

Prostate Cancer Metastasis Presenting as a Solitary Mass in the Lung: Case Report

Akciğerde İzole Kitle Şeklinde Bulgu Veren Prostat Kanseri Metastazı

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ABSTRACT To demonstrate a case with solitary lung and brain metastasis originating from prostate cancer without bone spread. A 72-year-old male who had previous surgery (radical prostatectomy) for prostate cancer was referred to us with cough, sputum production and chest pain. Radiological examinations showed a mass at the right lower lobe. On PET-CT the lesion confirmed and in addition to this lesion a left parietal lesion suggesting brain metastasis was seen. No lymph node or bone metastasis was detected. Transthoracic biopsy confirmed metastasis of prostate cancer. Without the usual pathway of metastasis, prostate cancer may spread to lung or brain without bone metastases.

Key Words: Neoplasm metastasis; lung neoplasms; prostatic neoplasms

ÖZET Akciğerde ve beyinde izole kitle şeklinde bulgu veren ve kemik metastazı olmayan bir vakayı sunmayı amaçladık. 72 yaşında erkek hasta daha önceden prostat kanseri nedeniyle radikal prostatektomi operasyonu geçirmiş. Hasta kliniğimize öksürük, balgam çıkarma ve göğüs ağrısı nedeniyle yönlendirilmiş. Akciğer grafisinde sağ akciğer alt lobda kitle lezyon gözlemlendi. PET-BT'de akciğerdeki lezyon dışında beyinde sol parietal lobda metastatik bir odak izlendi. Herhangi bir lenf nodu ve kemik metastazı bulgusuna rastlanmadı. Transtorasik biyopsi sonucu prostat kanseri metastazı şeklinde geldi. Prostat kanserinin genelde görülen metastaz sıklığı kemik metastazı sonrası diğer organ metastazı olmasına rağmen, bu olguda kemik metastazı olmadan da akciğer ve beyin metastazı olabileceğini vurgulamak istedik.

Anahtar Kelimeler: Tümör metastazı; akciğer neoplazileri; prostat neoplazileri

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Prostate cancer metastases can spread to bone, lymph nodes, liver, lungs, and dura. Bone metastases occur in approximately 90% of patients with advanced disease and are a leading cause of morbidity.^{1,2} Lung metastasis of prostate cancer usually presents with pleural effusion and reticular opacities that show lymphatic infiltration.³ Isolated, solid mass-like metastases are uncommon. Only three cases of prostate cancer, that metastasize to solely lung, have been reported.⁴⁻⁶ There is no reported case that has both solitary lung and brain metastases. Our case had both of the without the lymph node or bone metastasis. It is important to note that changes in treatment modalities in differentiating lung cancer.

CASE REPORT

A 72-year-old male was referred to our clinic with cough, sputum production and chest pain. The patient previously underwent coronary bypass surgery 6 years ago and had a smoking history of 60-pack-year. In addition, one year ago he had a diagnosis of prostate cancer. Histologic examination had revealed adenocarcinoma. Then no regional or distant metastasis was detected and he underwent radical prostatectomy.

In chest radiography a solid mass with well-defined borders was visible in the right lower region. Thorax computed tomography (CT) revealed an 84x75 mm, solid, necrotic mass in the superior segment of the right lower lobe in proximity to the pleura (Figure 1). With these findings he was examined by positron emission tomography-CT (PET-CT). PET-CT demonstrated the lung lesion with 23.6 of standardized uptake value (SUD)max. Also, in the left parietal region there was a hypermetabolic brain lesion which suggested a metastasis (Figure 2). No other metastases were detected. Brain magnetic resonance imaging (MRI) did not reveal any additional lesion. No significant pathology was observed in the bronchoscopy. Our initial diagnoses were primary lung cancer or metastasis from prostate cancer. Transthoracic tru-cut biopsy was performed and histopathologic examination showed prostate cancer metastasis (Figure 3).

DISCUSSION

In the literature, clinically apparent pulmonary metastases are found in 5-27% of patients with prostate cancer.^{3,7} A diffuse interstitial pattern, representing lymphatic spread, is the most common, however a multinodular pattern representing hematogenous spread may be seen on 8 to 20% of positive radiographs of patients with both prostate cancer and lung metastasis.^{7,8} Solitary pulmonary nodules have been reported but are extremely rare.⁴⁻⁶ Three unusual cases of isolated pulmonary recurrence of prostate cancer after initial definitive local therapy recently have presented.⁹ In another case report shown that solitary pulmonary metastasis from prostate cancer with neuroendocrine differentiation.¹⁰ TTF-1 staining can help distinguish pathologically lung adenocarcinoma and metastatic disease.

Generally, in most patients with prostate cancer, pulmonary metastasis is concomitant with metastases involving lymph nodes and bones.³ In the present case, a mass lesion at the right lower lobe in proximity to the pleura was detected. This lesion suggested us a primary lung carcinoma. But considering the previous diagnosis of prostate cancer metastasis is also kept in mind. This last diagnosis was confirmed by histopathology. This case showed that the prostate cancer may spread to lung or brain without the usual metastasis direction which



FIGURE 1: Thorax CT shows a well-bordered, solitary, 84x75 cm mass lesion in lower lob of right lung.

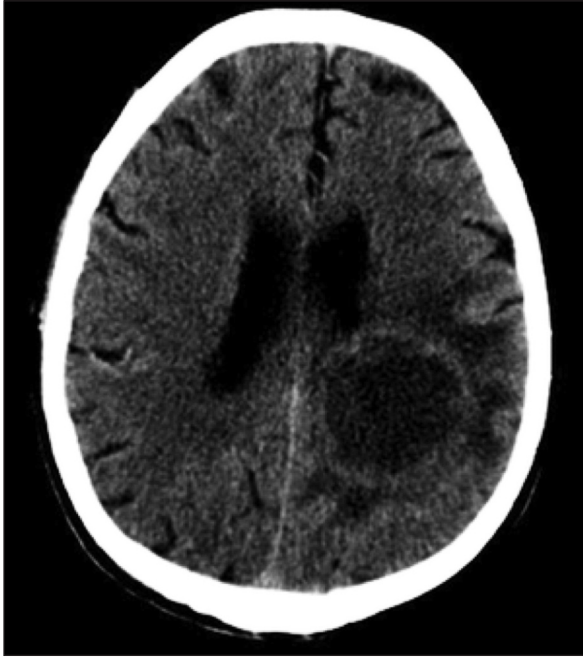


FIGURE 2: Brain CT shows solitary 45 mm lesion left parietal region of the brain.

follows of lymph nodes and bone. The resection of a solitary pulmonary metastasis of a prostate cancer recurrence after initial local therapy should probably be considered only in highly selected patients. Hormone naive patients with lung metastases may be good responders to androgen deprivation therapy.

Without following the usual pathway, especially without bone metastasis, prostate cancer can metastasize to lung and brain. During differential diagnosis of mass lesion at the lung, even the rare metastases have to be considered.

Conflict of Interest

Authors declared no conflict of interest or financial support.

Authorship Contributions

Opinion/Concept: To create the hypothesis or idea of the research and/or the article: Nafiye Yılmaz, Ömer Araz; **Design:** De-

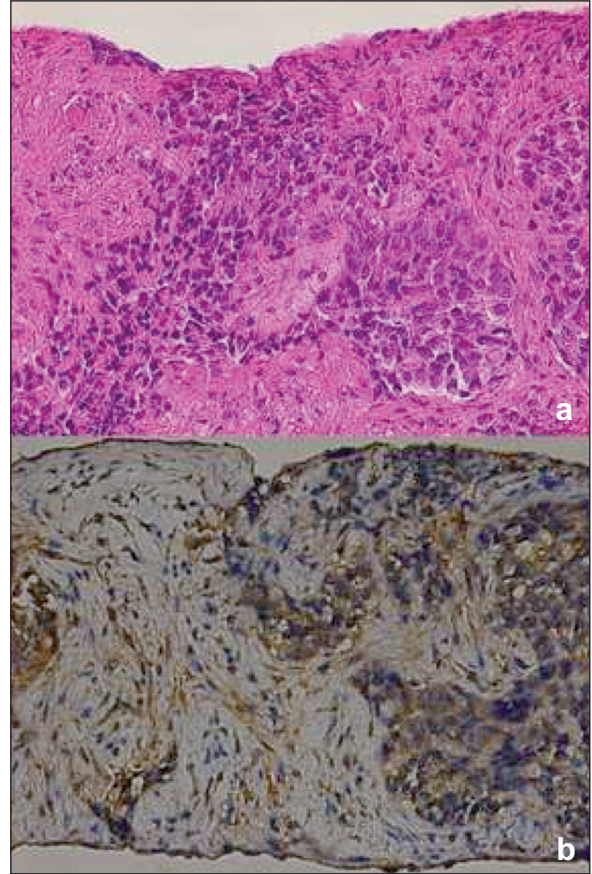


FIGURE 3: Histological findings of pulmonary metastasis of prostate cancer. a) Atypical glands of infiltrating prostate adenocarcinoma are seen in fibrous stroma (H&E×200). b) Intense cytoplasmic PSA immunoreactivity in tumor cells (PSA×200).

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