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Chronic necrotizing pulmonary aspergillosis presenting as transient migratory thoracic mass: A diagnostic dilemma

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ABSTRACT

Chronic necrotizing pulmonary aspergillosis (CNPA) is a rare form of pulmonary aspergillosis. The radiological findings in CNPA are very diverse. We present a mildly imunosuppresive, elderly 71-year-old woman with the diagnosis of chronic necrotizing pulmonary aspergillosis presenting as transient migratory thoracic mass.

1. Case report

A 71-year-old woman was admitted to our hospital, with a complain of productive cough accompanying yellow coloured viscous sputum. She had a past history of type II diabetes controlled with oral antidiabetics. Eventhough she had never smoked, a history of biomass exposure was found. On admission, her body temperature was 36.7 °C; respiratory rate was 12/min; blood pressure was 110/70 mm/Hg and heart rate was 85 beats/min. On physical examination, no lymphadenopathy was found and dry crackles were audible over both lung bases. The haematocrit was 42.8% and the white cell count was 14800 cells/mm^3 with 91% neutrophils, 5.5% lymphocytes and no eosinophils. Patient had three sputum smears with ARB negative. Pulmonary function test showed restrictive pattern. CT scan of the chest demonstrated collapse of the left lower lobe and mucus bronchograms in the central bronchi (Fig. 1a). Flexible bronchoscopy has been applied revealed the presence of mucoid and abundant secretion in both bronchial tree and no endobronchial lesion had been seen. The mucosal biopsies which were taken from left lower lobe consisted with inflamed bronchial mucosa. Bronchial washing was negative for ARB and consistent with inflammation. An oral antibiotic therapy was given empirically. Three weeks later, however, symptoms did not improve and a second chest CT showed radiological disappearance of infiltration and collapse on the left lung (Fig. 1b) and new focal ground-glass opacities involving base of the right upper and right middle lobe were seen (Fig. 2). The patient was administered seftiriakson (2 × 1 gr/day) (i.v.). Because of migratory pulmonary infiltrates, serum collagen tissue markers were studied with the suspicion of criptogenic organising pneumonia (COP). Serum levels of collagen markers were at normal range, and bronchoscopy was repeated. Histopathological examination of the transbronchial lung biopsy specimens were demonstrated desquamated airway epithelial cells, accumulations of anthracotic pigment and fibrous connective tissue. Corticosteroid treatment was started with a strong clinical suspicion of COP and the patient was taken into follow up. Chest radiograph revealed a cavitary lesion in the right upper lobe at the first month of steroid treatment. CT scan of chest revealed cavitary lessions on the right upper lobe with cavitation of collapse consolidation areas on the middle lobe and right lower lobe. On the left lower lobe from the new collapse consolidation area were also seen (Fig. 3a-3b-3c). Serum galactomannan was negative. Then a transthoracic thin needle biopsy (TTNB) was applied to the cavitary lesion. Histopathological examination of the biopsy showed congested lung parenchyma, lymphocyte infiltration in the bronchial walls and numerous filamentous fungal hyphae that is morphologically consistent with Aspergillus (Fig. 4). As there was a strong clinical suspicion about COP because of migratuar infiltration we decided to perform TTNB from the area of collapse and consolidation on the right lower lobe. But the pathological examination was not consisted with organising pneumonia. With the diagnosis of CNPA, the patient received a 2-week treatment with amphotericin B (1 × 50 mg) and showed excellent clinical improvement. After one month of amphotericin B therapy at control CT even the lesions on the right and left lower lobe showed on improvement, the cavitary lesions on the right upper lobe were stable. During the follow-up, there were no clinical and radiological progression but she admitted again with the same

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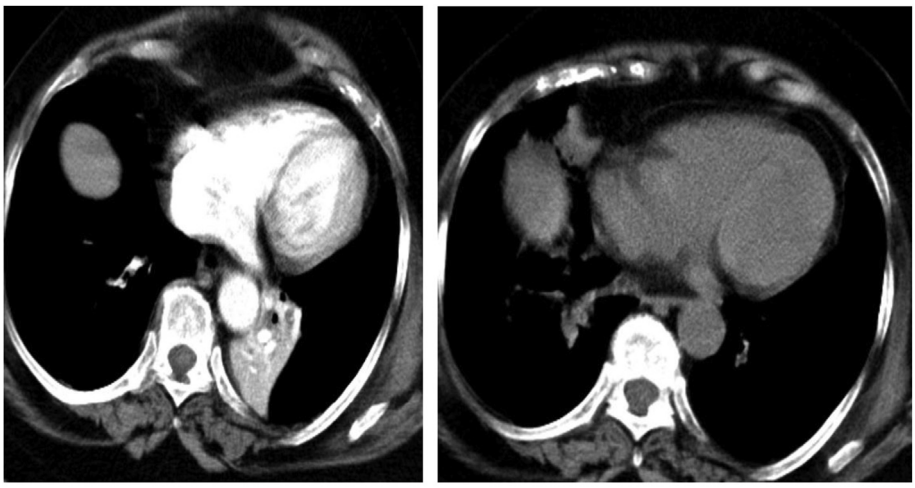

a b

Fig. 1. a: Collapse of the left lower lobe. b: Disappearance of infiltration in left lung.

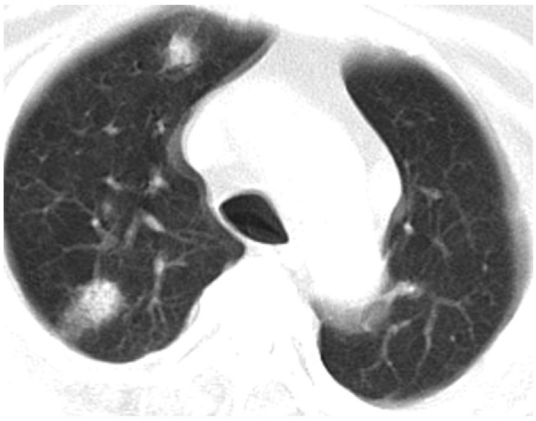

Fig. 2. New focal ground-glass opacities right upper lobe.

(1 × 50 mg). At the end of the second week of treatment, amphotericin-B was changed to oral voriconazole 200 mg twice a day. As there was clinical and radiological improvement was achieved, antifungal therapy was discontinued at the end of the 6th month.

2. Discussion

Pulmonary aspergillosis can present in different clinical, pathological and radiological forms depending on the patient's immunological status and underlying pulmonary disease. Allergic bronchopulmonary aspergillosis, aspergilloma, invasive and semi-invasive forms can be recognized. CNPA also called semi-invasive or subacute invasive aspergillosis, is an indolent, cavitary infectious process in the lung parenchymasecondary to local invasion by *Aspergillus* spp., usually *Aspergillus fumigatus*, with a slowly progressive clinical course [1]. It is an uncommon manifestation of

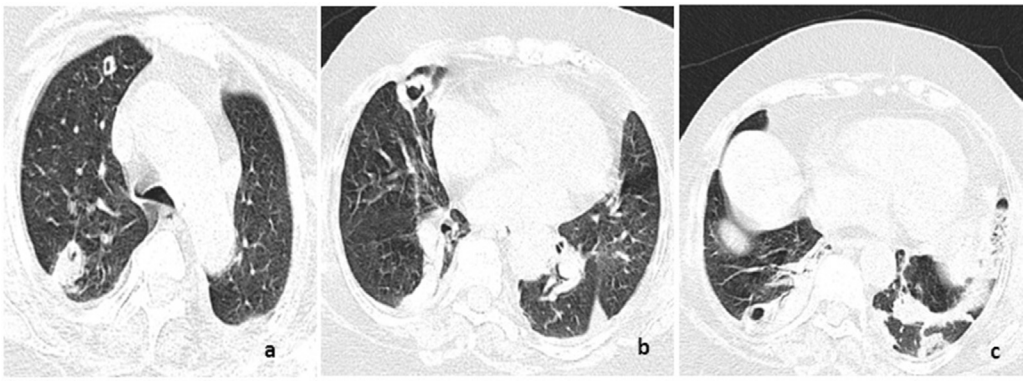

Fig. 3. a-b-c: Cavitary lessions and new collapse consolidation area on the left lower lobe.

symptoms after 1.5 year. CT scan of chest revealed collapse and consolidation on the left lower lobe (Fig. 5) and flexible bronchoscopy was performed to the patient again. Bronchial mucosal biopsy and bronchial washing were taken from the left lower lobe. Bronchial washing culture showed aspergillus and candida. The patient received a 2-week treatment with amphotericin-B

aspergillosis and usually affects in middle aged and elderly individuals with altered local defenses, associated with underlying chronic lung diseases such as chronic obstructive pulmonary disease (COPD), previous pulmonary tuberculosis, thoracic surgery, radiation therapy, pneumoconiosis, cystic fibrosis, lung infarction or sarcoidosis [2]. It may also occur in patients who are mildly

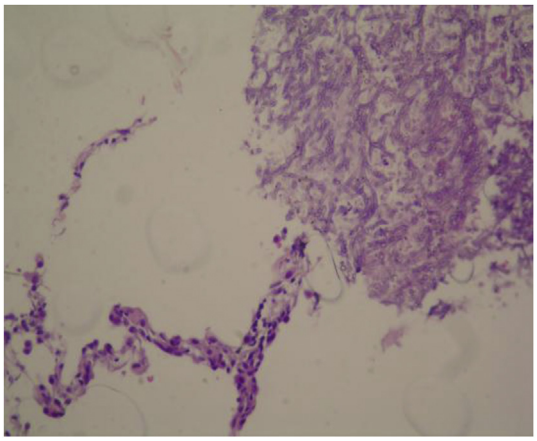

Fig. 4. Aspergillus hyphae.

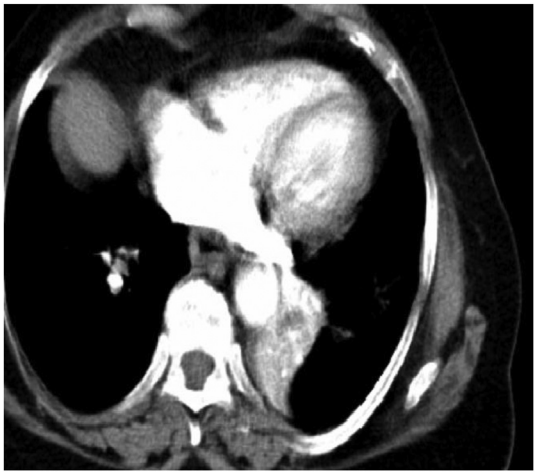

Fig. 5. Collapse and consolidation on the left lower lobe after 1.5 year.

immunocompromised due to DM, alcoholism, chronic liver disease, prolonged low-dose corticosteroid therapy, malnutrition, or connective tissue diseases such as rheumatoid arthritis and ankylosing spondylitis [3]. The risk factors of our patient were old age and diabetes mellitus. Clinical manifestations of which depends on the virulence of the fungus, intensity of exposure, patient's immunological status. Patients presents with constitutional symptoms such as fever, malaise, fatigue and weight loss of 1–6 months duration, in addition to chronic productive cough and hemoptysis which varies from mild to severe [4].

The radiological findings in CNPA were very diverse. In those with CNPA, there is local invasion of the lung tissue and a pre-existing cavity is not needed. Usually a single area of consolidation is found in an upper lobe which progresses over days or weeks with cavitation. Pleural thickening and fungus balls may occur as well as pneumothorax and pleural effusion [5]. In our case CT scan of the chest demonstrated collapse of the left lower lobe and mucus bronchograms in the central bronchi which disappeared three weeks after on the second CT. New focal ground-glass opacities involving base of the right upperlobe and right middle lobe with a pleural effusion were seen on the right side. Even the absence of a histopathological confirmation this migrating opacities made us to think organising pneumonia on the clinical and radiological bases and the patient was given a corticosteroid treatment. On the third week of corticosteroid treatment chest radiograph revealed a cavitary lession which was thought that the ground glass opacity on the second CT was being cavitated. As the patients lession progress under corticosteroid theraphy, histological confirmation was needed and we decided to perform TTNB from the cavitary lession which revealed the diagnosis of CNPA. There was another lession of collaps and consolidation on the right lower lobe mimicking the first lession on the first CT which was on the left lower lobe. So in order to exclude the diagnosis of organising pneumonia which will need a different approach a second TTNB from the lession on the right lower lobe was relavent with anthracotic lung parenchyma, congestion and not consistent with organising pneumonia. Patient was given antifungal theraphy and on follow up all the lessions regressed on contol CT with a clinical improvement. On these radiological findings to our knowledge this is the first case having migratuar opacities due to CNPA. Taşcı at al presented a case of BOOP mimicking a malignant disorder and occurring after aspergillus infection in a patient with chronic obstructive pulmonary disease but they did not report any migratuar lession [6].

CNPA should be considered in differentials when investigating a case even if the patient does not have typical radiological findings.

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