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Cryptogenic Organizing Pneumonia Diagnosed with Transbronchial Parenchymal Biopsy: A Case Report with Accompanying Histopathological Images

Transbronşial Parankim Biyopsisi ile Tanı Konulan Kriptojenik Organize Pnömoni Olgusu: Histopatolojik Görüntüleriyle Birlikte Olgu Sunumu

Deniz Doğan[1], Nesrin Öcal[1], Orhan Yücel[1], Cantürk Taşçı[1], Armağan Günal[2]

[1]Gülhane Military Medical Academy, Pulmonary Diseases, Ankara, Turkey
[2]Military Medical Academy, Pathology, Ankara, Turkey

Abstract
Cryptogenic organizing pneumonia (COP) is an idiopatic condition characterized by granulation tissue extending to alveolar ducts and alveoli in small airways. Here, we present an exemplary case for COP which is uncommon in clinical practice of chest diseases. A 48-year-old male was admitted to our clinic with shortness of breath and cough. In arterial blood gas collected at room air, pH was 7.43, PaCO2 was 41.2 mmHg, PaO2 was 49.1 mmHg, and HCO3 was 24mEq/L. In thorax HRCT, ground-glass-opacities accompanied by bilateral consolidation areas were present especially in peripheral areas of the right lung and bilateral upper lobes. COP was reported histopathologically in transbronchial biopsies performed with bronchoscopy. Significant clinical improvement and radiological regression were observed in the patient with 80 mg/day methylprednisolone treatment. We share the case of our patient, who was diagnosed with bronchoscopic procedure without the need of open lung biopsy, to remind the importance of bronchoscopy in the diagnosis of COP.
Keywords: Consolidation; Cough; Cryptogenic Organizing Pneumonia; Shortness Of Breath.

Öz
Kriptojenik organize pnömoni (KOP), sebebi bilinmeyen, alveoler kanal ve alveollere uzanan küçük hava yolları içinde granülasyon dokusuyla karakterize bir durumdur. Göğüs hastalıkları klinik uygulamalarında çok sık karşılaşılmayan KOP'a örnek teşkil eden bir olgu sunuyoruz. 48 yaşında erkek hasta, polikliniğimize nefes darlığı ve öksürük ile başvurdu. Oda havasında alınan arteriyel kan gazında pH: 7.43, PaCO2: 41.2 mmHg, PaO2: 49.1 mmHg, HCO3: 24 mEq/L olarak bulundu. Toraks HRCT tetkikinde sağ akciğerde ve bilateral üst loblarda özellikle periferal alanlarda daha yoğun bilateral konsolidasyon alanlarının eşlik ettiği buzlu cam görünümü mevcuttu. Hastaya yapılan bronkoskopik inceleme ile alınan transbronşiyal biyopside histopatolojik olarak KOP tanısı raporlandı. 80 mg/gün metilprednizolon tedavisi başlanana hastada radyolojik olarak regresyon ve belirgin klinik düzelme gözlendi. Açık akciğer biyopsisine gerek kalmadan, bronkoskopik yöntemle tanı koyduğumuz bu olguyu, KOP tanısında bronkoskopinin önemini hatırlatıcı olması bakımından histopatolojik görüntüleri ile birlikte paylaşıyoruz.
Anahtar Kelimeler: Konsolidasyon; Kriptojenik Organize Pnömoni; Nefes Darlığı; Öksürük.

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Correspondence/İletişim
Deniz DOĞAN
Gülhane Askeri Tıp Akademisi, Göğüs Hastalıkları Anabilim Dalı, ANKARA, TÜRKİYE
E-mail: dr_denizz@yahoo.com

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INTRODUCTION

Cryptogenic organizing pneumonia (COP) is a rare pulmonological clinical picture. In case of the lack of any underlying causes, histopathologically defined "organising pneumonia" is defined as "idiopathic / cryptogenic organising pneumonia." It is assumed that COP is caused by abnormal granulation tissues that develop during the healing of an inflammatory process extending from the alveolar ducts to the alveoli due to an unknown cause (1).

The major histopathological finding for COP is the presence of granulation tissue buds formed by fibroblasts, collagens and fibrinous exudates within the alveolar ducts and alveoli (2). In addition to these histopathological findings that help differentiate the diagnosis of COP from other organising pneumonia signs, the most common symptoms are persistent dry cough, exertional dyspnea, and weight loss (2, 3). Open lung biopsy is the gold standard for its histopathological diagnosis. It is more difficult to identify COP by bronchoscopical methods. While COP, which is rarely mortal, responses to corticosteroids weakly, early histopathological diagnosis with lung biopsy and high-dose corticosteroid therapy can be life-saving (2, 4). In this report and with accompanying histopathological images, we present the case of a patient diagnosed with COP though bronchoscopical procedures without the need for an open lung biopsy in order to set an example for this rare phenomenon and to remind clinicians the importance of bronchoscopy.

CASE REPORT

A 48-year-old male patient presented with complaints of shortness of breath, cough, and fatigue. The symptoms had begun 2 weeks ago and had started a 500 mg/day-levofloxacin (PO) treatment prescribed by a health care provider where he had consulted with the same complaints and been diagnosed with lower respiratory tract infection. Due to ongoing complaints, the patient had been referred to our clinic. On admission, the patient was in good condition, conscious, cooperative, and oriented. Fever was 36.4°C, pulse was 98 beats/min, arterial blood pressure was 125/75mmHg, and SpO2 was 85% at room air. In the physical examination of the respiratory system, we auscultated crepitant rales around the bilateral borders. The laboratory examination revealed the following data: WBC: 13800; HGB: 13; HCT: 38.5; PLT: 467 000; and ESR: 73. The routine biochemical test results were within normal limits. PA chest X-ray revealed bilateral non-homogenous density on the right and around the peripheral areas (Figure 1a).

We administered a thorax HRCT. The HRCT results showed loss of volume in the right side of the chest, intra- and interlobular septal thickening with visible peripheral involvement especially in the upper lobes of both lungs and more intensely in the right lung, areas of consolidation, and extensive ground-glass opacities (Figure 1b).

The transbronchial parenchyma biopsy obtained by diagnostic bronchoscopy confirmed organising pneumonia (OP) (Figure 2). The examination for mycobacterial bronchoalveolar lavage showed that the direct examination for mycobacterium tuberculosis and the culture test result we acquired after 8 weeks were both reported negative. We referred the patient to Rheumatology clinic for possible connective tissue diseases but the rheumatological examination and test results pointed to no rheumatological diseases. Failing to identify any signs that could lead to OP, we concluded that the patient had COP and started a 80 mg/day methylprednisolone (IV) therapy. Within 2 weeks we observed clinical regression and after 4 weeks the patient showed radiological regression (Figure 1c). With a follow-up dose of steroids for six months, we planned to follow up the patient in the coming months.

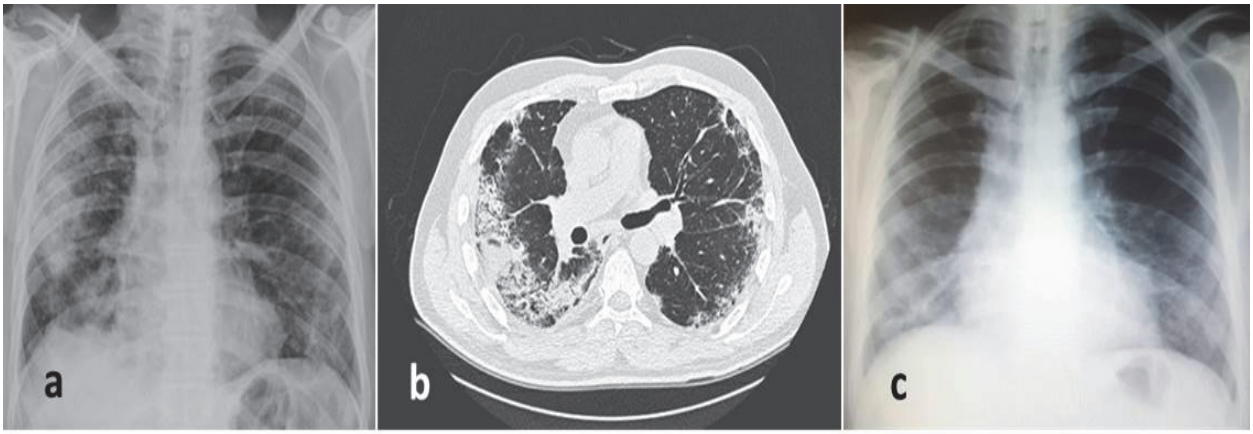

Figure 1. Radiological images of the patient.
1a. PA chest X-ray on admission (increased bilateral non-homogenous density),
1b. thorax HRCT (peripheral and interlobular septal thickening, areas of consolidation, and extensive ground-glass opacities),
1c. PA chest X-ray of the 4th week of the treatment (visible radiological regression).

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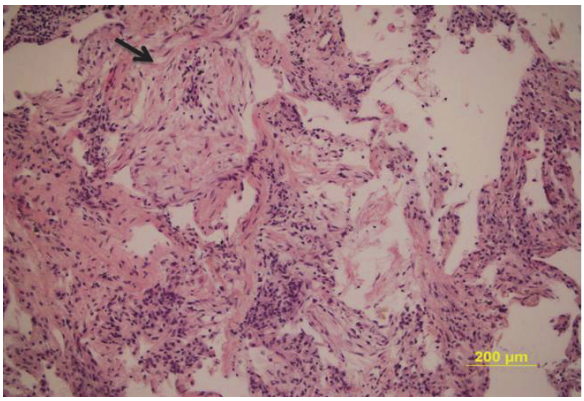

Figure 2. The transbronchial parenchyma biopsy view; fibroblasts filling in the distal airways (alveolar ducts and alveoli) and loose fibrous connective tissues (masson body) with collagen, fibrinous, and lymphocytic cells (HE X200).

DISCUSSIONS

COP is thought to result from incomplete healing of inflammatory response in the alveoli due to unknown damage. It has a similar incidence in men and women alike and it is more common in the 50-60 age range (3, 5). Our patient can also be evaluated in this age group.

COP can be confused with many diseases both in clinical practice and histopathological aspects. Diagnosis can be made by exclusion method. Although the gold standard is open lung biopsy for a histopathological diagnosis of COP, practitioners can make use of less invasive methods such as transbronchial lung biopsy as we have administered in our case (2, 6). Generally showing a subacute course, the most common symptoms of COP are cough, shortness of breath, fever, sputum, loss of appetite, and weight loss (3). In our case, too, the medical picture of the patient showed dry cough and shortness of breath. Increase in leukocytosis and acute phase reactants, both of which were observed in our patient, are often present with COP while these can also be misleading for clinicians as they often bring to mind infectious pneumonia in differential diagnosis (7). Peripheral multifocal consolidations are the major radiological findings that must be kept in mind in differential diagnosis. This view is typical for COP as it was the case in our patient. However, they may look like lower grade pulmonary lymphomas and bronchoalveolar carcinomas in some cases. This is why identifying histopathological findings are essential for the diagnosis (8). The standard therapy for COP is corticosteroid administration and treatments for 6-12 months have proved to give very good results (4).

Consequently, COP, a rare entity in itself, should be considered in differential diagnosis of many different respiratory pathologies due to its identifiable clinical and radiological findings. We have shared this case report to emphasize the role of bronchoscopy, which is a less invasive procedure in the diagnosis of COP compared to open lung biopsy.

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