

Isolated solitary splenic metastasis of a pulmonary tumor: a successful surgical approach in one stage

Akciğer kanserinin izole soliter dalak metastazı ve tek aşamalı cerrahi yaklaşım

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The splenic metastases of solitary organ cancers are extremely rare. In this paper, we present a case having an adenocarcinoma in left lung and isolated solitary splenic metastasis; which has undergone a left 3rd, 4rd, 5th ribs partial resection and left pneumonectomy, afterwards thoracic wall reconstruction with prolene mesh and splenectomy by using left phrenotomy. The case has been discussed together with the relevant literatures by bringing up isolated solitary splenic metastasis encountered in lung carcinomas and performance facilities of multiple surgeries in only one stage.

Key words: Lung cancer; splenic metastasis; surgery.

Soliter organ kanserlerinin dalağa metastazı oldukça nadirdir. Bu makalede sol anterior hemitoraksta 3., 4., 5. kotlara parsiyel invazyon yapan, dalağa izole soliter metastazı olan sol akciğer adenokarsinom olgusu ve bu olguya uygulanan 3., 4., 5. kotların parsiyel rezeksiyonu, sol pnömonektomi, prolen mesh ile göğüs duvarı rekonstrüksiyonu, frenotomi ve splenektomi ameliyatları sunuldu. Nadir görülen bu olgunun, akciğer kanserlerinde izole dalak metastazlarının tedavisinde tek seansta çoklu cerrahi uygulamalarıyla ilgili literatürler eşliğinde tartışılması amaçlandı.

Anahtar sözcükler: Akciğer kanseri; dalak metastazı; cerrahi.

It is well known that spleen is a much more protected organ against metastases by anatomical, physiological and lymphoid characteristics, when compared with other organs. Splenic metastatic tumors are rare and they are found in cancer patients proceeding with multiple involvement. In autopsy examination series the rate of splenic metastasis is observed between 2.3% and 7.1%, and isolated solitary splenic metastasis is rather rare. Splenic metastases from lung cancer are extremely rare. In recent studies, splenectomy is considered as a useful choice for splenic metastases.^[1,2]

CASE REPORT

64-year-old male case was consulted by a physician with the complaint of cough. The chest X-ray revealed a mass in the left hemithorax. It was diagnosed as a peripheral mass in lingular segment and two solitary additional hypodense lesions in spleen (Fig. 1).

Fiberoptic bronchoscopic examination showed no endobronchial lesion. The pathological transthoracic fine needle aspiration biopsy was reported as adenocarcinoma. Brain magnetic resonance imaging and bone scintigraphy

were diagnosed as normal. Positron emission tomography determined in left lung middle zone and spleen (Fig. 2).

During the operation, it was observed that the left upper lobe had been adherent to the thoracic wall, infiltrating to other lobe through the fissure. First, left 3rd, 4rd and 5th ribs were partially resected and then left pneumonectomy and mediastinal dissection were performed. And then operation was accomplished to the spleen through the left phrenotomy (Fig. 3).

The defect on thoracic wall was repaired by prolene mesh. The pathologic examination of lung mass reported as a well differentiated adenocarcinoma. Visceral and parietal pleura, pericostal soft tissue were determined as involvement of tumoral infiltration, thoracic wall surgical border was determined as clear, there was no metastasis to either mediastinal or hilar lymph nodes and splenectomy material was containing two foci of solitary metastasis adenocarcinoma and splenic capsule was intact and free of tumor.

The patient was diagnosed as pT3 N0 M1 and further chemotherapy was planned.

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DISCUSSION

Solitary metastasis to spleen are extremely rare and usually diagnosed during autopsy. Isolated solitary splenic metastases is very much rare situation while splenic involvement is more common in cancer patients with multiple organ metastases.^[1-3] In autopsy examination studies performed by Lam and his colleagues it was found that isolated splenic metastasis had been 5.3% in all cancer types.^[3] Metastases to spleen are usually from breast, lung, colorectal, ovarian, gastric carcinomas and also from melanomas.^[3-5] Adenocarcinoma is the type of cancer in which metastases to spleen are most commonly seen.^[2-4] Physical barrier effect of splenic capsule, spleen's rhythmic contractility, sharp curl of splenic artery complicate the constitution of tumor embolism. Lack of afferent lymphatics and antitumor activity in relation with the dense lymphoid tissue concentration was reported to decrease the possibility of tumor metastases to spleen.^[3,4]

Splenic metastases appear usually in the older ages, generally in the seventh decade of life.^[3,4] They are usually non-symptomatic and only 8% is determined as symptomatic. The symptomatic patients are frequently females and teenagers with pain and splenomegaly.^[3]

Kinoshita et al.^[2] detected 15 (5.6%) splenic metastases in the series of 267 lung cancer autopsy. Average 3.1 metastases in other organs and 2.5 metastases in lymph nodes have been detected in the existence of splenic metastases of lung cancer.^[1] Isolated solitary splenic involvement of lung cancer is extremely rare. Only 8 cases had been reported until today.^[1] As it has been seen in our case, metastasis to spleen from left lung is more common than the right lung.^[2] The most probable reason of this is left lung's higher blood flow ratio than the right one.^[1]

Primary lung cancer with brain or adrenal solitary metastasis, lung cancer surgery is performed following metastasectomy. In recent studies it has been presented

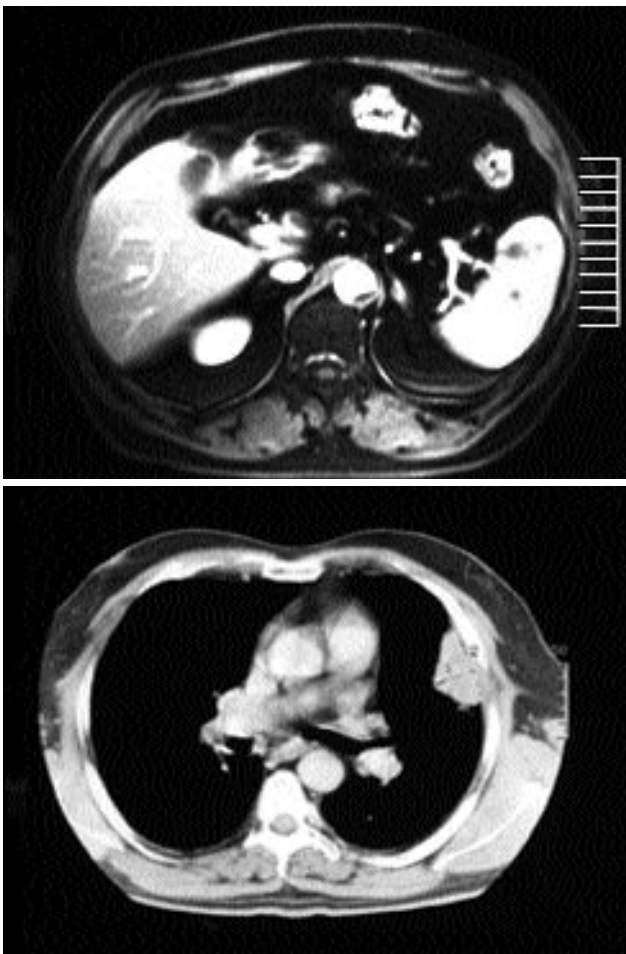


Fig. 1. A periferic mass in left lung lingulary segment localization and two solitary additional hipodens lesions in spleen were detected in thoraco abdominal computed tomographies.

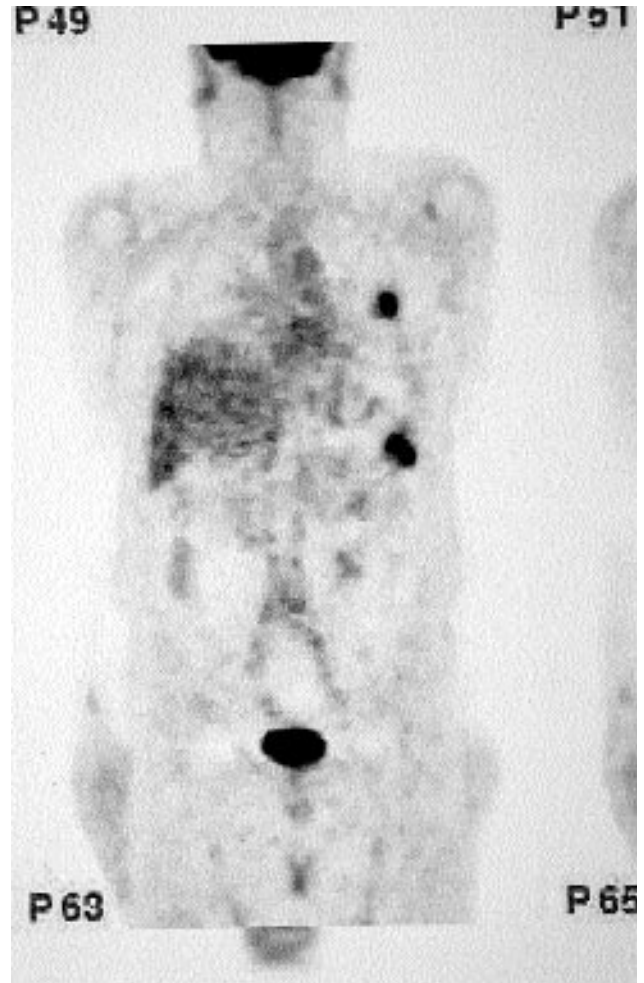


Fig. 2. Activity was determined in left lung middle zone and spleen in positron emission tomographic examination.

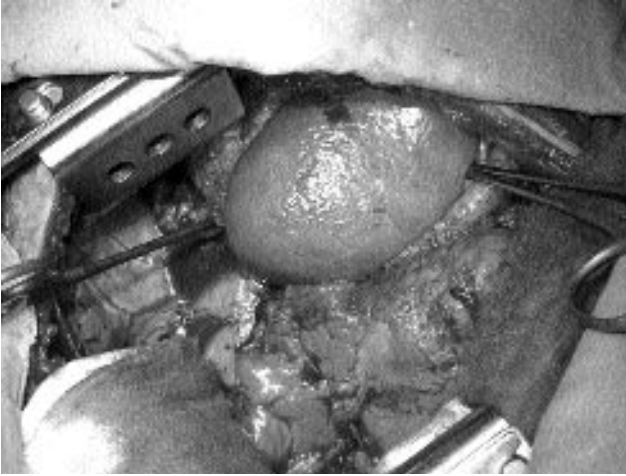


Fig. 3. The spleen, explored via left phrenotomy.

that splenectomy operation should be the choice in splenic metastases.^[1,2] Surgery was planned because of the fact that spleen is a potentially resectable organ.

Since, practically it is applicable to reach to spleen through the left diaphragm, both organs could be resected through a single skin incision with left thoracotomy and left phrenotomy as published in the literature.^[4,6]

The aim of splenectomy in isolated solitary splenic metastases from lung cancer is to protect other organs from metastases, as well as protecting from complications such as pain due to splenomegaly, splenic rupture and splenic vein thrombosis, which can occur due to splenomegaly. Thus improvement in survival could be expected. After the resection for primary lung cancer and isolated solitary splenic metastasis, survival in 2 patients was reported as 49 months and 8 years.^[1]

REFERENCES

1. Schmidt BJ, Smith SL. Isolated splenic metastasis from primary lung adenocarcinoma. *South Med J* 2004;97:298-300.
2. Kinoshita A, Nakano M, Fukuda M, Kasai T, Suyama N, Inoue K, et al. Splenic metastasis from lung cancer. *Neth J Med* 1995;47:219-23.
3. Lam KY, Tang V. Metastatic tumors to the spleen: a 25-year clinicopathologic study. *Arch Pathol Lab Med* 2000; 124:526-30.
4. Lee SS, Morgenstern L, Phillips EH, Hiatt JR, Margulies DR. Splenectomy for splenic metastases: a changing clinical spectrum. *Am Surg* 2000;66:837-40.
5. Edelman AS, Rotterdam H. Solitary splenic metastasis of an adenocarcinoma of the lung. *Am J Clin Pathol* 1990;94:326-8.
6. Tomaszewski D, Bereza S, Sternau A. Solitary splenic metastases from lung cancer--one-time surgical procedure. *Pneumonol Alergol Pol* 2003;71:533-7. [Abstract]