Intracardiac Thrombus and Co-existing Pulmonary Artery Aneurysm in Behçet's Disease: A Report of Two Cases

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Abstract

Behçet's disease is a rare form of vasculitis of obscure aetiology. We report two cases of Behçet's disease with intracardiac thrombus and pulmonary artery aneurysm occurring together. The clinical characteristics of the two patients, one male, one female, were analysed retrospectively. The male patient (age=27) was admitted for pleuritic chest pain and the female patient (age=35) for high fever of unknown origin. Both patients had multiple subpleural nodules, right-sided cardiac thrombi, and bilateral pulmonary artery aneurysms. In the female patient the intracardiac thrombus was removed by surgery but she died after six months as a result of a massive haemoptysis. The male patient was treated with immunosuppressive drugs, is still alive and doing well.

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Introduction

Behçet's disease (BD) was first described by the Turkish dermatologist H. Behçet as a three-symptom complex comprising uveitis, oral aphthae and genital ulcerations. Later, other features of the disease were identified. Today we know that the disease is a multisystemic, recurrent, inflammatory disorder affecting the eyes, skin and mucosa, joints, lungs, as well as the vascular, gastrointestinal and nervous systems (1).

Pulmonary involvement, encountered in 5% of BD patients, is a well-known entity which manifests itself by symptoms including pulmonary artery aneurysm (PAA) and vasculitis. More than 200 cases of BD with pulmonary involvement have been reported (2,3). Intracardiac thrombus (ICT) is another rare complication of BD and 28 cases with ICT have been reported to date (4-7). However, the co-existence of PAA with ICT is an extremely rare event and we were only able to find 10 reports of such cases (4). In this paper, we present two cases of BD with concomitant PAA and ICT.

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Table 1. Pulmonary involvement is significantly more frequent in ICT-positive patients than the general population of BD (Fischer exact, p<0.01)		
Pulmonary involvement	Present	Absent
General population	5	95
ICT-positive population	14	9

Case Report

Case 1: A 35-year-old female presenting with fever, dyspnea, cough, night sweats, and right pleuritic chest pain was admitted to our department . Diagnosis of BD had been established five years ago with recurrent oral and genital ulcers, and erythema nodosum in lower extremities. Colchicine therapy had been started, but after a while the patient had stopped the therapy on her own. In her history, a pancreatectomy for chronic pancreatitis ten years ago was mentioned.

On observation, the patient was found to run a fever (38-40°C) which was unresponsive to antibiotics and to antituberculous therapy. Eye examination revealed papilloedema. Laboratory investigations showed a Hb value of 11 to 12 g/dl, a leukocyte count of 7400 to 12 800/mm³ with a normal differential count, and an erythrocyte sedimentation rate of 80 to 90 mm/h. Urinalysis, liver function tests, and ECG were normal. Allergy tests, the Latex fixation test and antinuclear antibody tests were negative. Anticardiolipin antibodies and lupus anticoagulant were absent. Repeated blood, sputum, and urine cultures, serological investigations provided no evidence for malignancy, bacterial endocarditis, tuberculosis, or fungal disease. The chest X-ray showed a right lower lobe infiltration and an elevation of the right diaphragm. Chest CT demonstrated multiple, small, subpleural nodular infiltrates and linear opacities in the lower lung fields. Lung perfusion scintigraphy revealed considerable perfusion defects in both lungs. Anticoagulant therapy was started for the pulmonary emboli and infarction.

Echocardiography was performed to identify the origin of the thrombus. A pedunculated mass (2x1.5 cm) was detected in the right ventricle on the interventricular septum and another mass (1.5 cm) in the right atrium near the interatrial septum. Echocardiography findings were strongly suggestive of a right atrial myxoma. Two months later, these masses were found to persist despite the anticoagulant therapy and to be able to explain their nature, a right atriotomy and a right ventriculotomy under cardiopulmonary bypass were performed. The pedunculated mass in the right ventricle was completely excised with its endocardium. There were many fragile vegetations firmly attached to the inner wall of the right heart. All of these vegetations were excised during the open-heart surgery. Histological examination of the vegetations and of the pedunculated mass identified these structures as inflamed thrombi and endocarditis. However, the specimens were not further investigated for additional small vessel vasculitis.

Six months later, the patient presented with massive haemoptysis. A chest X-ray revealed a right hilar mass. Fiberoptic bronchoscopy showed a large protrusion at the distal end of the bronchus intermedius causing stenosis of the bronchi of the middle and lower lobes. Angiography demonstrated multiple pulmonary artery aneurysms and occlusion of the descending branch of the right pulmonary artery (Figure 1). The patient did not accept any further surgical intervention. She died the next day from massive bleeding.

Case 2: A 27-year-old male was admitted to hospital in April 2001 presenting dyspnea and cough which had been present for a year. He complained of recurrent painful oral and genital ulcerations which had been present for the last ten years and of arthralgia in the lower extremities during these episodes. He had become totally blind following meningitis in his infancy. He had a scrotal scar. Laboratory investigations showed a Hb level of 10 g/dl, a leukocyte count of 7000/mm³, with a normal differential count. The erythrocyte sedimentation rate was 55 mm/h. The ECG showed an incomplete right bundle branch block. Tests for allergy were negative. Chest CT demonstrated several small subpleural nodular infiltrates on the posterior part of the right lower lobe. Open lung biopsy performed for the nodules revealed a haemorrhagic infarct and fibrinous pleurisy. The patient was discharged with no medication.

Six months later, he was readmitted with massive haemoptysis. A chest X-ray showed a recent left hilar mass. A subsequent CT scan demonstrated a thrombosed left pulmonary artery with aneurysmatic dilatation (Figure 2). The right pulmonary artery also was thrombosed. These findings had been absent in his previous chest CT. Echocardiography showed a tumor-like lesion in the right ventricle, presenting with a multiplanar reconstruction (Figure 3). Pulmonary angiography could not be performed because of the thrombosed femoral and brachiocephalic veins.

Two major (oral and genital ulcerations) and 3 minor (arthralgia, deep vein thrombosis, arterial occlusion and/or aneurysm) criteria were detected in the patient which were compatible with a possible diagnosis of Behçet's disease. The patient was treated with azathioprine (2.5 mg/kg/day) and

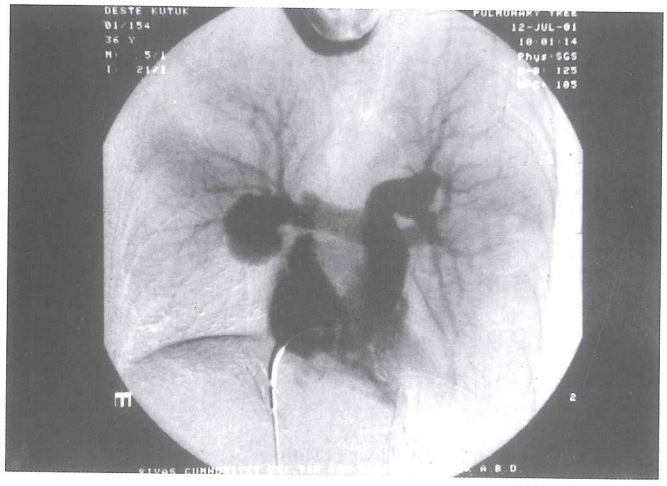

Figure 1. *A.P. main pulmonary arteriogram via right common femoral vein approach. Aneurysms in left pulmonary artery and descending branch of the right pulmonary artery are seen. Moreover there is no vascular markings in the right lower lobe.*

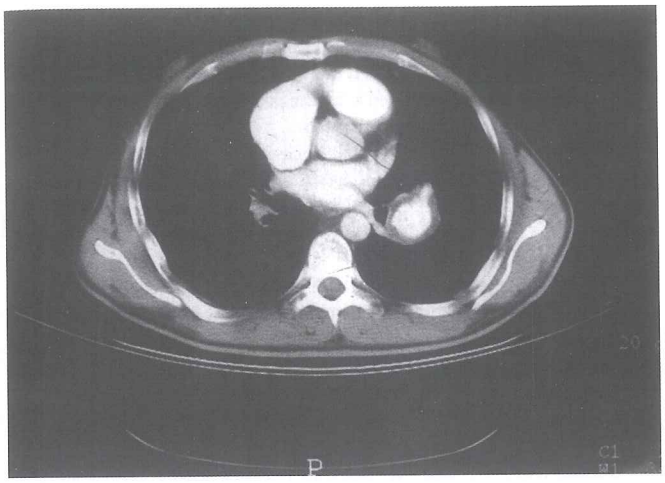

Figure 2. *CT scan showing left thrombosed pulmonary artery aneurysm.*

methyl-prednisolone (60 mg/day). Erythrocyte sedimentation rate returned to normal (3 mm/h) within days. Three months later, both the pulmonary artery aneurysm and the intracardiac thrombus completely disappeared.

Discussion

Intracardiac thrombi usually involve the right side of the heart and their appearance often precede other manifestations of Behçet's disease. Irrespective of the mode of management, the presence of intracardiac thrombus confers a poor prognosis (4). The frequency of this complication may be underestimated because of the clinical presentation of intracardiac thrombus is nonspecific in the majority of patients (4,8).

Behçet's disease usually progresses with pulmonary infarctions, intracardiac thrombus and pulmonary aneurysm, in respective order. Thus pulmonary infarction is a step in the natural course of the disease (9-12). In both of our cases pulmonary infarcts were found before the development of PAA, but the time of the appearance of the intracardiac thrombus is not clear. In case 1, the intracardiac thrombus was detected by echocardiography, while trying to rule out infective endocarditis, at her first admission. On the other hand in case 2, the diagnosis of Behçet's disease was already established at the time when the hilar mass was identified as an aneurysm.

Usually these cases are discharged when the clinical signs subside, but may return with massive haemoptysis as early as five weeks after discharge (13). This interval was 9 months in our cases. The chest X-rays demonstrated hilar masses in both patients, a finding which was absent in their previous radiographs (8,9,11,13,14). The hilar mass was on the right side in one patient, and on the left in the second. Detection of the hilar masses led to further investigations such as CT, angiography and bronchoscopy which in turn led to the diagnosis of the aneurysm (9,11). Despite intensive treatment with corticosteroids, immunosuppressive drugs and surgery, some of the patients die in this period (8-10,14). The female patient did not give consent for the proposed surgery for massive bleeding, and she died within two days. The male patient, corticosteroid and immunosuppressive drugs were

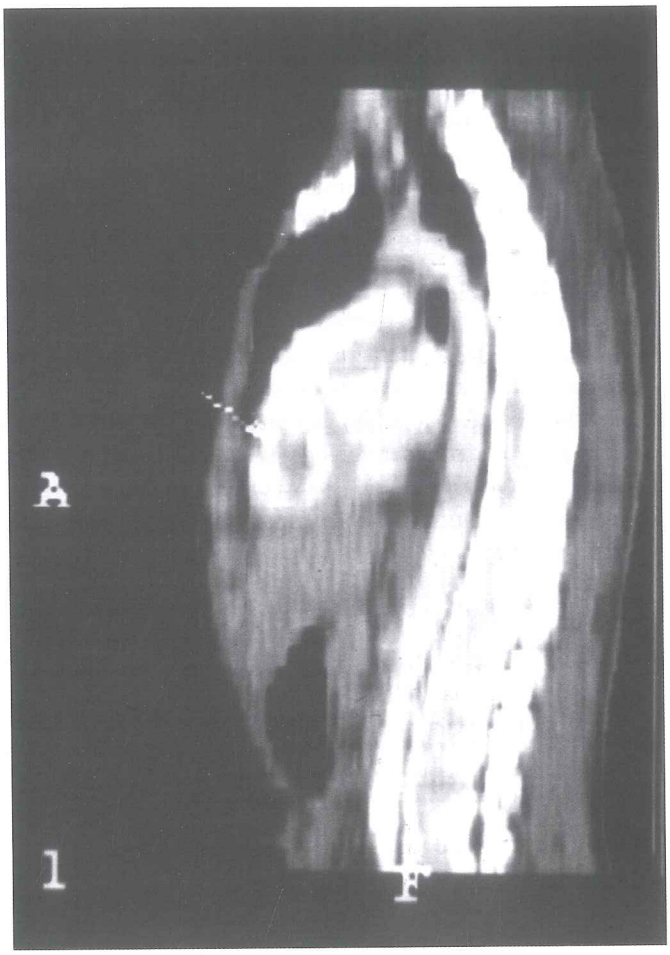

Figure 3. *Sagittal multiplanar reconstruction image of the thrombus (arrow) in the right ventricle.*

started. His haemoptysis ceased and a marked regression was noted in the pulmonary aneurysm in the second month of the anti-inflammatory therapy.

The frequency of pulmonary involvement in Behçet's disease is around 5% (2,3), but can be as high as 56% when accompanied by intracardiac thrombi (4).

The relationship between ICT and PAA is statistically significant but the pathogenetic association is not clear. We speculate that this association may reflect a concomitant endothelial/subendothelial injury in the right heart chamber and the pulmonary arterial bed. On the other hand, despite the presence of cardiac thrombi, pulmonary artery aneurysm may not develop in patients who receive corticosteroids or other immunosuppressive drugs (12). This finding demonstrates the impact of anti-inflammatory therapy on prevention of aneurysm formation.

There is no agreement on the therapy of intracardiac thrombus in Behçet's disease. Anticoagulant and/or anti-inflammatory drugs can be effective in treating intracardiac thrombus (15). Heparin alone was reported to be sufficient in some cases (4). However, oral anticoagulant therapy failed to prevent recurrence in our female patient. On the other hand, it is important to note that, in the presence of pulmonary involvement, heparin therapy alone, without concomitant anti-

inflammatory drugs, may promote massive haemoptysis (16). Surgery is one of the most effective methods for removing intracardiac thrombus, but carries a high risk of recurrence (14,17). Case 1 was our first patient who had Behçet's disease with intracardiac thrombus and pulmonary artery aneurysm. In this patient, the intracardiac thrombi were extracted by open-heart surgery. At the time of the diagnosis of the pulmonary artery aneurysm, which occurred six months after surgery, a right ventricular filling defect was observed during angiography. In case 2, guided by our previous experience, we started anti-inflammatory therapy immediately, when the hilar mass was identified as aneurysm.

In conclusion, when a pulmonary artery aneurysm is present in a BD patient, cardiac involvement should be investigated. Prospective studies on large groups of patients may serve to clarify the association between pulmonary artery aneurysm and cardiac thrombus.

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CORRECTION:

Due to mishap, this article was published without the figures in Vol 4. No. 3, page 153-155 of the Turkish Respiratory Journal. We apologize and publish the full article above.