

## Case Report

# Is it Gottron's Sign or Something Else?

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## Keywords

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## Abstract

Our report summarizes the case of a girl presenting with symptoms suggestive of dermatomyositis after environmental exposure during Hurricane Harvey. Her symptoms were later diagnosed as contact dermatitis secondary to playing with slime, a substance sweeping the nation as a common toy. Given the increased exposure to slime in pediatric populations, we believe our report will appeal to pediatricians seeking more information about the effects of playing with slime and its possible sequelae. Our report will provide insight into ingredients used in various slime formulations as well as possible findings on physical exam. We were unable to find any reports concerning slime in review of current literature, but we did find a significant number of news reports pertaining to symptoms experienced in the pediatric population including but not limited to rashes, burns, and headaches.

## INTRODUCTION

A 10-year-old girl was brought to clinic with a persistent rash. Two weeks prior to the visit she spent four hours in ankle deep water evacuating her home after Hurricane Harvey; the rash developed later that day. The patient had been unable to come sooner because of clinic closure and loss of the family vehicle in the flood. She described the rash as painful and pruritic; worse when exposed to warm water or sunlight. There was no history of fever or muscle weakness. Her mother and brother had similar symptoms. On examination she had erythematous macular lesions distributed on the exposed areas of her cheeks, arms, legs, hands, knuckles, and fingertips. All were diagnosed with contact dermatitis and advised to use a low-potency over-the-counter steroid cream and emollients as needed.

Two weeks later the patient returned with worsening of the rash; the mother and brother were asymptomatic. However, the rash was now only on the hands and the joints had become painful and slightly swollen. She was prescribed triamcinolone, a mid-potency steroid cream, and emollients twice a day. A week later, she returned with continued itching, pain, and increased redness and swelling of the knuckles and fingertips (Figure 1). Review of the family history revealed vitiligo in a maternal aunt and multiple sclerosis in a maternal great aunt. She was referred to dermatology for further evaluation. Later that week the mother called to report the patient had bilateral knee pain and difficulty climbing stairs.

## DISCUSSION

The differential diagnosis of rash and muscle weakness is shown in Table (1). Because of the rash on the knuckles, the

erythematous nailbeds, the reported difficulty climbing stairs, and the patient's family history of autoimmune disorders, Juvenile Dermatomyositis (JDM) was a concern. JDM is a rare systemic autoimmune disease which is believed to develop as a result of an environmental trigger in a genetically predisposed individual. The hallmarks are skin manifestations and inflammation of muscle. Although the skin involvement in JDM may antedate muscle involvement for months or years, it can exist with only skin involvement which is known as dermatomyositis sine myositis [1]. JDM affects females twice as often as males and usually presents between 4 and 10 years of age [2]. In addition to an increased risk with a family history of autoimmune disease, an association with emotional stress and heavy muscular exertion within the preceding 12 months exists [3,4]. Diagnostic criteria include two pathognomonic rashes, a heliotrope rash (periorbital edema with rash on the upper eyelids) and Gottron's papules (papulosquamous lesions on the extensor surface of the knuckles, knees, and elbows) along with telangiectasia of the nailbeds, proximal symmetrical muscle weakness, elevated muscle enzymes, and denervation or myopathic changes on electromyography (EMG) [5,6]. When three criteria are present, the diagnosis is probable; with four, it is definite. The abnormal EMG findings are nonspecific to dermatomyositis but suggest that the patient has some form of the myopathy. Expected findings include but are not limited to low-amplitude polyphasic motor unit potentials of a short duration, spontaneous fibrillations, and complex repetitive discharges [7]. EMG and biopsy may not be necessary and reliance on clinical features may be sufficient for the diagnosis [5,6]. The symptoms and signs connected with JDM are similar to those observed in adult patients with dermatomyositis [6]. However, the onset is typically

more acute and frequently begins with skin manifestations followed by muscle weakness. Children also have calcinosis, the abnormal deposition of insoluble calcium salts within the skin, subcutaneous tissue, myofascia, or muscle [8]. They are also at risk for inflammation of blood vessels (vasculitis) [9,10]. In those with gastrointestinal vasculitis abdominal pain may be a prominent finding [11]. Children may also develop a tiptoe gait secondary to a stiffening of the ankles. Unlike adults, malignancy and interstitial lung disease are rarely associated with JDM.

At the dermatologist's visit, the patient's father mentioned that she enjoyed playing with 'slime'. Their homemade recipe included glue, detergent, and a contact lens solution. She was diagnosed with contact dermatitis and prescribed a Clobetasol 0.05% ointment, a super high-potency steroid, and emollients twice a day and advised to stop handling slime. Slime, a viscous, Jello-like, often brightly-colored material has been growing in popularity among children across the U.S. and myriads of homemade recipes are available online. Common ingredients are listed in Table (2).

Although the authors were unable to find any scientific literature on slime, news stories suggest a link between slime and headaches, congestion, or even ailments as severe as third-degree burns [12,13]. Although our patient's rash was initially treated with steroid creams and emollients, it only resolved after treatment with a super high-potency steroid cream, emollients, and the avoidance of slime. At a return visit the knee pain was



**Figure 1** Showing increased redness and swelling of the knuckles and fingertips.

	Diagnosis	Symptom complex
1	Systemic Lupus Erythematosus	Rash, myalgia, joint pains
2	Systemic Juvenile idiopathic arthritis	Fever, rash (evanescent), joint pains.
3	Psoriatic Arthritis	Rash, joint pains
4	Systemic sclerosis	Raynaud's phenomenon, puffy swollen hands, skin changes.
5	HIV associated myopathies	Fever, arthralgia, myalgia, rash.
6	Parvovirus B19	Preceding fever, rash on cheeks, joint pain/swelling
7	Trichinella	Nausea, diarrhea, abdominal cramps, muscle pain, rash, fever.

Compound	Ingredients
1. Borax	Partially dehydrated decahydrate crystals from sodium borate, sodium tetraborate or disodium tetraborate and other closely related minerals chemical compounds.
2. Glue	Mainly water and other compounds either natural (e.g. flour, corn starch) or synthetic (e.g. polyvinyl acetate).
3. Food coloring	Multiple depending on color
4. Corn starch	Endosperm of corn/maize kernel
5. Vegetable oil	Triglyceride extracts from different plants.
6. Baking soda	Sodium bicarbonate.
7. Contact lens solution	Hydrogen peroxide, Benzyl alcohol, Edentate disodium, Polyaminopropyl biguanide, Chlorhexidine gluconate.

diagnosed as Osgood-Schlatter disease which is characterized by pain, swelling, and enlargement of the proximal tibia at the site of the patellar tendon's insertion. Anti-inflammatory agents were recommended and her symptoms resolved over the next few weeks [14].

Our patient's history and physical findings nicely illustrated Hickam's dictum "Patients can have as many diseases as they damn well please" rather than Occam's razor "When diagnosing a given injury, ailment, illness, or disease a doctor should strive to look for the fewest possible causes that will account for all the symptoms".

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