Metastatic Prostatic Pulmonary Nodules Without Any Other Metastatic Lesions.

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Abstract
Prostate cancer with metastasis only to the lung is a rare clinical finding. A 69-year-old man was admitted to our hospital due to abnormalities in chest X-ray. The Chest X-ray revealed multiple bilateral pulmonary nodules of varying size, consistent with metastatic disease. Radiological examinations were performed to determine the primary site and to screen for other metastatic lesions, but the findings were negative except for enlarged prostate. Transrectal biopsy disclosed a poorly differentiated adenocarcinoma. The patient was given biculamide and goserelin acetate. PSA level became normalized and the multiple lung metastasis completely disappeared. He has been followed at our outpatient clinic for 45 months with no evidence of relapse.

Key Words
pulmonary metastasis, prostate cancer

Introduction
Bones and lymph nodes are the most frequent sites of metastasis from prostate cancer, whereas lung involvement is less common clinically. ¹,² Especially lung metastasis in the absence of other sites of metastasis is very rare. We describe in this report the case of a man with pulmonary prostate cancer metastasis without other sites.

Case report
A 69-year-old man with a history of carcinoid tumor of the rectum was admitted to the internal medicine clinic in our hospital for evaluation of multiple bilateral pulmonary nodules. CT demonstrated multiple nodules in the bilateral lungs and an enlarged prostate (Fig. 1, Fig. 2). Transrectal ultrasonography revealed hypoechoic area in the left lobe (Fig. 3). Sputum cytology findings were class I and transbronchial lung biopsy was not performed for the size of the pulmonary nodules were small. Routine laboratory examinations were within normal limits except for an elevated serum PSA level at 13.0 ng/ml. Serum ProGRP, CYFRA, CA19-9, and SCC levels were within normal limits. Thus he was referred to the urological section on May 2003 for evaluating the prostate cancer. On digital rectal examination, the prostate was enlarged and a hard nodule was palpated on the left lobe. Needle biopsies of the prostate from the left
lobe were positive of poorly differentiated adenocarcinoma; Gleason score \(4 + 5 = 9\) (Fig. 4). Bone scan was performed with a negative report for osseous metastasis (Fig. 5). For treatment, complete androgen blockade therapy was employed immediately, and the patient was given bicalutamide and goserelin acetate. PSA level was normalized three months after the treatment, and the multiple lung metastases were completely resolved at the seventh month (Fig. 6). There were neither evidence of recurrence nor PSA relapse 45 months after treatment of prostate cancer.

**Discussion**

The most common form of distant metastasis is osseous metastasis in prostate cancer, while the site of visceral metastasis is the lung. A review of post-mortem studies have demonstrated that pulmonary metastasis of prostate cancer occurred considerably more frequent than had been appreciated by clinical evaluation, and the incidence reported varied from 23 to 74\%\(^1\).\(^3\).\(^4\) Many of these metastases are only discernable on microscopic examination of the lung and pleura and are less likely to produce any symptoms or radiologic abnormalities. Clinically apparent pulmonary metastasis of prostate cancer occurs only in about 5\% of cases. They have generally been classified into two broad patterns according to the roentgenologic appearance: a linear interstitial pattern suggestive of lymphatic dissemination, and a multiple nodular pattern representing hematological spread seen on 20\% of positive radiographs. These metastases are usually seen only after the development of osseous or lymph node metastasis. The pulmonary metastasis without osseous or lymph node involvement is a rare clinical finding, and only 31 cases have been reported so far\(^6\).\(^7\).

A review of these reported cases showed 29 patients with single or multiple nodular lesions in
the lung and only two patients with linear interstitial pattern. Among these patients, only one autopsy was performed. Most of them were treated with hormone therapy and showed a favorite outcome. In our present case, the nodular metastases to the lungs were also suggestive of hematogenous spread, and no enlarged lymph nodes were observed clinically. The patient showed a dramatic response to complete androgen blockade therapy with long-term complete remission. Unlike the patients having poor survival rates in stage D2 with bone involvement with/without lung metastases, prostate cancer with isolated pulmonary metastases seems to have a favorable prognosis.

As for the general pattern of hematogenous dissemination from prostate cancer, a backward venous spread to the spine occurring early, and dissemination through lung passage happening later.8 Some evidence is suggestive of the existence of a backward metastatic pathway through veins from the prostate to the spine in addition to classical hematogenous tumor spread via the vena cava. However, prostate cancer may not progress in a steplike fashion. Pulmonary metastasis in the absence of other sites of metastasis may be related to the affinity of prostatic cancer cell type, and further studies are needed to clarify this predilection.9

The treatment of prostatic carcinoma has always been controversial. Many authors differ in their recommendations. According to previous reports, pure lung metastases, as in the present case, are always associated with a dramatic response as well as long term patient survival following antiandrogen therapy. This may indicate that tumor subclones responsible for the lung metastatic sites are biologically different from those found in the bones. It is hoped that continued research will allow more specific characterization of the various types of prostatic carcinoma and thus more exact treatment for the individual patient.

References

5) Bolton BH. Pulmonary metastases from carci-
肺転移のみを認めた前立腺癌の1例

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抄録

前立腺癌の肺転移のみの症例は稀である。症例は69歳の男性。胸部単純撮影上異常陰影を指摘され紹介となった。当院で施行した胸部単純撮影では多発性の結節性陰影を呈しており転移性の肺腫瘍と考えられた。原発の精査のために施行した検査では著大した前立腺以外に異常所見はなかった。前立腺癌を疑い経直腸的前立腺生検を施行したところ診断は低分化型腺癌であった。診断後ホルモン療法を施行しPSAは正常化し胸部単純撮影上も肺の転移巣は完全に消失した。治療開始後45ヶ月になるが今のところ再発は認めていない。

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