BRIEF ARTICLE

Calcinosis Cutis: Case Report Of Topical Sodium Thiosulfate (STS) Treatment In The Context Of Dermatomyositis

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ABSTRACT

A 44-year-old woman with dermatomyositis had multiple painful calcinosis cutis lesions that were affecting her daily living. Many tests and labs were run to assess the severity and the progression of these lesions. Multiple treatment options were tried and failed before, leading to an introduction of topical sodium thiosulfate. The topical formula provided a great decrease in pain and discomfort for the patient. This led to the patient never needing injectable treatment that would have caused more pain both physically and emotionally.

INTRODUCTION

Calcinosis cutis (CC) results in calcium salts precipitating in the skin and subcutaneous tissue. This buildup results in a firm, white to yellow papules and plaques that can result in pain. In this case, the patient had a diagnosis of dermatomyositis which later led to the development of CC. Dermatomyositis is an autoimmune process that damages the skin and leads to calcium buildup, eventually resulting in CC. Dermatomyositis is an idiopathic inflammatory myopathy with characteristic cutaneous manifestations. Calcinosis is an extremely painful skin condition that causes impairment in daily tasks for many patients affected. A standard treatment method is an injection of the lesions with sodium thiosulfate (STS). While this injection can often be effective in symptom relief, it tends to be extremely painful for the patient during administration. This case report discusses a patient with dermatomyositis with painful CC that was treated successfully with topical STS.

CASE REPORT

The patient is a 44-year-old who had been followed in our interdisciplinary rheumatology-dermatology outpatient clinic at Los Angeles County +USC Medical Center (LAC+USC) since May 2018. The patient initially presented with photodistributed poikiloderma on the lateral face, upper chest, forearms, nail fold capillary changes, violaceous papules on dorsal hands, and a poorly demarcated violaceous patch with epidermal atrophy on her Left(L) breast. Patient had an extensive workup, including bloodwork, CT of the chest, and two separate biopsies (two of the L breast and one of the poikiloderma plaque on her Right(R) arm). Blood work returned +ANA 1:80, and negative for remainder of labs including ds-DNA, SSa, SSb, anti-Jo, Scl-70, anti-centromere and myomarker panel. CT chest found patchy ground-glass opacities. Both skin biopsies showed interface dermatitis with increased dermal mucin. L breast biopsy

also showed microcalcifications consistent with calcinosis cutis. With the constellation of cutaneous findings, interface dermatitis/increased dermal mucin on biopsies, proximal muscle weakness, and CT chest showing ground glass opacities, the patient was diagnosed with dermatomyositis with evidence of CC. Throughout the patient's treatment course, she had been tried on prednisone, mycophenolic acid, gabapentin, diltiazem, topical hydrocortisone, and topical triamcinolone. She had various responses to her treatment modalities but continued to have significant discomfort and pain in her CC on her L breast. At a later visit, she also presented with two new indurated areas on the abdomen and back, which were thought to be morphologically consistent with CC. However, the CC on the breast provided the most bothersome to the patient. She noted that her breast tenderness was an 8/10 in intensity and was limiting her sleep and her activities of daily living. The patient was offered STS injections multiple times to help treat the CC, but she was very hesitant about the idea of injecting in an area that is already causing her significant pain and discomfort. Our clinical team had noted some previous studies had shown benefits to providing STS in a topical application.[5,6] This idea was offered to the patient with the possibility that topical cream may not help. If topical STS failed, our next step in treatment would be administering the same medication in intralesional form. After a thorough review of prior studies, a mixture of STS with Vaseline in a 1:1 ratio was created and stored in a sterile urine cup. The patient was instructed to apply the mixture to the CC lesion on the L breast once a day until her follow-up appointment. A month later, the patient reported significant improvement in pain of her L breast CC lesion on a follow-up visit. The lesion remained firm to touch on an exam, but the patient said she could sleep without pain. The patient stated that her pain, which was an 8/10, came down to 1/10 since her last visit. She reported significant improvement in her daily life activities and quality of life. She requested more topical STS solutions and never required intralesional injections of STS of her CC lesions after the two month treatment.

DISCUSSION

Calcinosis cutis is a severe condition that burdens the daily life of the patients affected by it. Although injection of STS is a common form of treatment, it often leaves many patients uncomfortable.[1] The combination of STS 25% with Vaseline has been shown to improve calcinosis cutis in patients with an underlying autoimmune connective tissue disease.[3] The treatment of calcinosis cutis is widely variable from case to case due to the rarity of the condition. Other beneficial treatment options include warfarin, bisphosphonates, minocycline, ceftriaxone, diltiazem, and aluminum hydroxide.[1] One case states that a 67 y/o woman with limited scleroderma (CREST syndrome) for 20 years was diagnosed with calcinosis cutis on her fingertip.[2] The patient was given topical STS 20% that was petrolatum base. In 2 months of treatment using the topical STS, the calcinosis cutis went from 3x3 to 1x1 mm.[2] After 3 years, the patient's calcinosis cutis was healed and associated with a very small hyperkeratotic papule.[2] In another study a 12 y/o patient with familial tumoral calcinosis syndrome presented with large subcutaneous calcification on his L elbow.[3] This calcification limited the mobility of the elbow. The patient was then treated with topical STS dispersed in Galen's cerate.[3] The patient applied 1.5 gm of the treatment locally for 6 months and during this time the patient noticed waning of the mass and no adverse effects were noted.[3] In a retrospective study

with three patients with hyperphosphatemic familial tumoral calcinosis and hyperphosphatemia hyperostosis syndrome. These three patients were each treated with topical STS after all other treatment options failed.

CONCLUSION

The result of the study was a significant clinical and radiological decrease in the calcifications in each patient.[4] We would like to add our case to the current literature as a successful case where symptoms of CC were alleviated with topical STS.

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