Bronchiolo-Alveolar Carcinoma: a Rare Diffuse Nodular Presentation

Nadir Görülen Diffüz Nodüler Seyirli Bronkoalveolar Karsinom

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ABSTRACT

Bronchioloalveolar carcinoma (BAC), a subtype of adenocarcinoma, forms 2.6-4.3% of all lung cancers. BAC shows pure lepidic growth without invasion of stroma, blood vessels or pleura. BAC mostly appears as a peripheral pulmonary nodule; however, the tumor may sometimes present as a segmental, lobar consolidation, and have a multifocal or diffuse pattern. An unusual form of BAC is presented which has well defined, scattered, and sometimes united nodules throughout the lungs. *(Tur Toraks Der 2009;10:35-6)*

Key words: Bronchioloalveolar carcinoma, radiology

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ÖZET

Adenokarsinomun bir alt tipi olan bronkoalveolar karsinom (BAK), tüm akciğer kanserlerinin %2.6-4.3'ünü oluşturur. Bronkoalveolar karsinom stromanın, damarların veya plevranın tutulmadığı yalnızca tümöral bir büyüme özelliği gösterir. Bronkoalveolar karsinom genellikle periferal pulmoner nodül şeklinde karşımıza çıkar, ancak nadiren de olsa lober konsolidasyon, multifokal veya difüz bir patern de gösterebilir. Bronkoalveolar karsinomun alışılmadık bir görünümü olan dağınık yerleşimli ve bazen de birleşmiş olan nodüllerinin tüm akciğere yayıldığı formu da tanımlanmıştır. *(Tur Toraks Der 2009;10:35-6)*

Anahtar sözcükler: Bronkoalveolar karsinom, radyoloji

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INTRODUCTION

There is a substantial increase in the percentage of pulmonary adenocarcinoma accompanied with a decrease in the squamous cell carcinoma in the last decades [1]. Bronchioloalveolar carcinoma (BAC), a subtype of adenocarcinoma, forms 2.6-4.3% of all lung cancers [2]. It derives from the epithelial cells located distally to the terminal bronchioles. It is defined as a primary lung cancer in a peripheral location and growing in a lepidic (scale-like) style by the alveolar septae without parenchymal, vascular or pleural invasion [3]. It has a distinct clinical, pathologic, and radiological presentation compared to the other subtypes of adenocarcinoma. Mostly, BAC appears as a peripheral pulmonary nodule; however, the tumor sometimes may present as a segmental, lobar consolidation, and multifocal or diffuse pattern [4,5].

An unusual form of BAC is presented which has well defined, scattered, random and sometimes united nodules all over the lungs.

CASE

A seventy one-year-old female patient with persistent dry cough lasting for 4-5 months was referred to our clinic for further evaluation. She did not have a history of smoking and a primary malignancy. Blood pressure was 130/80 mmHg, pulse rate was 74/min, and body temperature was 36.2 °C. She had bibasilar sparse inspiratory crackles. Other systems and routine laboratory test results were normal. Radiograph and spiral computed tomography (CT) of the chest revealed multiple, random nodules throughout the both lungs. Innumerable nodules ranged in size 2-10 mm (Figure 1a). Margins of nodules distributing in a centrilobular fashion were mostly ill-defined (Figure 1b) and were tended to conglomerate in some area (Figure 1c). The only pathological finding in bronchoscopy was the hyperemia of the middle lobe mucosa. Bronchioloalveolar lavage and transbronchial biopsy in bronchoscopic examination were showed BAC cells and nonmucinous BAC. Type II pneumocyte-like tumor was contained atypical columnar cells with centrally located nuclei and eosinophilic vacuolated cytoplasma distributed along alveoli in single layers (Figure 2). The frequent drowning attacks needed further evaluation, and contrast enhanced CT of the brain demonstrated a metastatic lesion of 2 cm. in diameter. The evaluation of the performance status was ECOG 3, and chemotherapy could not be used. Only palliative 3000 cGy cranial radiotherapy was applied.

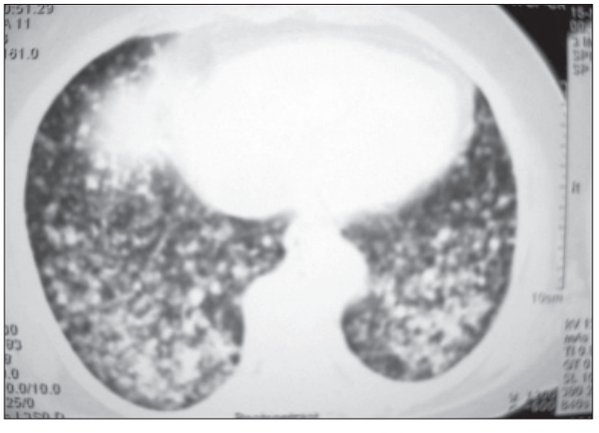

Figure 1a. Spiral computed tomography (CT) of the chest revealed multiple nodules throughout the both lungs. Innumerable nodules ranged in size 2-10 mm.

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DISCUSSION

The histological sub-classification of the adenocarcinoma of the lung was first defined by World Health Organization (WHO) in 1967, dividing the tumor into two major subtypes: bronchogenic adenocarcinoma and BAC. Among the next few modifications, the most striking change related to BAC was the one in 1999, and BAC was defined as pure lepidic growth without invasion of stroma, blood vessels or pleura [6]. The complete resection of the tumor could only confirm the diagnosis of pure BAC, because some invasive adenocarcinomas have BAC component. WHO classification is very useful in differentiating BAC from other tumors; however, clinicians often deal with patients with advanced or metastatic disease, and complete resection is mostly unavailable [7]. Similarly, our patient presented with a multifocal disease and a metastatic nodule in the brain, and the diagnosis of BAC was made by bronchoscopic transbronchial biopsy.

BAC is classified in three subtypes such as mucinous, non-mucinous and mix tumor including both. Mucinous type is composed of mucous (goblet) cells, while non-mucinous type has clara cells and type II cells. Diffuse and multicentric growth pattern is a prominent feature of mucinous tumor; however, it might also be seen in non-mucinous ones [6] Our case is an interesting example of the non-mucinous type, which has diffuse and multicentric growth pattern.

BAC has a more indolent clinical course with preponderance in women, and it is less associated with cigarette smoking compared to other lung cancers [7]. Our patient is a typical case, a nonsmoker female with only a history of dry cough for few months.

BAC often presents as a solitary pulmonary nodule. The thorax CT presentation of BAC includes a solitary peripheral nodule, lobar consolidation, multiple nodules or diffuse infiltrate involving one or more segments of the lungs [8]. The single nodular form appears as a peripheral nodule or localized ground-glass attenuation with or without consolidation, while the diffuse nodular form appears as multiple nodules or areas of ground-glass attenuation or consolidation [9]. There is an ongoing argument on the pathogenesis of multicentric form. It is not clear whether it results from aerogenous dissemination of malignant cells, or it presents simultaneously in multiple lobes preserving the pulmonary architecture [2].

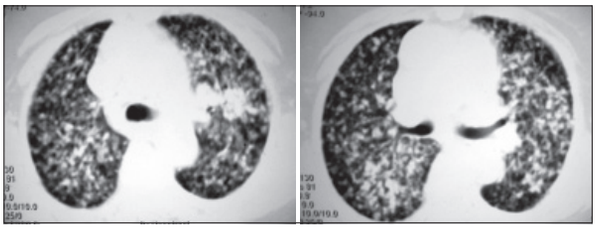

Figure 1b-c. Margins of nodules distributing in a centrilobular fashion were mostly ill-defined and were tended to conglomerate in some areas

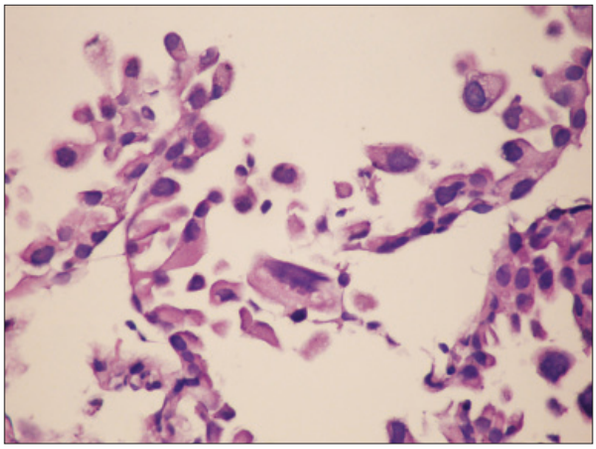

Figure 2. Type II pneumocyte-like tumor contained atypical columnar cells with centrally located nuclei and eosinophilic vacuolated cytoplasma distributed along alveoli in single layers

The radiological appearance of diffuse nodular type of BAC may be confused with miliary tuberculosis and pulmonary metastatic nodules. Akira et al demonstrated that the nodules of diffuse BAC were 1-3 mm in size with irregular shape, margins might be well or ill defined, in centrilobular location, and they were distributed peripherally with lower lung predominance [10]. In our case; however, the nodules spread bilaterally without a lobe predominancy. Akira et al compared thorax high resolution computed tomography (HRCT) findings of 38 patients with diffuse BAC to the findings of patients with tuberculosis, multiple pulmonary metastases, and eosinophilic pneumonia [10]. They found that the HRCT findings of diffuse BAC were a combination of ground glass opacities, consolidation and multiple nodules. They also reported that nodules of BAC were often distributed in centrilobular location, while tuberculosis and metastatic nodules were spread randomly in a diffuse pattern. The random distribution of nodules rarely occur in other diseases like miliary fungal infections, histiocytocis x and silicosis [4]. In our case, the nodules had a diffuse random distribution instead of centrilobular location which was discordant with their findings.

In conclusion, BAC should be in the differential diagnosis of diffuse well defined scattered nodules in the lungs.

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