CASE REPORT

Acute interstitial pneumonia as first presentation of anti-synthetase syndrome: an atypical case

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Abstract

Anti-synthetase syndrome is characterized by myositis associated with interstitial lung disease (ILD), the usual pattern of ILD being non-specific interstitial pneumonia type or usual interstitial pneumonia. We report a case of anti-synthetase syndrome presenting as acute interstitial pneumonia which is reported only once before. With this case, we emphasize the need to consider anti-synthetase syndrome even in patients presenting with acute onset ILD. Physicians should raise their index of suspicion in this clinical context as timely diagnosis, early treatment, and a multidisciplinary approach is paramount for optimal care of these patients.

INTRODUCTION

Anti-synthetase syndrome is a rare condition characterized by myositis associated with interstitial lung disease (ILD). It can occur in up to a third of patients with dermatomyositis or polymyositis. The pattern of ILD is commonly non-specific interstitial pneumonia (NSIP) type or usual interstitial pneumonia (UIP). We report a case of anti-synthetase syndrome presenting as acute interstitial pneumonia (AIP).

CASE PRESENTATION

We present the case of a 42-year-old school teacher of Malaysian origin. She was an ex-smoker. She had a history of asthma with no previous intensive care unit (ICU) stay or hospitalizations and minimal need for Salbutamol inhaler.

She presented to the emergency department (ED) with a 3-week history of cough productive of white sputum and 1-day history of fever. She had dyspnoea on exertion. She denied any recent travel or sick contacts. She had no myalgia or arthralgia on presentation. There was no family history of malignancy, arthritis or autoimmune illness.

At ED triage, she was noted to have a temperature of 39.1°C, heart rate (HR) of 123 bpm (beats per minute) and blood pressure of 96/50 mmHg. Examination revealed bilateral lung crepitations up to mid zone with no rhonchi. She had no pedal oedema.

Her neurological exam did not reveal any focal central nervous system deficit. She was lethargic but her muscle power was at least 3/5.

She required 100% oxygen via facemask to maintain transcutaneous oxygen saturation (SpO₂) of 96%. Her initial blood gas showed a pH of 7.474, pCO₂ 34.7, pO₂ 63.9 and HCO₃ 24.9. Her repeat arterial blood gas P/F (partial pressure of oxygen/fraction of inhaled oxygen) ratio was 78.6. She was transferred to the Medical ICU where she underwent elective endotracheal intubation.

Diagnosis at the time of presentation was community-acquired pneumonia. However, despite adequate antibiotic therapy, she continued to require high-oxygen support. No organisms were isolated from blood and sputum cultures. Procalcitonin was within normal range at 0.16.

Computerized tomography (CT) of thorax with contrast was performed (please see Fig. 1A and B).
Given the lack of clinical improvement, we investigated for an underlying autoimmune disease. Extracted nuclear antigen profile revealed a strongly positive anti-Jo1 antibody, positive Anti-Ro antibody and indeterminate Anti-La antibody. Creatinine kinase was greater than 4100 [38–164 U/l normal range].

We administered pulsed intravenous (IV) methylprednisolone 1000 mg every day for 3 days, followed by IV hydrocortisone. The patient showed a dramatic improvement and was successfully extubated.

She subsequently completed six cycles of IV Cyclophosphamide (1500 mg each cycle, every 3–4 weekly) and was continued on 1 gram twice daily of mycophenolate mofetil as maintenance therapy.

Her prednisolone dose was slowly down titrated from 30 mg twice daily to 7.5 mg every morning over the next year.

A repeat CT scan of chest, 6 months post-discharge showed that most of the consolidation and ground-glass opacities seen on the previous scan had resolved, with residual foci of atelectasis-consolidation and scarring in the middle lobe, lingula and both lower lobes.

Our patient underwent a multidisciplinary rehabilitation programme including teams from physiotherapy, speech and occupational therapy.

She returned to full-time work with no need for long-term oxygen therapy.

**DISCUSSION**

Dermatomyositis (DM) and polymyositis (PM) are idiopathic inflammatory myopathies characterized by proximal skeletal muscle weakness and inflammation. The clinical and serologic features of DM and PM differ among affected individuals and populations. The immune mechanisms and anatomic focus of injury within the muscle tissue in PM and DM also appear dissimilar [1].

Up to 30% of patients with DM or PM have a pattern of clinical findings coined as the ‘Anti-Synthetase syndrome’. These findings include relatively acute disease onset, constitutional symptoms, myositis, Raynaud phenomenon, non-erosive arthritis and ILD [2]. ‘Mechanic’s hands’ is characterized by erythematous and fissured hyperkeratosis on the palmar or lateral aspect of the fingers. It is a highly specific clinical sign, present in 28% of patients carrying anti-synthetase antibodies [3].

The trademark feature of anti-synthetase syndrome is antibodies against aminocacyl-transfer RNA synthetase, of which the most common is the anti-Jo-1 antibody which is present in nearly 80% of cases [2]. Other well-recognized antibodies are anti-PL-7 (anti-threonyl-tRNA synthetase) and anti-EJ [4].

ILD occurs in anti-synthetase syndrome in up to 80–90% of cases. It is considered to be the most important prognostic indicator. Antibody testing should be considered in all patients with ILD, as the clinical presentation of anti-synthetase syndrome is often non-specific in early disease [5]. ILD can precede (10–30%), concur (53–70%) or follow (6–20%) the onset of myositis [6]. The patterns of ILD in patients with anti-synthetase syndrome include the NSIP pattern, UIP pattern, OP (organizing pneumonia) pattern and the acute interstitial pneumonia pattern. NSIP seems to be the most common ILD pattern, whilst AIP is perhaps the rarest [7].

AIP is synonymous with Hamman–Rich syndrome. It is defined as a rapidly progressive respiratory failure occurring in patients without pre-existing lung disease or extrathoracic diseases known to be associated with lung involvement. The outcome is often fatal [8]. High-resolution CT (HRCT) is the imaging technique of choice to characterize the pattern and distribution of disease. In AIP, HRCT findings include diffuse patchy ground-glass opacification with a lower lobe and sub-pleural predominance, peri-bronchial consolidations, reticular change and fine nodularity.

Our patient had an atypical presentation of anti-synthetase syndrome; she lacked evidence of Raynaud phenomenon, hyperkeratosis and arthritis. She also developed the less commonly associated ILD pattern, AIP. Although she presented with rapidly progressive respiratory symptoms, she thankfully responded well to immunosuppression.

In conclusion, we emphasize the need to consider anti-synthetase syndrome in patients presenting with acute onset ILD, despite pattern type. Timely diagnosis, early treatment and a multidisciplinary approach are vital for optimal care of these patients.

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CONFLICT OF INTEREST STATEMENT
None declared.

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ETHICAL APPROVAL
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CONSENT
Written informed consent was obtained from the patient for publication of this case report and accompanying images.

GUARANTOR
Dr Jan, Kalimullah (corresponding author).

REFERENCES
1. Dalakas M, Hohlfeld R. Polymyositis and dermatomyositis. The Lancet 2003;362:971–82.
2. Katzap E, Barilla-LaBarca M, Marder G. Antisynthetase syndrome. Curr Rheumatol Rep 2011;13:175–81.
3. Lega J, Fabien N, Reynaud Q, Durieu I, Durupt S, Dutertre M, et al. The clinical phenotype associated with myositis-specific and associated autoantibodies: a meta-analysis revisiting the so-called antisynthetase syndrome. Autoimmun Rev 2014;13:883–91.
4. Solomon J, Swigris J, Brown K. Doença pulmonar intersticial relacionada a miosite e a síndrome antissintetase. J Bras Pneumol 2011;37:100–9.
5. Mielnik P, Wiesik-Szewczyk E, Olesinska M, Chwalinska-Sadowska H, Zabek J. Clinical features and prognosis of patients with idiopathic inflammatory myopathies and anti-Jo-1 antibodies. Autoimmunity 2006;39:243–7.
6. Labirua-Iturburu A, Selva-O’Callaghan A, Vincze M, Dankó K, Vencovsky J, Fisher B, et al. Anti-PL-7 (anti-threonyl-tRNA synthetase) antisynthetase syndrome. Medicine 2012;91:206–11.
7. Johnson C, Connors G, Oaks J, Han S, Truong A, Richardson B, et al. Clinical and pathologic differences in interstitial lung disease based on antisynthetase antibody type. Respir Med 2014;108:1542–8.
8. Olson J, Colby T, Elliott C. Hamman-rich syndrome revisited. Mayo Clin Proc 1990;65:1538–48.