

A Case Report Of Pneumonia Diagnosed With Secondary Immunodeficiency

Sekonder İmmün Yetmezlik Tanısı Konulan Bir Pnömoni Olgusu

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Abstract

Pneumonia clinically; Cough with sputum, purulent sputum, dyspnea and/or tachypnea, two or more of the symptoms and signs of pleuritic chest pain with infiltrations on chest X-ray. Immunodeficiency; is the inability of the organism to give the expected response to infectious agents due to weakening or insufficiency in the immune system. Lungs are one of the tissues and organs affected in immunodeficiency diseases, and can be complicated when they cannot be treated effectively. For this reason, it is very important to distinguish pneumonia on the basis of immunodeficiency from community-acquired pneumonia and to initiate treatment early in order to prevent possible complications.

Keywords: Pneumonia, Immunodeficiency, Nephrotic syndrome

Özet

Pnömoni klinik olarak; balgamlı öksürük, pürülan balgam, dispne ve/veya takipne, akciğer grafisinde infiltrasyonlarla birlikte olan plöritik göğüs ağrısı semptom ve bulgularından iki veya daha fazlasının olmasıdır. İmmün yetmezlik; organizmanın immün sistemde zayıflama ya da yetmezlik nedeniyle, enfeksiyon ajanlarına karşı beklenen yanıtı verememesi durumudur. Akciğerler immün yetmezlik hastalıklarında etkilenen doku ve organların başında gelmektedir, efektif tedavi edilemediği durumlarda komplike olabilmektedir. Bu sebeple immün yetmezlik zemininde gelişen pnömöni olgusunu, toplum kökenli pnömöniden ayırt etmek ve tedavinin erken başlanması olası komplikasyonları önlemek açısından oldukça önemlidir.

Anahtar Kelimeler: Pnömoni, İmmün Yetmezlik, Nefrotik sendrom

INTRODUCTION

Pneumonia is defined as inflammation and consolidation of lung tissue due to infectious agent. Despite the widespread use of antibiotics and immunization policies, pneumonia is one of the most common and morbid conditions encountered in clinical practice (1). The clinical picture of pneumonia varies between mild form with fever and cough complaints and severe form that can cause respiratory failure (2). Pneumonia clinically; Cough with sputum, purulent sputum, dyspnea and/or tachypnea, two or more of the symptoms and signs of pleuritic chest pain with infiltrations on chest X-ray (3). Pneumonia is grouped under three main headings according to the place of development and host characteristics: community-acquired pneumonia, hospital-acquired pneumonia, and immunodeficiency-based pneumonia. Pneumonia is still an important health problem in the world. While deaths from infectious diseases are gradually decreasing due to increasing access to health services and the widespread use of antibiotics, pneumonia is still a cause of high morbidity and mortality. It is known that approximately 13% of pneumonia cases requiring hospitalization and 30-50% of pneumonia cases requiring intensive care unit hospitalization can be fatal (4). Immunodeficiency; It is the inability of the organism to give the expected response to infectious agents due to weakening or insufficiency in the immune system (5). Immunodeficiency; It is divided into two as primary (congenital) or secondary (acquired) immunodeficiencies. Secondary immunodeficiencies are the most common cause of recurrent lung infections in adults (6). The causes of immunodeficiency are shown in Table-1.

Table-1: Causes of Immunodeficiency

Primary immunodeficiencies and autoimmune diseases
Acquired diseases HIV/AIDS, Sepsis, SIRS
Cancer and its treatment; chemotherapy, radiotherapy
Malnutrition
Solid organ and hematopoietic stem cell transplantation
Acquired immunodeficiencies; Asplenia, long-term steroid use
Metabolic problems; uremia, cirrhosis, diabetes, alcoholism
Previous viral infections
Advanced age

HIV: Human immunodeficiency virus **AIDS:** Acquired Immune Deficiency Syndrome **SIRS:** systemic inflammatory response syndrome

CASE REPORT

A 23-year-old male patient was admitted to our outpatient clinic with complaints of generalized body pain, fever, cough and sputum. He said his complaints started a few days ago and gradually increased. It was learned that he was followed up with the diagnosis of Nephrotic Syndrome (NS) in his history and that he used Ramipril 5 mg once a day. It was

learned that he did not have a known lung disease and that he had previously used antibiotic therapy for recurrent otitis. On examination, the mucous membranes were dry and the skin was hyperemic. By auscultation, respiratory sounds were heard in both lungs in the rough and more dominant in the upper zones. The saturation value measured by fingertip pulseoximetry was 90%, the blood pressure was 90/60 mmHg and the fever was 38.7. The patient was admitted to the hospital with a preliminary diagnosis of pneumonia with an increase in bilateral opacity on the chest x-ray (Figure-1). When the patient was re-evaluated in the bed, where respiratory fluoroquinolone was started in the first treatment, it was learned that he was a 4th year medical student and had been using rituximab for NS until 5 years ago. All cultures of the patient were taken and lung computed tomography (CT) was performed for differential diagnosis. CT imaging showed diffuse consolidated area in both lungs and minimal pleural effusion in the left lung (Figure 2-3).



Figure 1: Increased opacity in both lungs

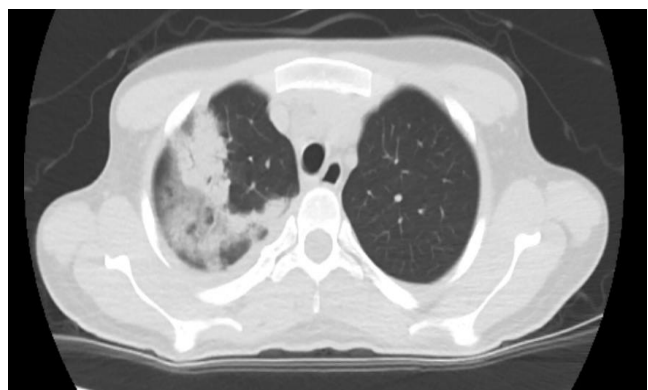


Figure 2: Consolidated area of the upper lobe of the right lung

DISCUSSION



Figure 3: Right lung mid-Left lung lingula/Lower lobe consolidated area

The existing radiological findings were consistent with pneumonia, and the patient was treated with a combination of anti-pseudomonas beta lactam and macrolides, taking into account possible nosocomial infections. Laboratory evaluation showed an increase in acute phase reactants, albumin and total protein deficiency. Proteinuria (450 mg/day) was detected in urinalysis. Hematuria was not detected. The patient's hemoglobin level was 15.3 g/dl. The patient with a diagnosis of NS, a disseminated consolidated area in both lungs, was diagnosed with immunodeficiency. When immunoglobulin (IG) levels were examined, total deficiency was detected as IgM: 0.18 (normal range 0.4-2.3 g/L), IgG: 1.4 (normal range 7-16 g/L), IgA: 0.24 (normal range 0.7-4 g/L). The patient, who was evaluated by the Allergy-Immunology department, was considered to have secondary immunodeficiency. Secondary to nephrotic syndrome and using rituximab. A lymphocyte subpanel was requested for differential diagnosis. The patient was given intravenous IG treatment with 0.4 g/kg medication in terms of infection. No abnormalities were detected in the patient's whole body lymph node examination. No growth was detected in their culture. The patient was discharged with improvement in control lung imaging (Figure-4) and laboratory evaluation.



Figure 4: Control lung imaging

Within the spectrum of possible complications of nephrotic syndrome, there are recurrent infections, the incidence of which ranges from 8 to 84%. The factors that facilitate the formation of these infections can be listed as follows: There are problems in cell-mediated immunity, the use of immunosuppressive therapy, malnutrition, recurrent infections that occur due to urinary losses of specific proteins such as immunoglobulin, properdin, factor B and complement proteins. Pneumonia due to Gram-positive and Gram-negative bacteria, fungi and mycobacteria is common (7).

Lungs are one of the tissues and organs affected in immunodeficiency diseases. Lung infections and immunodeficiency; They can cause cavitory lesions, pneumatoceles, nodules, granulomas and fibrosis, as well as the development of asthma, bronchiectasis, bronchiolitis obliterans in patients (8).

Delay in the diagnosis of immunodeficiency, inability to provide supportive treatments (antibiotic-antiviral prophylaxis, parenteral immunoglobulin replacement therapy, immunomodulatory therapies, etc.) and lack of regular outpatient clinic follow-up increase the risk of complications. Tissue-organ damage results in increased functional impairment and may cause a clinical picture that may cause increasing oxygen demand, respiratory failure, and lung transplantation.

In cases such as recurrent lung infections, prolongation of the need for antibiotherapy, complication of pneumonia (abscess, empyema, multilobar infiltration), underlying immunodeficiency should be considered. Typical clinical and radiological findings of pneumonia in immunodeficient patients may be delayed and faint. There may be no radiological abnormalities in the early period (9).

In our case, the widespread pneumonia in both lungs, the patient's diagnosis of nephrotic syndrome and the history of immunosuppressant drug use led us to think of immunodeficiency. Diagnosis of immunodeficiency in the early period of pneumonia treatment and immunoglobulin replacements with antimicrobial therapy provided rapid clinical radiological results in our case. In our case, the first results of the analysis in terms of primary immunodeficiency led us to think of secondary immunodeficiency. The diagnosis of nephrotic syndrome and the history of rituximab use supported the diagnosis of secondary immunodeficiency etiologically.

RESULT

Pneumonia can cause high mortality and morbidity in immunodeficient patients. In this case, pneumonia, clinical and radiological findings may appear faintly or late, and may be confused with the findings of the underlying disease. Often multiple infectious agents can coexist (viral, bacterial

REFERENCES

or fungal). Isolation of possible infectious agents by lung CT and microbiological examinations for early detailed radiological examination is essential in treatment.

Antimicrobial empirical therapy should be started as early as possible, and the type, weight, radiology of immunosuppression, prophylactic treatments received and previous culture results should be taken into account in planning. Effective empirical treatment started early is life-saving in these cases.

Ethical Declarations:

Not required. Consent was obtained from the participant for this case report.

Conflict of Interest:

None declared.

Financial Disclosure:

None declared.

Author Contribution:

None declared by the author

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