
CASE REPORT

Interstitial Lung Changes in Sjögren's Syndrome: Report of 3 Cases

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ABSTRACT

Sjögren's syndrome is a chronic autoimmune inflammatory disease. It more commonly affects women than men, in the fourth and fifth decades of life. The syndrome is characterised by a clinical triad of dry eyes, dry mouth, and arthritis. It may occur as a primary disorder or as a secondary disorder in association with another connective tissue disorder, most often rheumatoid arthritis. Patients with primary Sjögren's syndrome can have pulmonary manifestations, although symptoms may not be clinically significant. Both interstitial lung disease (lymphocytic interstitial infiltration or fibrosis) and obstruction with small-airway disease can occur in primary Sjögren's syndrome. This report describes 3 cases of Sjögren's syndrome that had pulmonary manifestations: lymphocytic interstitial pneumonitis, cystic or bullous lung disease, and usual interstitial pneumonia.

Key Words: *Cysts/etiology; Lung diseases, interstitial; Radiography, thoracic; Sjögren's syndrome; Tomography, X-ray computed*

INTRODUCTION

Sjögren's syndrome is a chronic autoimmune inflammatory disease. It usually affects women (female-to-male ratio, 9:1) in the fourth and fifth decades of life.^{1,2} The syndrome is characterised by a clinical triad of dry eyes (keratoconjunctivitis sicca), dry mouth (xerostomia), and arthritis. Sjögren's syndrome may occur as a primary disorder or a secondary disorder in association with another disorder of the connective tissue, most often rheumatoid arthritis. The pulmonary manifestation of secondary Sjögren's syndrome may be due to the primary connective-tissue disorder itself. Up to 75% of patients with primary Sjögren's syndrome have pulmonary manifestations, although symptoms may not be clinically significant.

CASE REPORTS

Lymphocytic Interstitial Pneumonitis

Lymphocytic interstitial pneumonitis (LIP) is the most common histopathological finding in primary Sjögren's

syndrome. The natural course of LIP appears to be extremely variable. It may take a benign course in some patients and lead to resolution or stabilisation. According to Fishback and Koss,¹ LIP may sometimes evolve to lymphoma. However, the frequency of this conversion is probably low, and conversion is difficult to assess because low-grade lymphoma may mimic LIP.

Histologically, LIP is characterised by dense interstitial infiltration by lymphocytes, plasma cells, and histiocytes — a feature that is sometimes associated with pulmonary amyloidosis.¹ This process is usually bilateral and diffuse,^{2,3} and occurs most prominently in relation to bronchioles and their accompanying vessels.³ Radiologically, there is a reticulonodular pattern that predominantly involves the lower lobes, with or without patchy areas of consolidation.⁴ In high-resolution computed tomography (CT) scans, the most common findings are areas of ground-glass attenuation; reticular opacities; centrilobular and subpleural micronodules; thickening of bronchovascular bundles and interlobular septa; and cysts (2-15 mm in diameter).^{2,5,6}

Reduced lung volumes and diffusion capacities are features of LIP. Diffusion capacity may be the most sensitive functional index of disease progression.⁴

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Figure 1. Computed tomography scout scan of case 1 showing diffuse reticulonodular shadowing and a mass-like lesion in the left lower zone.

Sjögren's-associated LIP appears to respond well to corticosteroid and immunosuppressive therapy.⁷

Case 1

A 29-year-old man presented to the Queen Elizabeth Hospital in August 1999 with bilateral dry eyes and dry mouth. Lip biopsy showed chronic sialadenitis consistent with Sjögren's syndrome. He had no dyspnoea or other respiratory symptom. However, his chest X-ray and CT scout scan (Figure 1) showed reticulonodular shadowing. High-resolution CT showed centrilobular nodules in the lower lobes. A mass-like lesion was noted at the periphery of the left lingular lobe, which was associated with adjacent ground-glass opacities (Figures 2a and 2b). A diagnosis of LIP with possible development of lymphoma was suggested. Transbronchial lung biopsy confirmed the diagnosis of LIP. Lymphoid infiltration caused marked thickening of the alveolar septa. There was no evidence of lymphoma. The lung function test results indicated a mixed obstructive and restrictive pattern. The patient was given steroid treatment. Subsequent CT performed 1 year later showed near-complete resolution of the lung lesions (Figure 2c).

Cystic or Bullous Lung Disease

Cystic or bullous lung disease is rarely associated with Sjögren's syndrome.^{8,9} Several reports have demonstrated circumferential peribronchiolar inflammatory infiltration and have suggested that cyst formation is the result of bronchiolar obstruction and hyperinflation of terminal lobules.^{8,10} This mechanism of cyst formation is thought to occur in other types of cystic lung disease, such as lymphangiomyomatosis. The chest X-ray shows emphysematous changes. High-resolution CT shows cystic lung change. Lung function tests reveal an obstructive pattern.¹¹

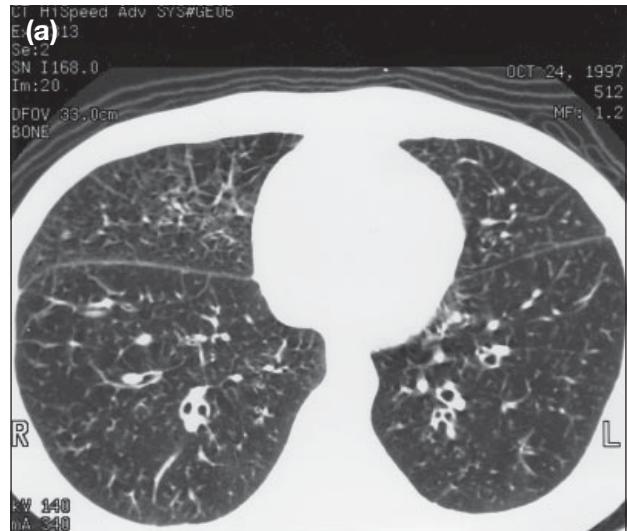


Figure 2. High-resolution computed tomograms of case 1 showing (a) centrilobular nodules in the lower lobes, (b) a mass-like lesion with adjacent ground-glass opacities at the periphery of left lingular lobe, and (c) almost complete resolution of the lung lesions at follow-up.



Figure 3. Chest X-ray of case 2 showing emphysematous changes and bullae.

Case 2

A 39-year-old woman presented in October 1998 and complained of progressive breathlessness. There were emphysematous changes and bullae on the chest X-ray (Figure 3). High-resolution CT revealed extensive cystic lung changes (Figure 4), thereby raising the possibility of lymphangioliomyomatosis. The lung function test results indicated moderate obstruction with impaired gas transfer. An open-lung biopsy showed bullous change with epithelioid granuloma and giant cells involving blood vessels, as well as changes consistent with airflow obstruction. The differential diagnosis was Sjögren's syndrome with lung involvement or bullous sarcoidosis. The patient subsequently developed dry mouth and dry eyes; the Schirmer's test gave positive results. Diagnosis of Sjögren's syndrome was therefore made. Her lung condition, however, did not improve with steroid therapy.

Other Interstitial Lung Diseases

Other pathological diagnoses of usual interstitial pneumonia (UIP) and non-specific interstitial pneumonia (NSIP) are observed in patients with Sjögren's syndrome. In UIP, high-resolution CT may show a reticular infiltrative process, architectural distortion, and 'honeycombing' with a peripheral distribution. These changes occur predominantly at the lung bases. In later stages of the disease, cicatricial changes may be visualised. However, these changes may be non-specific and can also be seen in idiopathic pulmonary fibrosis, asbestosis,

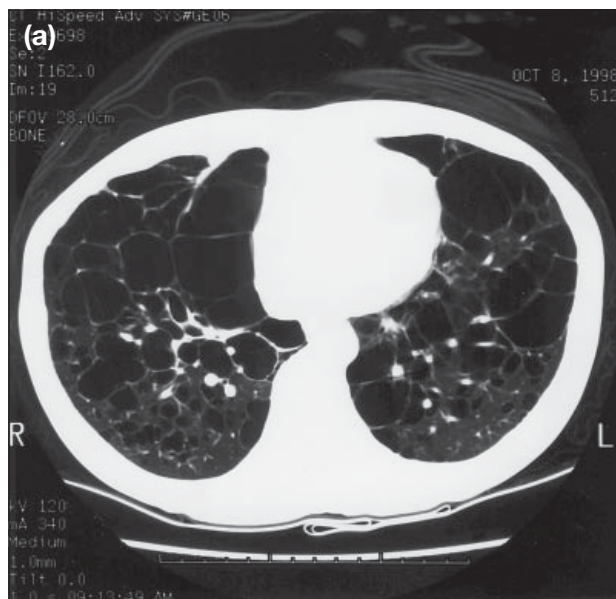
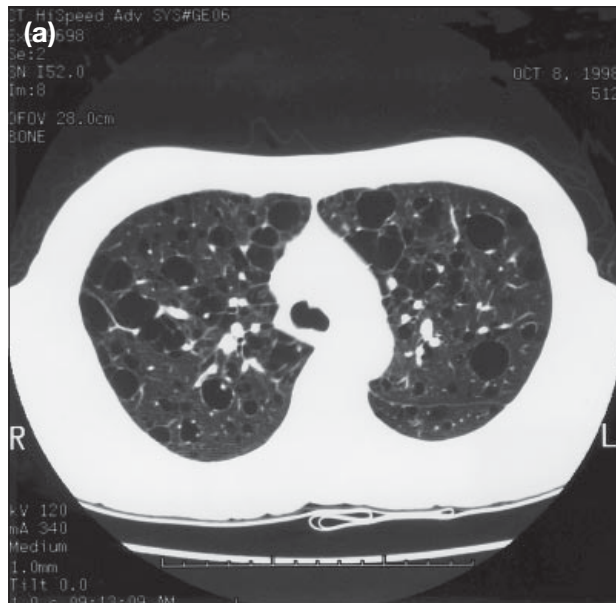


Figure 4. High-resolution computed tomograms of case 2 at (a) the upper level and (b) the lower level showing extensive cystic lung changes.

and many connective tissue diseases.¹² In NSIP, there is no apparent honeycomb formation on high-resolution CT scans.¹³ Open-lung biopsy is required to determine the nature of the disease.¹⁴

Case 3

A 48-year-old woman presented in September 2000 with a chronic cough. Her chest X-ray showed reticular shadowing at the lower zones of both lung fields, especially in the costophrenic angles (Figure 5). High-resolution CT showed fine intralobular septal thickening and honeycombing at the periphery of both lung bases, but no distinctive ground-glass opacity was

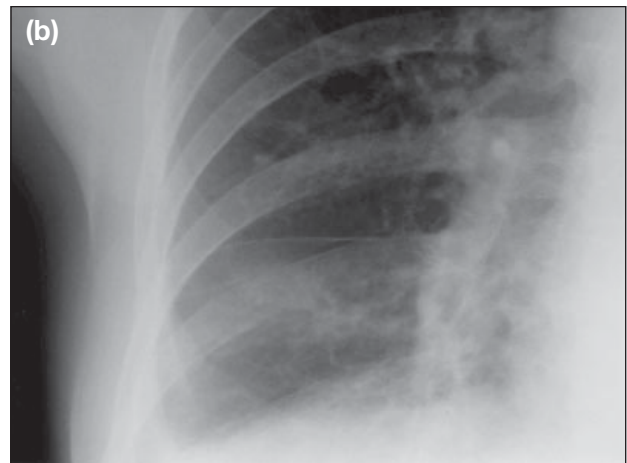


Figure 5. Chest X-ray of case 3 showing (a) close up view of the right costophrenic angle, and (b) reticular shadowing at the lower zones of both lung fields, especially at the costophrenic angles.

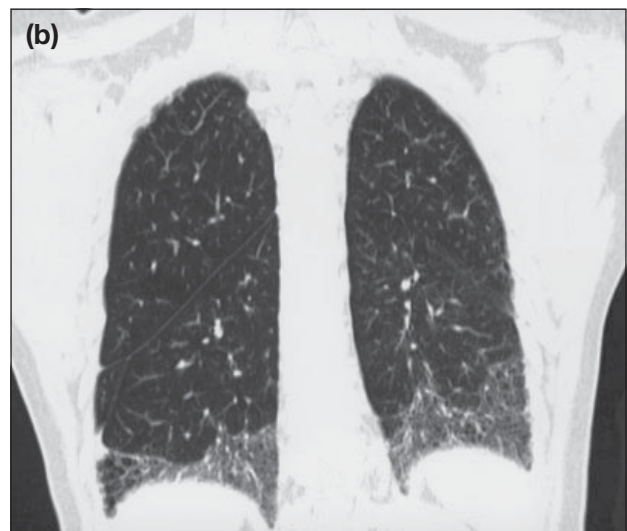
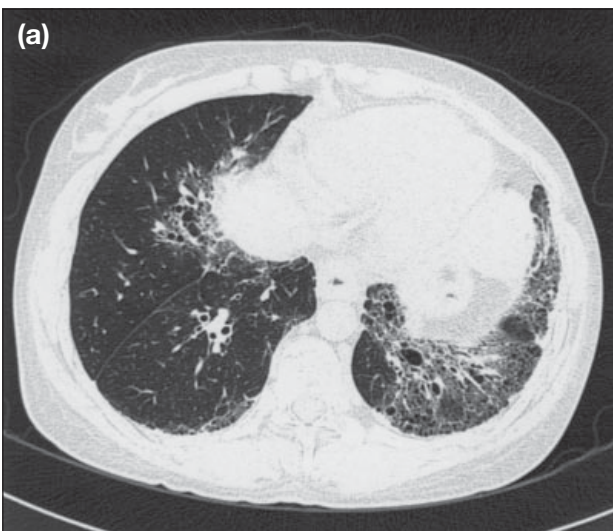


Figure 6. High-resolution axial computed tomograms of case 3 with (a) axial and (b) coronal views showing fine intralobular septal thickening and honeycombing at the periphery of both lung bases.

visible (Figure 6). Serological test results suggested a connective tissue disease. The patient was also confirmed to have keratoconjunctivitis sicca. Sjögren's syndrome was thus diagnosed. Lung function test results indicated restrictive-pattern disease and impaired gas transfer. The radiological test results suggested interstitial lung disease with fibrosis. Tissue examination confirmed the diagnosis of UIP. The patient was given steroid therapy, which resulted in minimal improvement.

DISCUSSION

Interstitial lung change in primary Sjögren's syndrome is common. It is due to lymphocytic infiltration of the lung parenchyma. The severity of the infiltrative process ranges from follicular bronchiolitis to lymphocytic interstitial pneumonia and, finally, fibrosis with honeycombing.³ Cystic or bullous lung change is another rare

complication of pulmonary involvement of Sjögren's syndrome.^{8,9} UIP and NSIP are other interstitial lung diseases described in the literature.

There is a wide variety of radiological features in interstitial lung disease of Sjögren's syndrome, and differentiation from one type from another or from other lung disease processes can be difficult. In such cases, tissue examination can be helpful. Performing a tissue examination is important also for patient management. Response to steroid treatment is observed in LIP.⁷ However, the presence of cystic lung changes and fibrosis with honeycombing are irreversible changes.^{1,15} Therefore, early identification can sometimes improve the prognosis.

Lymphoma (usually maltoma) may sometimes develop from LIP, although the frequency of conversion is

low.⁴ The presence of any mass-like lesion should raise the possibility of lymphoma.

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