14. A SEVERE CASE OF CONNECTIVE TISSUE DISEASE RELATED INTERSTITIAL LUNG DISEASE IN A YOUNG WOMAN

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Introduction: Interstitial lung disease (ILD) can occur in any connective tissue disease, with varying degrees of respiratory clinical manifestations. In the majority of cases, patients have an established connective tissue diagnosis that precedes the development of ILD by many years. This discussion will focus on the unusual presentation of an 18 year old female admitted with a short history of weight loss and breathlessness. Investigations showed extensive established ILD with strongly positive autoantibodies, but in the absence of clinical signs of an underlying connective tissue disorder apart from Raynaud's phenomenon.

Case description: 18-year-old female presented with a three-month history of unintentional 25kg weight loss, six weeks of fatigue/malaise, and a two-week history of worsening breathlessness. She was a student, non-smoker, with no past medical history except for class I obesity, and not on regular medications.

On examination she had fine bibasal end-inspiratory crackles, SaO2 96% RA and Raynaud's phenomenon was observed. Her CXR demonstrated bibasal consolidation. CT imaging identified bilateral symmetrical peripheral patchy ground glass opacities and patchy consolidation with basal predominance. Bloods revealed rheumatoid factor 491.2, anti-

RNP A ab 7.91, anti-Sm ab > 8 and anti-chromatin ab 7.3, speckled ANA positive titre of 40, Complement C4 0.08, ESR 29 and HIV negative. Pulmonary function tests demonstrated a restrictive pattern FEV1 2.08L (72%), FVC 2.43L (73%), Ratio 85% and reduced transfer factor - DLCO 41%, KCO 61%. Ambulatory oxygen assessment showed desaturation to 77% RA. Bronchoscopy revealed inflamed airways and a bronchoalveolar lavage (BAL) cell count of 0.6×10^6 - 42% macrophages, 32% neutrophils, 24% eosinophils, 2% lymphocytes.

At the local ILD MDT a differential diagnosis of LIP or NSIP was considered. Following discussion with rheumatology she was referred to the thoracic surgical team for lung biopsy. She proceeded to surgical biopsy of her right lung without complication. Unfortunately, she continued to experience worsening breathlessness and myalgia and she was commenced on prednisolone (40mg), with some radiological improvement but no symptomatic benefit.

The pathology from her lung biopsy demonstrated significant fibrosis with scattered lymphoid aggregates, microscopic honeycombing with multiple fibroblastic foci and diffuse changes, in keeping with a fibrotic NSIP pattern. Her case was discussed at Freeman Hospital Newcastle ILD MDT who advised that her presentation was in keeping with a mixed connective tissue/lupus-related NSIP, and suggested commencing methylprednisolone, cyclophosphamide and rituximab.

Discussion: On initial assessment, the patient's age and symptoms of rapid weight loss and profound exertional dyspnoea were concerning. Her resting oxygen saturations were satisfactory, but she became markedly hypoxic on ambulating short distances, indicating serious respiratory pathology. The initial CXR showed 'faint patchy consolidation', but CT scan showed extensive interstitial changes, accounting for her dyspnoea and desaturation on exertion.

Further investigations including rheumatoid factor, anti-RNP and anti-Sm antibody were found to be strongly positive, suggesting an underlying mixed connective tissue disorder. However, the patient did not complain of any symptoms related to arthritis, SLE, systemic sclerosis or polymyositis and no positive clinical findings were noted on examination in support of these diagnoses.

The BAL analysis was consistent with CT-ILD but not specific enough for diagnosis. A lung biopsy was performed on advice of the ILD lung MDT as the abnormalities on CT imaging could be in keeping with several pathologies with very different associated prognosis and management. The biopsy appearance correlated poorly with the cell count in BAL fluid.

Discussion at local and regional ILD MDTs was particularly helpful given the severity of ILD and her young age. The ILD MDT provided a consensus of expert advice on optimal management and confirmed our concern about the extent of established fibrosis and the need for aggressive management. This obviously has significant implications for the patient in many ways, but particularly regarding fertility given her young age and she was therefore referred to the regional fertility clinic for counselling.

Key learning points: This was a particularly unusual case because the patient presented acutely at a very young age with established fibrotic damage on lung biopsy. It is also noteworthy that she presented so acutely with advanced ILD even though there were no positive clinical signs on examination, and no symptoms or signs of an underlying connective tissue disease.

Lung biopsy is not routinely indicated in patients with progressive (respiratory) clinical manifestations of CT ILD, particularly in patients with an established diagnosis of rheumatoid arthritis or systemic sclerosis, as corticosteroids and/or immunosuppression are the mainstay of treatment regardless of the underlying CT pathology. However, lung biopsy is indicated where there is diagnostic uncertainty due to atypical presentations. In this case the biopsy findings were unexpected and resulted in a change to the initial management plan. Considerations about fertility and long term toxicity further complicated our choice of optimal therapy.

This was a challenging case and highlighted the importance of multidisciplinary management of complex ILD cases. Discussions between local rheumatology, radiology and respiratory clinicians led to the decision that a biopsy was necessary. Subsequently the ILD MDT in the Freeman hospital provided clear expert guidance on in favour of a more aggressive treatment regimen than may have been otherwise initially considered.

Conflict of interest: The authors declare no conflicts of interest.