Interstitial lung disease as the initial manifestation of Systemic Sclerosis: first case reported in Lome

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Abstract

Interstitial lung disease (ILD) is the most frequent pulmonary complication of systemic sclerosis (SSc), and the leading cause of death in people with SSc. ILD appears usually in the first years of the disease but rarely the primary manifestation. In this report, we describe a never-smoker female presenting with exertional dyspnea, and non-productive cough of two years' duration that demonstrated ILD on thoracic high-resolution computed tomography (HRCT). After six months, she was diagnosed with limited cutaneous SSc based on the American College of Rheumatology (ACR) criteria. This case report is a reminder of the importance of actively seeking potentially treatable causes of ILD.

Systemic sclerosis (SSc) is a connective tissue disorder characterised by skin thickening and varying degrees of internal organ involvement. It has been reported that up to 100% of patients with SSc have pulmonary parenchymal involvement on autopsy.[1] Among patients with SSc, 75% have Interstitial lung disease (ILD). ILD is the most common manifestation of SSc-associated respiratory diseases, which may be associated with pulmonary arterial hypertension (PAH).[2–4] ILD and PAH have become the leading SSc-related causes of death.[4,5] Based on the degree of cutaneous involvement, patients with SSc are classified as having either limited cutaneous SSc (lcSSc) or diffuse cutaneous (dcSSc). SSc sine scleroderma (ssSSc) is a rare form of SSc whereby patients acquire visceral disease in the absence of the characteristic cutaneous involvement (skin thickening). Commonly, ILD appears in the first years of evolution of the cutaneous forms of SSc[6] and rarely before cutaneous manifestations. We report a case of ILD revealing a limited cutaneous form of SSc, a relatively uncommon form of revelation of SSc.[7]

Case report

A 36-year-old female never-smoker initially presented with symptoms of exertional dyspnea, non-productive and non-febrile cough which had gradually worsening over 2 years. There was no Raynaud phenomenon. She had been hospitalised twice in peripheral health centres for respiratory distress which was relieved by corticosteroids and antibiotic therapy. She had no significant inhalational exposure to mineral dusts. On physical examination, inspiratory crackles were audible. Other organs examination were totally normal. Chest radiographs demonstrated bilateral interstitial infiltrates. Thoracic high-resolution computed tomography (HRCT) showed bilateral and diffuse ground-glass opacities associated with reticular changes, and cylindrical bronchiectasis (Figure 1). Bronchial fibroscopy was performed. The search of mycobacteria on Ziehl-Neelsen staining and detection of Mycobacterium tuberculosis by polymerase chain reaction (Xpert MTB/RIF) were negative on bronchoalveolar lavage fluid (BALF). The bronchial biopsies had shown non-specific bronchitis on histopathologic exam. No germ was found on the BALF. The human immunodeficiency virus (HIV) test was negative. The hemoglobin level was 11 grams per decilitre (g/dL), the white blood cells were 4000 per microliter (µL) and the C-reactive protein was elevated. Corticosteroid therapy was started. After two months of this therapy, exertional dyspnea had decreased. Corticosteroids were subsequent tapered and discontined within four months of initial diagnosis. The patient was doing well until two months later when she noted recurrent exertional dyspnea. She still had neither Raynaud phenomenon nor dysphagia. On physical examination, there was no sign of heart failure and the lungs were unchanged, but now there was disappearance of facial wrinkles, hypopigmented macules on the ears, painless edema of her fingers and digital-tip pitted scars (Figure 2). There was neither sclerodactyly of the feet and hands, nor calcinosis and telangiectasias. Diagnosis of SSc was established on one major and one minor criteria of American College of Rheumatology (ACR). Transthoracic echocardiography demonstrated normal left ventricular function, right ventricular (RV) hypertrophy, without pulmonary arterial hypertension (pulmonary artery systolic pressure was 25 mm Hg). Corticosteroid and ciclophosphamide therapy were initiated.

Discussion

Based on the degree of cutaneous involvement, patients with SSc are classified as having either limited cutaneous SSc (lcSSc) in which sclerotic lesions are of interest to the extremities but do not rise above the elbows and knees, or diffuse cutaneous[8] (dcSSc) characterised by sclerosis lesions rising above elbows and knees and may be of interest to the trunk. SSc sine scleroderma (ssSSc) is a rare form of SSc whereby patients acquire visceral disease in the absence of the characteristic cutaneous involvement (skin thickening).[9]

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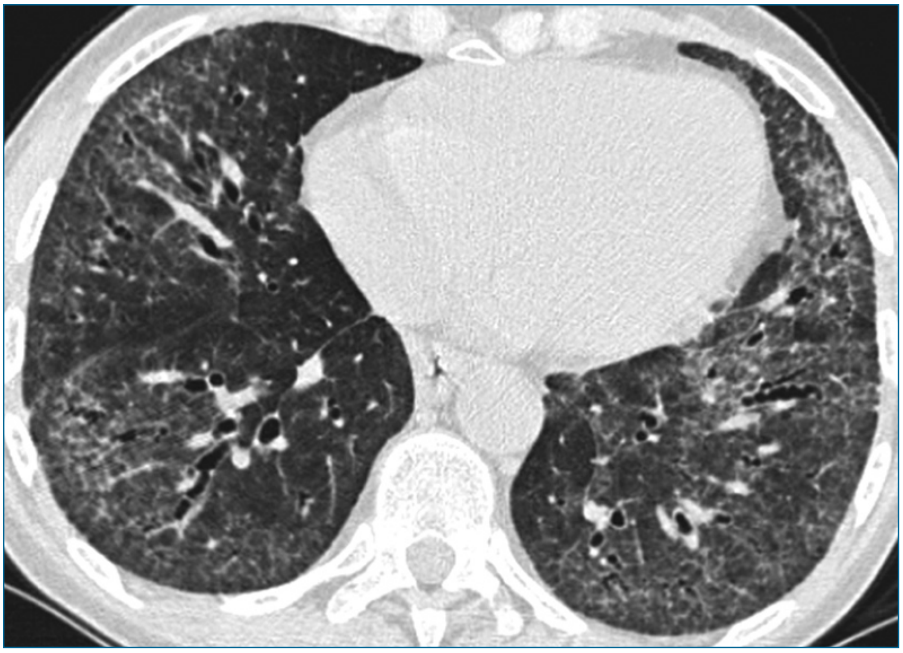
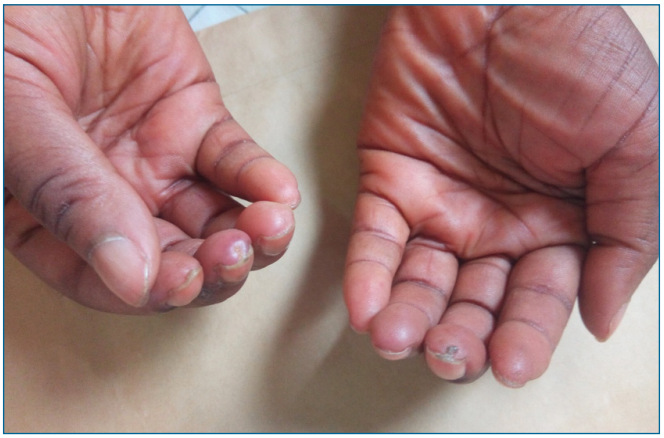
Figure 1. High-resolution computed tomography scans of the lungs at the level of the pulmonary veins demonstrate predominantly diffuse ground-glass opacities with reticular abnormalities with bilateral cylindrical bronchiectasis



Swartz and al.[10] have described one case of lcSSc revealed by ILD. It was a 63-year-old, never-smoker female presenting with Raynaud phenomenon and ILD (predominantly ground-glass opacities with reticular changes) that demonstrated desquamative interstitial pneumonia (DIP) on surgical lung biopsy. After eight months, she was diagnosed of lcSSc by clinical examinations and serologic findings (increase of antinuclear antibodies and presence of anticentromere autoantibodies). Transthoracic echocardiography demonstrated normal left ventricular function, and a calculated RV systolic pressure of 68 mm Hg.

Rachid and al.[11] have reported two similar cases of lcSSc revealed by symptomatic ILD in two women aged 38 and 42. Their HRCT showed predominantly a sub-pleural honeycombing and their immunoassay was normal. The volume flow curve showed a mixed ventilatory disorder with predominant restrictive component. Transthoracic echocardiography found a pulmonary artery systolic pressure normal in one and elevated of 85 mm Hg in the other.

Figure 2. Digital-tip pitted scars



Our patient and that of Swartz[10] and Rachid[11] had no specific characteristic that could differentiate them from interstitial lung disease diagnosed during SSc with cutanous involvement monitoring.

In SSc at large, there is a female predominance, variably reported as a female:male ratio of 3:1 to 14:1, and a peak age of onset in the fourth to sixth decade.[12–14] For the diagnosis of SSc-ILD, HRCT is mandatory. The most frequent HRCT pattern is non-specific interstitial pneumonia (NSIP),[15] with a greater proportion of ground-glass opacities (GGOs) and a lower proportion of coarse reticulation. However, a usual interstitial pneumonia (UIP) pattern, characterised by honeycombing and traction bronchiectasis, may also be seen.

Immunologically, anti-nuclear antibodies (ANA) were normal in two cases and positive in one. Anti-topoisomerase I autoantibodies (ATA) were negative in all cases and anticentromere antibodies (ACA) requested in one case was positive. However, it has been demonstrated that, ATA also known as anti-scleroderma-70 antibodies are present in approximately 20% of SSc patients, most often in association with dcSSc. SSc-ILD is most prevalent in ATA-positive patients, with over 85% developing pulmonary fibrosis.[16] By contrast, ACA, found in 20–30% of patients with SSc, are associated with a low prevalence of SSc-ILD.[16] ATA and ACA are mutually exclusive.

Pulmonary function tests (PFTs) including DLCO should be performed systematically for diagnostic purposes but also for prognosis[17] in SSc. Restrictive pulmonary defect is often present.[5] Early decrease in DLCO to below 70% of its predicted value represents likely poor prognosis.[5] Wu and al.[13] study defined lower SpO2 after 6MWT as an independent baseline predictor for progression of mild SSc-ILD at one-year follow-up.

Conclusion

In our patient, ILD preceded the cutaneous features of lcSSc. Poormoghim et al.[18] demonstrated otherwise that there is no significant difference between ssSSc and lcSSc in the occurrence of ILD. This case report is a reminder of the importance of actively seeking potentially treatable causes of ILD.

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