Four Cases of Anti-PM/ScI Antibody-positive Juvenile Overlap Syndrome with Features of Myositis and Systemic Sclerosis

LAMPROS FOTIS, KEVIN W. BASZIS, ANDREW J. WHITE and ANTHONY R. FRENCH

J Rheumatol 2016;43;1768-1769
http://www.jrheum.org/content/43/9/1768

1. Sign up for TOCs and other alerts
   http://www.jrheum.org/alerts

2. Information on Subscriptions
   http://jrheum.com/faq

3. Information on permissions/orders of reprints
   http://jrheum.com/reprints_permissions

*The Journal of Rheumatology* is a monthly international serial edited by Earl D. Silverman featuring research articles on clinical subjects from scientists working in rheumatology and related fields.
Four Cases of Anti-PM/Scl Antibody-positive Juvenile Overlap Syndrome with Features of Myositis and Systemic Sclerosis

To the Editor:

Overlap syndromes of systemic sclerosis (SSc)/myositis are rare and have primarily been described in adults. Relatively few cases of childhood SSc/myositis overlap have been reported. In our case series, 4 patients diagnosed with juvenile overlap syndrome of myositis with SSc are described (Table 1). All 4 cases were positive for anti-PM/Scl antibodies, and he was diagnosed with overlap SSc/myositis syndrome. One year after diagnosis, he had substantial improvement in his functional ability while receiving therapy, but not complete symptom resolution.

Patient 2 was an African American female diagnosed with juvenile dermatomyositis (JDM) at age 6 when she presented with a 5-month history of arthralgias, proximal muscle weakness, heliotrope rash, periangual telangiectases, and Gottron papules. She experienced remission in the first year, and treatment was discontinued but later resumed owing to recrudescence of her disease. At age 9, despite ongoing treatment, she gradually developed limited range of motion of her wrists with skin tightness and thinning of the subcutaneous digital tissue, raising suspicion for an overlap syndrome with SSc. She frequently experienced livedo reticularis, but not RP. Six years after initial diagnosis, myositis antibody profile was positive for anti-PM/Scl antibodies. Clinical remission was subsequently achieved, despite residual limited range of motion of her wrists and mild sclerodactyly. Treatment was discontinued at age 14. She had 7 years of followup after treatment discontinuation and remained asymptomatic.

Patient 3, a white female, was diagnosed with JDM at age 4 at an outside institution when she presented with proximal muscle weakness, elevated muscle enzymes, and characteristic rash. Her disease was complicated by calcinosis of her fingers and hands. She was transferred to our institution at age 12 and subsequently developed sclerodactyly and skin tightness around her mouth, raising concern for an overlap syndrome. At age 14, she tested positive for anti-PM/Scl antibodies, and her diagnosis was modified to overlap SSc/myositis. Her disease was resistant to treatment with intravenous immunoglobulin for 8 months [used in addition to methotrexate (MTX) and prednisone]. She received a course of rituximab, with eventual control of her symptoms. At age 17, she self-discontinued treatment. In followup 2 years later, she was doing well with only mild RP and residual sclerodactyly.

Patient 4, an African American female, was diagnosed with JDM at age 8 at an outside institution when she presented with muscle weakness, elevated muscle enzymes, Gottron papules, and a heliotrope rash. Her disease course was complicated by cataracts and glaucoma secondary to her steroid therapy. When she was transferred to our institution at age 11, her disease was clinically well controlled and her MTX was decreased. She subsequently developed bilateral parotid swelling (with nodularity and calcification of her subcutaneous digital tissue, raising suspicion for an overlap syndrome with SSc). At age 14, she tested positive for anti-PM/Scl antibodies. Clinical remission was subsequently achieved, despite residual limited range of motion of her wrists and mild sclerodactyly. Treatment was discontinued at age 17. She had 6 years of followup after treatment discontinuation and remained asymptomatic.

Table 1. Four pediatric patients with SSc/myositis overlap syndrome.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3*</th>
<th>Patient 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis and presenting symptoms</td>
<td>8 y/o M: Hand swelling and contractures, sclerodactyly, faint Gottron papules, rash, elevated muscle enzymes</td>
<td>6 y/o F: Heliotrope rash, Gottron papules, proximal muscle weakness, elevated muscle enzymes, periangual telangiectases, arthritis</td>
<td>4 y/o F: Proximal muscle weakness, elevated muscle enzymes, rash</td>
<td>8 y/o F: Heliotrope rash, Gottron papules, proximal muscle weakness, elevated muscle enzymes</td>
</tr>
<tr>
<td>Timing and manifesting symptoms suggestive of an overlap syndrome</td>
<td>3 yrs after diagnosis</td>
<td>3 yrs after diagnosis</td>
<td>9 yrs after diagnosis</td>
<td>3 ½ yrs after diagnosis</td>
</tr>
<tr>
<td>Laboratory tests</td>
<td>Aldolase 22.7 u/l, CK 343 u/l, ANA 1:640 (nuclear), anti-Scl-70 (+), ENA panel (+), anticientromere (+), anti-PM/Scl+ by S-35 immunoprecipitation (obtained at diagnosis)</td>
<td>Aldolase 20 u/l, CK 519 u/l, ANA 1:2560 (speckled), anti-Scl-70 (+), ENA panel (+), anticientromere (+), anti-PM/Scl+ by immunodiffusion and S-35 immunoprecipitation (obtained 3 yrs after diagnosis)</td>
<td>Aldolase 1:160 (nuclear), anti-Scl-70 (borderline), ENA panel (+), anti-PM/Scl+ by immunodiffusion and S-35 immunoprecipitation (obtained 10 yrs after diagnosis)</td>
<td>Aldolase 6.9 u/l, CK 2354 u/l, ANA 1:2560 (speckled), anti-Scl-70 (+), ENA panel (+) by S-35 immunoprecipitation, anti-PM/Scl+ by immunodiffusion (obtained 4 yrs after diagnosis)</td>
</tr>
<tr>
<td>Treatment</td>
<td>PRED 2 mos, MTX 7 mos, MMF 1 yr</td>
<td>PRED 31 mos, MTX 24 mos, LEF 3 yrs</td>
<td>PRED many yrs, MTX many yrs, IVIG 8 mos, RTX 4 infusions</td>
<td>PRED 30 mos, MTX 7 yrs, HCQ 3 mos</td>
</tr>
<tr>
<td>Yrs of followup and current status</td>
<td>1.6 yr of followup, currently receiving MMF treatment</td>
<td>15 yrs of followup, received treatment for 8 yrs and remained in remission without treatment for 7 yrs</td>
<td>15 yrs of followup, received treatment for 13 yrs and remained in remission without treatment for 2 yrs</td>
<td>8 yrs of followup, received treatment for 6 yrs and remained in remission without treatment for 1 yr</td>
</tr>
</tbody>
</table>

* Patient 3 was cared for at an outside institution for 8 years before transferring care to our institution, and less detailed records are available regarding her diagnosis and treatment during that period (including specific aldolase and CK values). SSc: systemic sclerosis; CK: creatine kinase; ANA: antinuclear antibodies; ENA: extractable nuclear antigen (containing anti-SSA, anti-SSB, anti-Sm/RNP, and anti-RNP antibodies); PRED: prednisone; MTX: methotrexate; MMF: mycophenolate mofetil; LEF: leflunomide; IVIG: intravenous immunoglobulin; RTX: rituximab; HCQ: hydroxychloroquine; PM: polymyositis; Scl: scleroderma.
The presentation of mild myopathy and sclerotic features only later in the disease course favors the diagnosis of SSC/myositis overlap. Although antibodies are not included in the JDM diagnostic criteria, they frequently provide prognostic and clinical insight into the disease. Early recognition of antibodies may affect management, lead to an increased level of suspicion in regard to new symptoms, and allow diagnostic intervention and appropriate therapy before disease progression. Based on acquired experience, our center routinely obtains myositis-associated and myositis-specific antibodies in patients with JDM or SSC.

Overlap SSC/myositis has a relatively good prognosis because of the typically mild myositis and good response to corticosteroids. In our 3 patients with longer followup (an average of nearly 13 yrs), symptom control and eventually clinical remission were achieved (with normal muscle enzyme levels, normal muscle strength, and resolution of the JDM-associated rash), supporting a relatively favorable outcome.

Overlap SSC/myositis syndrome is a rare entity in adults and rarer still in childhood and adolescence. It is associated with the presence of anti-PM/ScI antibodies and features of SSC and dermatomyositis. In our case series of 4 pediatric patients, we highlight the key involvement of anti-PM/ScI antibodies in establishing the diagnosis and provide some evidence for a relatively good longterm prognosis, demonstrated by the achievement of disease remission in the 3 patients with lifelong followup.

LAMPROS FOTIS, MD, PhD. Department of Pediatrics, Washington University in St. Louis School of Medicine; KEVIN W. BASZIS, MD. Department of Pediatrics, Washington University in St. Louis School of Medicine; ANDREW J. WHITE, MD. Department of Pediatrics, Washington University in St. Louis School of Medicine; ANTHONY R. FRENCH, MD, PhD. Department of Pediatrics, Washington University in St. Louis School of Medicine, St. Louis, Missouri, USA. Address correspondence to Dr. L. Fotis, Pediatrics, Washington University in St. Louis School of Medicine, One Children’s Place, St. Louis, Missouri 63110-1010, USA. E-mail: Fotis_l@kids.wustl.edu

REFERENCES