and adrenal gland) [2, 3].

2. Case Presentation

A 70-year-old female patient was brought from the

Corresponding author: Marek Choraży, Ph.D., M.D., research field: parietal lung cancer diagnosis. E-mail: marekchorazy@wp.pl.

hospital in Częstochowa for further diagnosis and management of a left lung tumor lesion detected by X-ray examination. She had smoked heavily for 3 to 5 years (about 20 cigarettes per day), quitting at the age of 68.

She had undergone flexible bronchoscopy in the hospital in Częstochowa, which was unsuccessful. Chest surgeons refused to carry out any surgical procedure due to her poor general condition. As the diagnostic yield was limited, she was referred to our hospital (K.W. History No. 15824/867/09) for a percutaneous biopsy of the lung tumor. A computer tomography (CT) scan showed a chest infiltration of a pulmonary tissue, most probably neoplastic, situated under the left scapula (Fig. 1). The examination was performed with the use of the Siemens Somatom Sensation Open CT Scanner. A CT-guided percutaneous biopsy was performed twice without positive results as we were unable to reach the tumor in the sub-scapular region using the biopsy needle. In these circumstances, we decided to look for secondary lesions in other organs. Ultrasound (US) examination of the abdomen revealed a pathological mass in the spleen (Fig. 2). The lesion in the spleen

was also detected by the CT examination (Fig. 3). We made an ultrasound-guided (free hand technique) fine-needle biopsy of the lesion using a Hitachi EUS 515 sonographic machine (Fig. 4). A needle produced by Bolton (dimensions: 90 × 1.2 mm) was used to collect the material. There were several pre-biopsy requirements which included: informed consent, prothrombin activity greater than 70%, a platelet count higher than 80,000/ μ L and 12 h of fasting before the procedure. The procedure was performed under local anesthesia; no complications were recorded. The procedure was performed in our department. Vital signs were not monitored during the procedure because no conscious IV sedation was administered. As soon as the biopsy was completed, the patient was transferred to the recovery area, where vital signs were monitored and a complete blood count and US abdominal examination were arranged to ascertain whether complications had occurred.

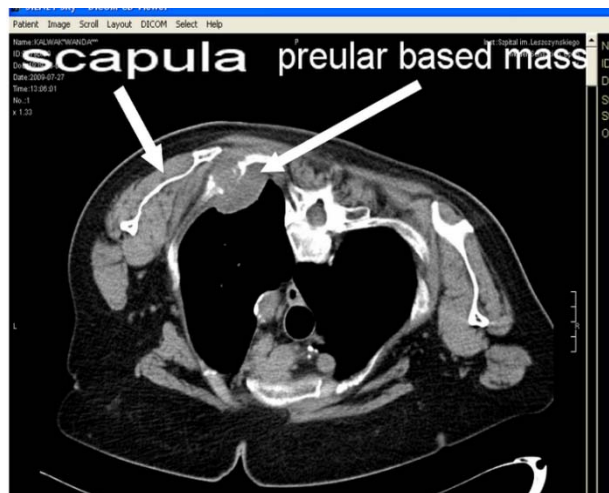


Fig. 1 CT imaging scan: lung tumor under the left scapula.



Fig. 2 US imaging scan: metastases to the spleen.



Fig. 3 CT imaging scan-metastases to the spleen.

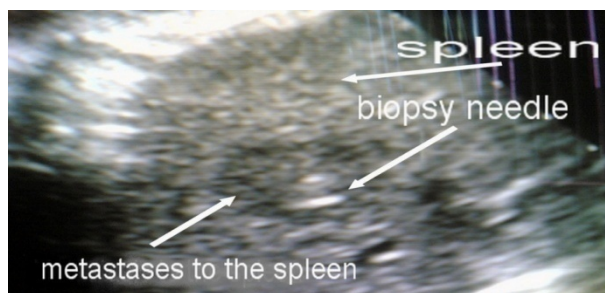


Fig. 4 US imaging scan-puncture needle in metastases to the spleen.

The biopsy was diagnostic and a diagnosis of small-cell cancer most likely originated in the lungs was established. The patient was treated with chemotherapy (cisplatin + etoposidum) in the oncology department of our hospital.

3. Results and Discussion

Sporadic descriptions of lung cancer metastasizing to the spleen have appeared in the literature as case reports [3, 4]. Reports of metastases isolated from other organs (i.e., colorectal cancer) are of great rarity as well [5]. Although those cases were not diagnosed with image-guided, fine-needle biopsy, as there are several methods to bring the correct diagnosis, in our case, we managed to establish an accurate diagnosis only by using needle biopsy. The case presented above is not only a rare example of a lung tumor metastasizing to the spleen but also proves that the metastatic lesion can sometimes be the only accessible place to collect a tissue for diagnosing the cancer pattern of the primary cancer site. Our case is also exceptional because the incidence of solitary splenic metastases in patients with a primary lung cancer is

exceedingly rare and most frequently diagnosed at the time of autopsy. Distant lung metastases occurring in the liver, brain, bone and adrenals are relatively common. Tumors in the spleen in most cases are classified as primary (e.g., haemangioma, lymphoma, carcinosarcoma) [6, 7], inflammatory [8] or observed in lymphatic diseases like leukemia. Normally, spleen metastases can be seen in advanced disseminated disease [3]. However, in the case described above, we did not find any other metastases to other organs using available methods. Due to the risk of bleeding, the biopsy of the spleen has only been performed intermittently in the recent years. But our experience with the ultrasound-guided fine-needle biopsy of a spleen showed that, if performed under ultrasound guidance with appropriate blood clotting parameters, splenic biopsy in the evaluation of new or recurrent neoplasm is a minimally invasive procedure with low complication rates and a high diagnostic yield. The safety of spleen biopsy was confirmed by others authors as well [2].

In the case of this patient, pathologic diagnosis was made during the biopsy of an isolated spleen metastasis, which is rarely conducted.

4. Conclusions

The case presented above proves that metastasis can occur in every organ of the human body. Sometimes it can be isolated from the least probable, and therefore

least expected, organs. When available for biopsy, this metastasis can establish a pathological diagnosis.

References

- [1] M. Chorąży, Z. Wiąg, J. Głasek, Bioptic diagnosis of adrenal gland tumors in patients with lung cancer, *Contemp. Oncol. (Pozn)/Współcz. Onkol.* 3 (2008) 111-115.
- [2] M. Chorąży, M. Majcher, K. Fedyszyn-Urbanowicz, G. Grażyna Bierzyńska-Macyszyn, R. Kwiatkowski, Atypical dissemination of lung cancer to the adrenal gland and to the spleen, *Contemp. Oncol. (Pozn)/Współcz. Onkol.* 16 (5) (2012) 444-446.
- [3] L. Cavanna, A. Lazzaro, D. Vallisa, G. Civardi, F. Artioli, Role of image-guided fine-needle aspiration biopsy in the management of patients with splenic metastasis, *World J. Surg. Oncol.* 5 (13) (2007) 1-6.
- [4] I. Van Hut, P. Cools, R. Rutsaert, Solitary splenic metastasis of an adenocarcinoma of the lung 2 years postoperatively, *Acta Chirurgica Belgica* 108 (4) (2008) 462.
- [5] P. Bigot, C. Goodman, A. Hamy, C. Teysseidou, Isolated splenic metastasis from colorectal cancer, *J. Gastrointest. Surg.* 12 (2008) 981-982.
- [6] R. Kochar, C. Vijayasekar, U. Pandey, R. Bhogal, L. Brown, G. Mathew, Primary carcinosarcoma of spleen: Case report of a rare tumor and review of the literature, *Int. J. Surg. Pathol.* 17 (2009) 72-74.
- [7] U. Kini, B. Alexander, M. Correa, Malignant lymphoma, without lymphadenopathy, *J. Assoc. India* 56 (2008) 383-385.
- [8] S. Bhatt, R. Simon, V.S. Dogra, Radiologic-pathologic conferences of the University of Rochester School of Medicine: Inflammatory pseudotumors of the spleen, *Am. J. Roentgenol.* 191 (2008) 1477-1479.