



Primary Benign Fibrous Histiocytoma of the Lung with FDG Involvement

FDG Tutulumu Gösteren Primer Akciğer Yerleşimli Benign Fibröz Histiositom

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Abstract

Fibrous histiocytoma is a benign tumoral lesion consisting of fibroblastic and histiocytic cells, accompanied by varying numbers of inflammatory cells, foamy histiocytes and siderophages, and has sheet- or short fascicle-type histomorphology. These tumors are generally localized in the dermis or the superficial subcutaneous tissue. Fibrous histiocytoma of the lung is an extremely rare tumor. This study presents a case that appeared as a nodular opacity in the posteroanterior (PA) lung graphy, which was then considered malignant after computerized tomography and PET-CT scans and operated on. The case was finally reported as primary benign fibrous histiocytoma of the lung after pathological examination.

Key words: Lung, benign fibrous histiocytoma, thoracotomy.

Özet

Fibröz histiositom, değişen oranda inflamatuvar hücrelerin, köpüksü histiositlerin ve siderofajların eşlik ettiği, fibroblastik ve histiositik hücrelerden oluşan, histomorfolojik olarak tabakalar ya da kısa demetler halinde görülen benign tümöral bir lezyondur. Genellikle bu tümörler, dermis ya da yüzeysel subkutan doku yerleşimlidir. Akciğer yerleşimli fibröz histiositom oldukça nadir bir tümördür. Arka-ön akciğer grafisinde nodüler opasite şeklinde ortaya çıkan, bilgisayarlı tomografi ve PET-CT taramalarının ardından öncelikli olarak malign kabul edilip opere edilen ve patoloji sonucu primer akciğer benign fibröz histiositomu olarak bildirilen bir olguyu sunduk.

Anahtar Sözcükler: Akciğer, benign fibröz histiositom, torakotomi.

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Benign fibrous histiocytoma (BFH) is a benign tumoral lesion consisting of fibroblastic and histiocytic cells, which is accompanied by varying numbers of inflammatory cells, foamy histiocytes and siderophages, and has sheet or short fascicle-type histomorphology (1). These tumors are generally localized in the dermis or the superficial subcutaneous tissue. Generally, they present during middle age, in the form of single, slow-growing nodules. Tumors with deep tissue localization and showing internal organ involvement (heart and eyes) and intracranial (2) involvement are rare compared to their cutaneous variants. There are only a few cases of primary fibrous histiocytoma of the lung in the literature (3). While the tumors usually emerge coincidentally, at times, symptoms such as coughing may arise.

This study evaluated a case of a patient who was admitted with complaints of coughing. The chest x-ray showed a nodular opacity, which was subsequently defined by computerized tomography, and PET-CT. The formation was considered malignant due to the absence of a diagnosis, and the patient was operated on. Finally, after pathological examination, the patient was reported as a case of primary fibrous histiocytoma of the lung.

CASE

A 30-year-old female patient was admitted with a coughing complaint that had persisted for 15 days. The physical examination showed that the patient's general condition was good and she had full cooperation; blood pressure was 120/70 mm Hg, heart rate was 90/min, and respiratory rate was 15/min. FEV1 was 2120 ml 95%. The physical examination showed no features. However, the chest x-ray revealed a lobulated contour radiopacity with a diameter of approximately 3 cm in the middle zone of the right lung (Figure 1). Blood biochemistry tests were normal. The thorax CT examination showed a uniformly bound lesion mass with a size of 30x24 mm, which had lobulated contour and soft tissue density (26 HU) in the posterior segment of the upper lobe of the right lung (Figure 2A). There were no additional findings and mediastinal lymphadenopathy. Then, a PET-CT scan was performed to assist the solitary pulmonary nodule diagnosis and benign-malignant distinction. The PET-CT examination showed intense FDG involvement (SUV max: 19.3) in the lobulated, space-occupying, formation zone with a size of 30x24 mm in the posterior segment of the upper lobe of the right lung (Figure 2B). The examination of other body areas showed activity involvement at the physiological limits. Due to the intense hypermetabolic activity

of the lobulated, space-occupying formation in the posterior segment of the upper lobe of the right lung, it was considered malignant. With these results, bronchoscopy was performed. No pathology was found. A transthoracic biopsy was not applied because a histopathological frozen section examination was planned during the operation.

Considering these findings, the patient was scheduled to undergo an operation. A 3 cm hard lesion was palpable and this lesion was removed with a wedge resection. Due to the inability to differentiate between benignity and malignancy during the operation by frozen section examination, a right upper lobectomy was performed, considering PET findings, as well. The patient did not have any complications after the operation, and was extubated on the fourth day following the termination of tube thoracostomies.

Pathological examination of the lesion showed that the tumor cells were large, hyperchromatic, with locally elliptic/round and polygonal fusiform nuclei, and had eosinophilic cytoplasmic appearance (Figure 3). Additionally, xanthomatous histiocytic cells were observed in large areas. Immunohistochemical staining showed that the cells were positive for vimentin and CD68, while they were negative for cytokeratin, desmin, CD34, calretinin SMA, S100, EMA, and CD45. Ki67 proliferation index was approximately 5%. Given these findings and the absence of another cutaneous lesion in any other body part, the patient was diagnosed with primary benign fibrous histiocytoma of the lung (cellular type). The case has been monitored for two years, and currently has no problems.

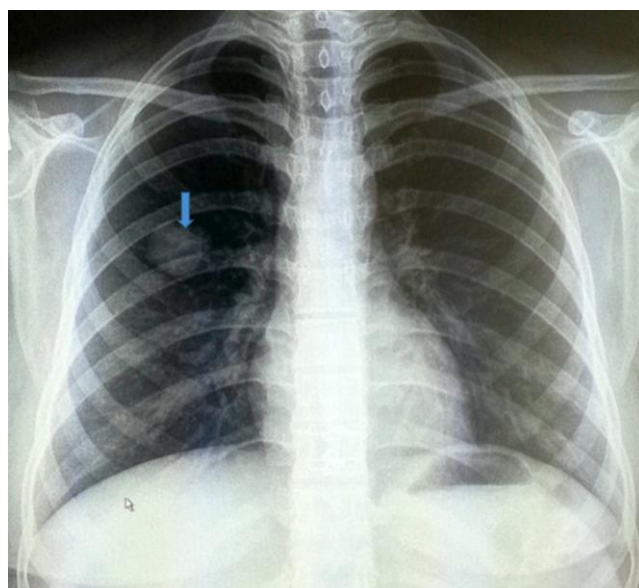


Figure 1: Nodular opacity in the middle zone of the right lung

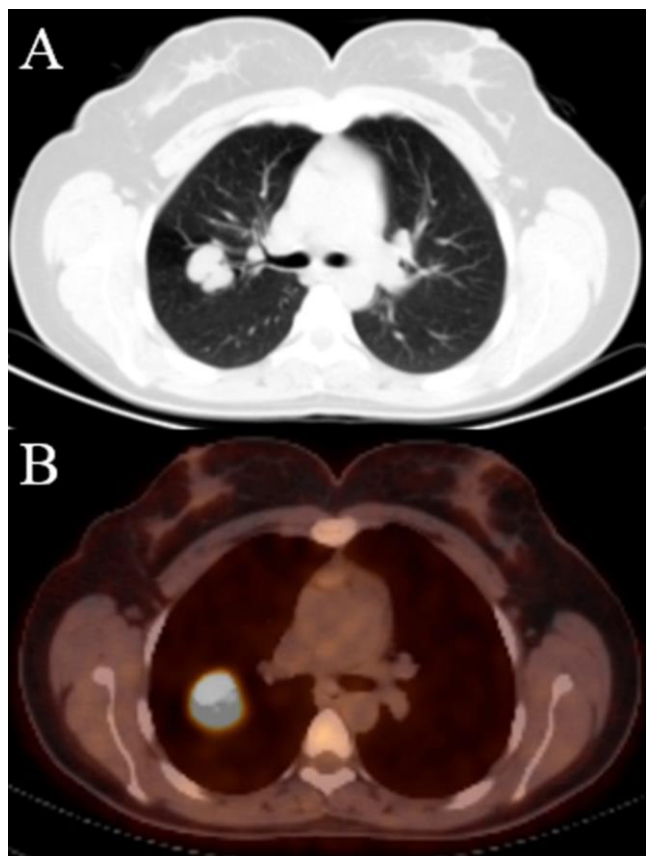


Figure 2: (A) Contoured lobulated lesion with a diameter of 30x24 mm in the upper lobe of the right lung, (B) A lobulated, space-occupying formation with a size of 30x24 mm in the posterior segment of the upper lobe of the right lung (SUV max: 19.3)

DISCUSSION

Benign fibrous histiocytoma of the lung is an extremely rare tumor, and is rarely seen in adults compared to children. This is due to the ambiguity in the nomenclature and terminology of these tumors, which have persisted for years. The actual incidence of these tumors with lung localization is not known (3). Golbert and Pletnev (4) reported the incidence of pulmonary pseudotumor as 0.7% in their series, which consisted of 1075 pulmonary and bronchial tumors. On the other hand, the review by Matsubara et al. (5) reported that 14 out of 32 cases diagnosed with pulmonary pseudotumor were fibrous histiocytoma.

Primary benign fibrous histiocytoma of the lung is an extremely rare case, and there is no study that involves direct graphy, computerized tomography, and PET-CT evaluations. The present study enabled the acquisition of extensive and detailed information regarding the primary benign fibrous histiocytoma of the lung. In addition, despite being a benign lesion, we showed that it could involve activity in the PET-CT.

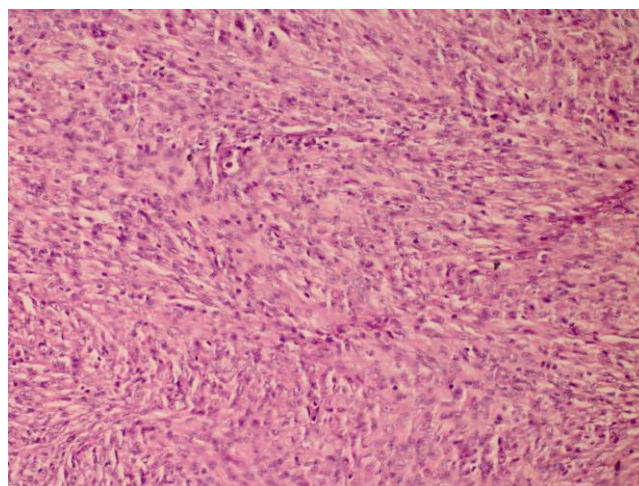


Figure 3: Pathological view of the lesion: Tumor cells are large, hyperchromatic, with locally elliptic/round and polygonal fusiform nuclei, and eosinophilic cytoplasmic appearance. Additionally, xanthomatous histiocytic cells were observed in large areas (HE X100)

This type of lesion is usually noticed during the routine examination of asymptomatic patients. If a symptom emerges, it reveals itself with coughing (3). Furthermore, these lesions may lead to symptoms including hemoptysis or obstructive pneumonia. Similarly, our patient also had complaints of coughing.

BFH may carry a low level of malignancy potential (5,6). Therefore, the exact pathological diagnosis is only possible following the detailed pyesis examination after the resection. In our case, we were unable to differentiate between benignity and malignancy in the frozen-section examination during the operation. Therefore, the researchers completed the resection with a lobectomy by considering the patient's other preoperative examinations. Due to the malignancy potential and local recurrence in this type of pseudotumor case, the definitive treatment is complete surgical resection, if possible. Complete surgical resection has been reported to reduce recurrence (7). In this case, the appropriate surgical resection against the lesion was performed and the patient was cured.

CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Concept - M.F., T.İ.A., U.Ö., N.F.; Planning and Design - M.F., T.İ.A., U.Ö., N.F.; Supervision - M.F., T.İ.A., U.Ö., N.F.; Funding - V.O.; Materials - M.F.; Data Collection and/or Processing - T.İ.A.; Analysis and/or Interpretation - T.İ.A.; Literature Review - T.İ.A., V.O.; Writing - T.İ.A., V.O.; Critical Review - M.F., T.İ.A.

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