

[EDITORIAL]

Interstitial Lung Disease Is a Possible Manifestation of Anti-signal Recognition Particle Antibody Syndrome

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Idiopathic inflammatory myopathies (IIMs) are a group of heterogeneous autoimmune disorders characterized by muscle weakness, elevated serum muscle enzymes, electromyographic abnormalities, and inflammation in skeletal muscles. Autoantibodies are identified as either myositis-associated autoantibodies (MAAs) or myositis-specific autoantibodies (MSAs) in more than 50% of patients with IIMs. It has been demonstrated that these MSAs/MAAs are extensively correlated with specific clinical characteristics of patients with IIMs.

Signal recognition particle (SRP) is a cytoplasmic RNA protein that plays an important role in regulating protein translocation across the endoplasmic reticulum membrane (1). Anti-SRP antibody was first reported by Reeves et al. in patients with typical polymyositis (PM) (2) and is found in the serum of approximately 10% of patients with PM/dermatomyositis (DM) (3). Furthermore, it has been shown that anti-SRP antibody is significantly associated with severe necrotizing myopathy, with patients rapidly developing progressive muscle weakness within months, and anti-SRP antibody is now recognized as a marker of a necrotizing myopathy (4).

Interstitial lung disease (ILD) is frequently associated with IIMs, and the prevalence is reported to range from 20-78% (5). Because ILD significantly contributes to the morbidity and mortality in patients with IIMs, it is important to clarify the clinical characteristics of ILD in such patients.

In this issue of Internal Medicine, Kusumoto et al. reported a patient with anti-SRP antibody in whom necrotizing myopathy developed after the onset of ILD. They administered immunosuppressive therapy and intravenous immunoglobulin, which were effective for ILD and myopathy (6). Although the frequency of ILD is considered low in patients with anti-SRP antibody, a recent study by Suzuki et al. analyzing 100 Japanese patients with the antibody

showed a relatively high frequency of up to 20% of ILD, which does not differ markedly from that of PM/DM (7). Those results showed the clinical significance of ILD in patients with anti-SRP antibody, as well as in those with other IIMs, such as antisynthetase syndrome (ASS).

ASS, an IIM with anti-aminoacyl-tRNA synthetase antibodies, including anti-Jo-1 antibody, is characterized by myositis, arthritis, and ILD, with or without Raynaud's phenomenon, a fever, or mechanic's hands. Recent evidence has shown that the frequency of ILD is high in ASS patients (70-95%) (8), and an isolated myositis, isolated arthritis, or ILD may occur in up to 50% of patients. Furthermore, the *ex novo* appearance of further manifestations during the follow-up is common among these patients (9). These results indicate that ASS can appear as isolated ILD, and a diagnosis of ASS should be considered even without myositis.

Merlo et al. recently proposed the term 'anti-SRP antibodies syndrome', which is a rare form of immune-mediated necrotizing myositis, clinically characterized by a sudden motor deficit, progressive muscle weakness, occasional cardiac involvement, and an increase in the levels of serum muscle enzymes (10). However, cardiac involvement has not been observed in large cohorts (7), and ILD has not been the focus in cases of anti-SRP antibodies syndrome.

Although there are few detailed reports on ILD in patients with anti-SRP antibody, the major computed tomography findings are ground glass attenuation, which is commonly bilateral and symmetrical with subpleural predominance, irregular linear, reticular opacities, and traction bronchiectasis (7). The histological findings are temporally homogeneous alveolitis and interstitial fibrosis (11). These are consistent with a non-specific interstitial pneumonia pattern. While no standard treatment for ILD has been established, immunosuppressive treatment, which is generally resistant to muscular lesions, is reported to be effective (12).

Since ILD significantly contributes to the morbidity and mortality in patients with anti-SRP antibodies syndrome, as well as other IIMs, it is necessary to clarify the detailed clinical characteristics of ILD in order to improve the prognosis of such patients.

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References

1. Rouster-Stevens KA, Pachman LM. Autoantibody to signal recognition particle in African American girls with juvenile polymyositis. *J Rheumatol* **35**: 927-929, 2008.
2. Reeves WH, Nigam SK, Blobel G. Human autoantibodies reactive with the signal-recognition particle. *Proc Natl Acad Sci USA* **83**: 9507-9511, 1986.
3. Mimori T, Imura Y, Nakashima R, Yoshifuji H. Autoantibodies in idiopathic inflammatory myopathy: an update on clinical and pathophysiological significance. *Curr Opin Rheumatol* **19**: 523-529, 2007.
4. Hengstman GJ, ter Laak HJ, Vree Egberts WT, et al. Anti-signal recognition particle autoantibodies: marker of a necrotizing myopathy. *Ann Rheum Dis* **65**: 1635-1638, 2006.
5. Hallowell RW, Danoff SK. Interstitial lung disease associated with the idiopathic inflammatory myopathies and the antisynthetase syndrome: recent advances. *Curr Opin Rheumatol* **26**: 684-689, 2014.
6. Kusumoto T, Okamori S, Masuzawa K, et al. Development of necrotizing myopathy following interstitial lung disease with anti-signal recognition particle antibody. *Intern Med* **57**: 2045-2049, 2018.
7. Suzuki S, Nishikawa A, Kuwana M, et al. Inflammatory myopathy with anti-signal recognition particle antibodies: case series. *Orphanet J Rare Dis* **10**: 61, 2015.
8. Douglas WW, Tazelaar HD, Hartman TE, et al. Polymyositis-dermatomyositis-associated interstitial lung disease. *Am J Respir Crit Care Med* **164**: 1182-1185, 2001.
9. Cavagna L, Nuño L, Scirè CA, et al. Clinical spectrum time course in anti Jo-1 positive antisynthetase syndrome: results from an international retrospective multicenter study. *Medicine (Baltimore)* **94**: e1144, 2015.
10. Merlo G, Clapasson A, Cozzani E, et al. Specific autoantibodies in dermatomyositis: a helpful tool to classify different clinical subsets. *Arch Dermatol Res* **309**: 87-95, 2017.
11. Kono M, Suda T, Kaida Y, Inui N, Nakamura Y, Chida K. A case of interstitial pneumonia with anti-signal recognition particle (SRP) antibody without myopathy. *Nihon Kokyuki Gakkai Zasshi (J Jpn Respir Soc)* **48**: 92-97, 2010 (in Japanese, Abstract in English).
12. Togawa R, Tanino Y, Nikaido T, et al. Three cases of interstitial pneumonia with anti-signal recognition particle antibody. *Allergol Int* **66**: 485-487, 2017.

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