Lesion A of Patient 1 before sodium thiosulfate intralesional therapy administered via fractionated CO$_2$ laser was a 29-year-old Caucasian female diagnosed with JDM at age 16, taking IVIG, methylprednisolone, and mycophenolate mofetil. Both her target lesion (on left) and after therapy (right). Assessment of photographs performed by blinded investigator. Noticeable changes are seen in the texture and size of the lesion. After therapy, there was an increase in the pliability of the skin, less induration and tethered scarring.

**Table I. Assessing changes to calcinosis lesions and myositis disease activity before and after sodium thiosulfate laser therapy.**

<table>
<thead>
<tr>
<th>Patient</th>
<th>calcinosis</th>
<th>myositis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial total score</td>
<td>Final total score</td>
<td>Percent change</td>
</tr>
<tr>
<td>Patient 1</td>
<td>0.24</td>
<td>4.1</td>
</tr>
<tr>
<td>Patient 2</td>
<td>0.18</td>
<td>0.16</td>
</tr>
</tbody>
</table>

*For the calcinosis lesions, lesion A was the lesion treated with laser sodium thiosulfate and lesion B was observed without treatment.
the left hip) and her control lesion (on the left anterior thigh) appeared as erythematous indurated plaques with bound-down scarring. After seven FCO2/STS treatments to the target lesion, the texture and pliability of the skin over the area of calcinosis improved (Fig. 1). There was also greater improvement of the PCVAS and durometer measurements of the target lesion compared to the control lesion. Additionally, her DLQI score and HAQ significantly improved, and she was able to discontinue her pain regimen (tramadol, oxycodone, and gabapentin).

Patient 2 was a 64-year-old Caucasian female with a 21-year history of DM taking prednisone, IVIG, and hydroxychloroquine. After six FCO2/STS treatments to the target lesion on the left upper gluteal area, she had improvement in calcinosis lesion size, skin texture, and PCVAS measurements. Compared to her control lesion, there was less percentage increase in durometer measurement of the treated lesion.

For both patients, radiographic plain films of both lesions demonstrating subcutaneous soft tissue calcifications remained unchanged throughout the study. All other assessments showed no significant improvement from baseline (Table I). No adverse events occurred during treatment.

Overall, our findings demonstrate a proof-of-concept that FCO2 assisted delivery of STS may have beneficial effects on calcinosis and its sequelae. Additionally, we demonstrated the utility of several outcome measures that may be helpful in future calcinosis therapeutic trials. To our knowledge, there are no studies evaluating the effect of FCO2 laser alone on calcinosis lesions. Further research comparing laser assisted drug delivery of STS to topical STS alone is warranted to fully investigate which therapeutic agent demonstrates greater efficacy in improvement of calcinosis lesions.

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