CASE REPORT AND LITERATURE REVIEW

Rheumatology Quarterly

DOI: 10.4274/qrheumatol.galenos.2024.30502
Rheumatology Quarterly 2024;2(2):92-4

TAKAYASU ARTERITIS PRESENTING WITH PULMONARY NECROSIS: A CASE REPORT

Hazan Karadeniz[1], Hamit Küçük[2], Mehmet Akif Öztürk[2]

[1]Mehmet Akif İnan Training and Research Hospital, Clinic of Rheumatology, Şanlıurfa, Turkey
[2]Gazi University Faculty of Medicine, Department of Internal Medicine, Division of Rheumatology, Ankara, Turkey

Abstract

Takayasu arteritis (TA) is a large vessel vasculitis seen especially in young women who may present with findings such as fever, fatigue, and weight loss. In this disease, lung consolidation or infarction secondary to lung involvement may occur. TA can mimic the other parenchyma-like diseases that we see more frequently in our daily practice because constitutional findings are at the forefront and due to consolidation as a result of lung infarction. Complications associated with chronic processes may result in increased morbidity and mortality in this disease, which often presents with delays in diagnosis. For this reason, TA should be kept in mind in the differential diagnosis of diseases leading to consolidation in the lung.

Keywords: Takayasu arteritis, necrosis, pulmonary, treatment

INTRODUCTION

Vasculitides are a heterogeneous group of diseases that cause tissue damage and organ failure as a result of inflammation in various vessels. Although the pathophysiological backgrounds are different, the symptoms may show similarities or differences concerning the affected site and the affected vessel diameter. The lung is one of these organ systems, and these rare diseases may primarily involve the pulmonary parenchyma as infiltrations, nodules, or cavitary lesions. Lung involvement is more common in small vessel vasculitis, and we see more rare involvement in large vessel vasculitis.

Takayasu arteritis (TA) is a major vasculitis usually found in young women. Contrary to general symptomatology, these patients may rarely present with pulmonary parenchymal findings. We want to emphasize that TA should be kept in mind in a case who presents with lung necrosis as in this case.

CASE REPORT

A 39-year-old female patient presented with a 5-month history of chest pain and backache, exertional dyspnea, fatigue, marked pain, and loss of strength in the left arm. There were no autoimmune rheumatic diseases in her medical and family history. On admission, her temperature was 38.3 °C, her pulse was regular at 110 beats/min, and her respiratory rate was 16 breaths/min. Coarse rales were heard in her right middle lung zone on auscultation. There was no murmur or gallops on cardiac examination. The patient was cachectic and had reduced skin turgor, murmur was heard on abdominal auscultation. The arterial blood pressure was 120/80 mmHg in the right arm and 100/70 mmHg in the left arm. There was considerable increased acute phase response in laboratory tests; [erythrocyte sedimentation rate (ESR)]: 108 mm/hr (normal range: 0-15 mm/hr); [C-reactive protein (CRP)] 98 mg/L (normal range: 0-3 mg/

Address for Correspondence: Hazan Karadeniz, Mehmet Akif İnan Training and Research Hospital, Clinic of Rheumatology, Şanlıurfa, Turkey
Phone: +90 312 202 55 28 **E-mail:** drhazankaradeniz@hotmail.com **ORCID ID:** orcid.org/0000-0003-4665-3421
Received: 28.12.2023 **Accepted:** 21.01.2024 **E-pub:** 05.04.2024

dL); (creatinine): 1,4 mg/dL; urea: 40 mg/dL; hemoglobin: 10,9 mg/dL.

Chest radiography showed consolidation in the right peripheral upper/middle lung zones (Figure 1A). The consolidated field was evaluated as atypical pneumonic infiltration and metronidazole, piperacillin, and tazobactam treatment was given for 14 days. Despite the persistence of antibiotic therapy, the patient was investigated for malignancy and tuberculosis (TB); purified protein derivative and acid-resistant bacilli culture were negative in bronchoalveolar lavage and TB was not considered. Thorax tomography showed 53x29x36 mm diameter consolidation in the right upper lobe and occlusion in the right pulmonary artery (Figure 1B, 1C). Transbronchial lung biopsy showed fibrous alveoli, and inflammatory cells, and wright staining showed 15-20 leukocytes in each area. Atypical cells were not observed therefore malignancy was excluded.

The computed tomography (CT) angiography also showed an increase in the thickness of the wall of the descending aorta increase in thickness in the abdominal wall 2/3 of the proximal segment and thickening of the celiac axis proximal wall and distal aneurysmatic expansion. Wall thickening in the branch leading to the lower lobe in the distal segment of the right pulmonary artery and narrowing in the lumen The branch leading to the upper lobe could not be visualized (in favor of occlusion). TA was considered at the forefront due to the high ESR, CRP, weight loss, and fatigue.

The patient's vascular damage index score was 5, the ITAS 2010 score was 11, and the ITAS-A score was 14. Prednisolone (40 mg/d) methotrexate 15 mg/week, and acetylsalicylic acid 100 mg/d were started. After 3 weeks, laboratory values were measured as ESR: 11 mm/hr CRP: 7 mg/L, and creatinine 0.9 mg/dL. Written consent esas obtained from the patient.

DISCUSSION

TA is classified as large vessel vasculitis and affects the aorta and its branches as a primary (1). Disease that first manifests itself with constitutional symptoms, and then includes symptoms associated with vascular involvement. Women are affected in 80 to 90 percent of cases, with an age of onset that is usually between 10 and 40 years. The abdominal aorta and pulmonary arteries are involved in approximately 50% of patients. The inflammatory process within the vessel can lead to narrowing, occlusion, or dilation of involved portions of the arteries, which causes a wide variety of symptoms. Symptoms related to pulmonary arteritis are less common. Pulmonary manifestations include chest pain, dyspnea, hemoptysis, and pulmonary hypertension (2-4). Pulmonary arteritis occlusion is sometimes accompanied by severe symptoms, with some patients' initial symptoms mimicking those of pulmonary thromboembolism (mainly chest pain, shortness of breath, and hemoptysis).

We detected pulmonary artery involvement due to TA in our patient. TA was diagnosed based on clinical, laboratory, and CT

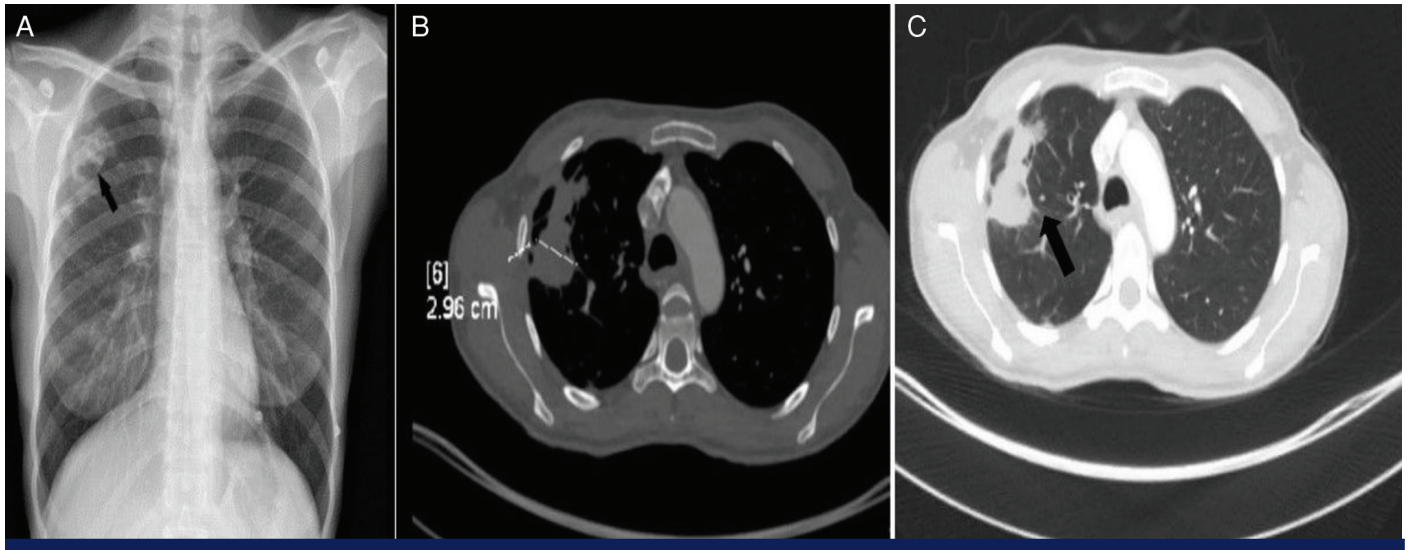

Figure 1. Chest radiograph and CT images. A) Chest radiograph showing consolidation in the right middle/upper lung zones (black arrows). B) Soft nodule with right lung upper lobe apex and cavitation within the size of 53x29x36 mm reaching the anterior and horizontal fissure. C) Interlobular septal thickness increases near the lesion ground-glass density increasing traction bronchiectasis and fibroatelectasis (black arrows)
CT: Computed tomography

findings. There are cases where pulmonary artery involvement may occur before the involvement of the aorta and its branches, and diagnostic delays may occur (5). In our case, we detected the onset of the diagnosis symptoms of aorta and pulmonary artery involvement. Sometimes the diagnosis may be overlooked due to acute pulmonary pneumoniae infiltration. The patient can be given antibiotic treatment and can be observed. TA should be kept in mind and evaluated by tomography. In the case reports, which were previously known, our case was similar to the right pulmonary artery involvement. No sources show that the right or left pulmonary artery is more involved in the literature.

CONCLUSION

Pulmonary infarction may be associated with cases of pulmonary embolism, antiphospholipid syndrome, IGG4-related disease, TB, and pulmonary infiltrative diseases. In these diseases, lesions in different segments of the lungs might be observed. However, it may not always be possible to distinguish this with exact localizations as in the literature. In our case, we have ruled out TB which is one of the other common reasons for involvement in the upper lobe of the right lung. Importantly, after excluding common infective causes such as TB in treatment-resistant diseases, TA should also come to the fore in our minds, especially in women who present with findings such as weight loss and decreased pulse.

Ethics

Informed Consent: Written consent esas obtained from the patient.

Authorship Contributions

Concept: H.K., Design: H.Kü., M.A.Ö., Data Collection or Processing: H.K., H.Kü., M.A.Ö., Analysis or Interpretation: H.K., Literature Search: H.K., H.Kü., M.A.Ö., Writing: H.K.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study received no financial support.

REFERENCES

1. Somashekar A, Leung Y. Updates in the diagnosis and management of Takayasu's arteritis. Postgrad Med. 2023;135(Suppl 1):14-21.
2. Ucar A, Ozdede A, Kayadibi Y, et al. Increased arterial stiffness and accelerated atherosclerosis in Takayasu arteritis. Semin Arthritis Rheum. 2023;60:152199.
3. Kishi S, Magalhaes T, George R, et al. Relationship of left ventricular mass to coronary atherosclerosis and myocardial ischaemia: the CORE320 multicenter study. Eur Heart J Cardiovasc Imaging. 2015;16:166-76.
4. Adams T, Zhang D, Batra K, et al. Pulmonary manifestations of large, medium, and variable vessel vasculitis. Respir Med. 2018;145:182-91.
5. Li J, Xu J, Bao P, et al. Isolated pulmonary artery involvement in Takayasu arteritis: case report and review of the literature. Egypt Heart J. 203;75:82.