



A Rare Cause of Chronic Cough: Plastic Bronchitis

Kronik Öksürüğün Nadir Bir Nedeni: Plastik Bronşit

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Abstract

Plastic bronchitis is a rare disease characterized by chronic cough, dyspnea, airway obstruction, and expectorating rubber-like secretions. This entity is mostly seen in children predominantly in association with an underlying congenital heart disease. We present an adult case who was treated for asthma for two years and finally diagnosed with plastic bronchitis via bronchoscopy.

Key words: Bronchoscopy, dyspnea, chronic cough, plastic bronchitis.

Özet

Plastik bronşit kronik öksürük, dispne hava yolu obstrüksiyonu ve lastik kıvamında sekresyon ekspektorasyonu ile karakterize nadir bir hastalıktır. Bu antite sıklıkla siyanotik konjenital kalp hastalığı olan çocuklarda görülmektedir. Bu yazıda 2 yıldır astım tanısı ile tedavi gören ve bronkoskopi ile plastik bronşit tanısı konulan erişkin hastayı sunmaktayız.

Anahtar Sözcükler: Bronkoskopi, dispne, kronik öksürük, plastik bronşit.

Plastic bronchitis is a rare condition in which rubber-like airway casts develop in the tracheobronchial tree causing dyspnea and cough (1). These casts can be seen in bronchoscopy or may be expectorated spontaneously. The most common symptoms are progressive

dyspnea and nonproductive chronic cough. Non-specific symptoms lead often to delayed diagnosis and unnecessary treatments (1,2). In this case report, we present a patient with plastic bronchitis who had been diagnosed and treated for asthma.

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CASE

A 56-year-old woman, who was treated for asthma for two years, was admitted with progressive cough and dyspnea for three months. She did not describe any allergies or other chronic diseases. She was a non-smoker and had no family history of lung disease. She was a house wife and was never employed. She was receiving inhaled salmeterol/fluticasone combination for asthma. She stated that her cough and dyspnea episodes dissolve whenever she expectorates tough, thread-like sputum. She was not hospitalized for any reason within last two years. On physical examination, her body temperature was 36.8 °C and respiratory rate was 18 breaths/min. There were inspiratory crackles on the bases of the both lungs on auscultation. Heart rate and sounds were normal. The examination of other systems was unremarkable. Her oxygen saturation was 95% on ambient air.

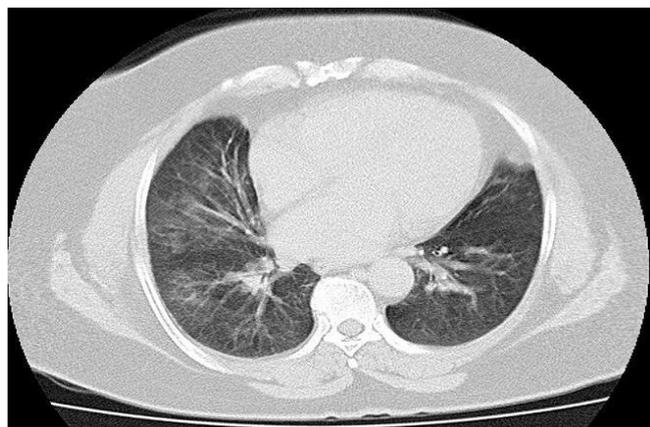


Figure 1: Tiny ground glass opacities were seen on both bases of the lungs at thorax computed tomography 182x166mm (96 x 96 DPI)

White blood cell count was 8100/mm³ and C-reactive protein was 0.8 mg/dl. Other laboratory test results were normal. Pulmonary function tests were as follows: FEV1: 82% of predicted, FVC: 83% of predicted, FEV1/FVC ratio 84%, and PEF: 95% of predicted. Tiny ground glass opacities were detected on both bases of the lungs on computed tomography (Figure 1). A pale, tan, highly viscous material filling the right middle lobe was seen on the bronchoscopy. Because of the fragility of the material, it was impossible to remove. The patient expectorated the material spontaneously one hour later (Figure 2). The material was spongy and consisted of irregular branches resembling the bronchial tree. Microscopic examination revealed fibrinous, mucoid, and hypocellular material. Microbiologic evaluations were non-diagnostic and no growth was present on cultures. She was started on systemic steroids and N-acetylcysteine treatment. Cough

episodes were diminished. Steroid treatment was continued for one month with tapered doses. N-acetylcysteine was added to her asthma medications. She is still in control with no complaints.

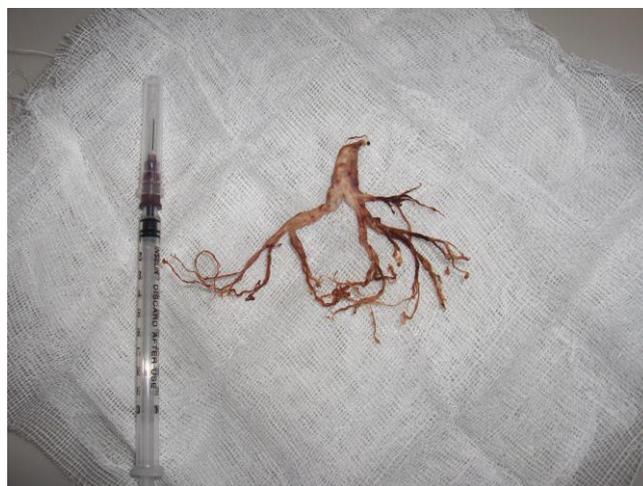


Figure 2: Patient expectorated large cast along bronchial tree one hour following bronchoscopy 241x181mm (300 x 300 DPI)

DISCUSSION

Chronic cough is a common and frequently debilitating symptom that is often viewed as an intractable problem (3). There are numerous factors provoking chronic cough. The most common reasons are follows: asthma, esophageal disease, rhinitis, chronic bronchitis and idiopathy (3). Plastic bronchitis, also known as fibrinous bronchitis or pseudomembranous bronchitis, is of unknown etiology, which is a rare reason for chronic cough. The bronchial casts, which develop acutely and recurrently, may take the form of the tracheobronchial tree and cause airway obstruction. The casts can be of variable sizes. Seear et al. (2) proposed a classification for the casts; inflammatory casts, and acellular casts. An inflammatory cast is composed of fibrin, eosinophils, and little mucin, and mostly seen in patients with underlying lung diseases like asthma and cystic fibrosis. However, acellular casts are mostly composed of mucin and little fibrin and no eosinophilic infiltrate. The patient was diagnosed with asthma and treated for two years but the patient's bronchial cast's pathologic examination revealed an acellular cast. In the literature, plastic bronchitis has been associated with numerous illnesses such as asthma, cystic fibrosis, congenital heart diseases, pneumonia, allergic bronchopulmonary aspergillosis (ABPA), bronchiectasis, and sickle cell acute chest syndrome (4-7). Plastic bronchitis is rare and the prevalence is, therefore, unknown but probably under diagnosed (7). Plastic bronchitis affects patients of all age groups, with the suggestion of a female predomi-

nance (7). Due to nonspecific symptoms, a high index of suspicion is necessary to diagnose the disease. Chest x-ray is not diagnostic. Obstructive emphysema, pneumonia, and atelectasis may develop due to bronchial casts. Primarily bronchoscopy or spontaneous expectoration of the bronchial cast results in diagnoses. The treatment strategies in the literature depend on personal experiences due to inexistence of clinical trials. Recommended therapies are mostly supportive care, bronchoscopy, steroids, and treatment of underlying diseases. Support, via bronchoscopy or mucolytic agents, designed to remove or facilitate the expectoration of bronchial casts may have a role in the treatment. Saracoglu et al. (8) treated young plastic bronchitis patients with aerolised hyaluronidase in to addition corticosteroids in 1960. Aerosolized N-acetylcysteine can reduce viscosity by breaking disulfide bonds (2,4,5). Özer et al. (9) reported the success of intrabronchial lavage with N-acetylcysteine. The current patient was treated oral steroid and N-acetylcysteine and after one month of treatment, the complaints resolved.

In conclusion, plastic bronchitis should be taken into consideration in patients with progressive dyspnea and/or chronic cough.

CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Concept - M.B., İ.D., M.A., L.K.; Planning and Design - M.B., İ.D., M.A., L.K.; Supervision - M.B., İ.D., M.A., L.K.; Funding - M.B.; Data Collection and/or Processing - M.B., İ.D., M.A., L.K.; Analysis and/or Interpretation - M.B., İ.D., M.A., L.K.; Literature Review - M.B.; Writing - M.B., İ.D., M.A., L.K.; Critical Review - M.B., L.K.

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