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CASE REPORT

Post vaccination morphea in a child

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Abstract:

Morphea also termed as localized scleroderma is a rare, chronic skin condition. It is classified into five types. The etiology and pathogenesis is largely unknown but a variety of triggers have been implicated as predisposing factors, including local trauma. There have been a few case reports about the possible association of immunization and subsequent development of morphea. We present a child in whom we believe, the lesions of morphea occurred after routine childhood immunization.

Keywords: Morphea, vaccination, child

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Introduction

Morphea is a chronic and uncommon skin disorder of undetermined but possibly multifactorial etiology. The condition is also termed localized scleroderma and is characterized clinically by fibrosis of skin and subcutaneous tissue. Although a few causative factors have been reported to be associated with morphea in children, the data is sparse regarding injections and/or immunization and the subsequent development of morphea. We present a case where the diagnosis of morphea was made in a temporal and anatomical association with routine childhood vaccination.

Case Report

A 7 year old African American female presented to the pediatric clinic with “knots” on her right thigh (figure 1). As per the mother’s history, the lesions had progressed in size from small spots that initially looked like “bruises” to larger lesions that felt hard and became discolored. There were no apparent symptoms of pain or pruritus at any time. The child had not

experienced any known physical trauma or bites. No similar or any other skin lesions were noted elsewhere on the body. On examination, the largest lesion was an indurated 1.5 cm diameter circular plaque with a shiny surface of sclerotic and atrophic skin, on the superior anterior surface of right thigh. There were additional smaller discrete circular lesions in close

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Figure 1: Morphea on right thigh at initial visit

proximity to the largest one. Referral was made to a Dermatologist who obtained a skin biopsy. Pathologic features were of thickened and sclerotic dermal collagen consistent with a diagnosis of morphea. The dermatologist prescribed betamethasone and calcitriol ointments twice per day for one year which the family had been mostly compliant with. However the lesions have progressed in size, become further dyspigmented and are now mostly confluent (Figure 2).



Figure 2: Morphea at follow up Visit

Because of the initial focal presentation and the discrete nature of the lesions, we considered the

possibility of traumatic triggers. A review of her immunization records revealed that all shots were given on schedule, with the most recent being DPT (5th), IPV (4th), Hepatitis A (series), MMR (2nd) and Varicella (2nd) booster doses. Records also documented that a majority of the shots had been injected on the right thigh, on the same focal anatomical area as that of the skin lesions.

Discussion

Morphea, also termed “localized scleroderma,” is a chronic skin condition characterized by fibrosis of skin and subcutaneous tissue. It is a rare condition with a reported incidence of 0.3 per million [1] with a female to male ratio of approximately 5:1 [2]. The etiology and pathogenesis is largely unknown. Reported triggering events include infections, psychological stress, accidental trauma, insect bites, drugs, chemicals and vaccinations [3]. The skin lesions progress from inflammatory reaction to matrix deposition and atrophy. The cytokine levels are increased [4] which induces fibroblast and thus increase in collagen synthesis. Autoimmune dysfunction is also a contributory factor [5].

Morphea caused by injectable vaccines is rare with only a few cases reported in the literature. Vaccinations that have been incriminated include DTP [6], BCG [7], MMR [8], Hepatitis B [9, 10] and antitetanus [11, 12]. There is no well defined time interval associated between vaccination and development of the skin lesions. In published reports the range is from a few days to 2 years. No specific type of vaccination is consistently related to the causation of morphea. In one recent large study of 136 children with morphea, a history of trauma was obtained in just 13%, with no mention made of how many of

these were vaccine and/or injection induced [13]. In post vaccination morphea, it is not clear whether it is trauma or the content of vaccination (or a combination of both) that is the responsible trigger, although the former is more plausible. It is apparent that, in anatomical occurrence, post vaccination morphea is not an all or none phenomenon. The pathogenesis of trauma triggering morphea is unclear but injections could cause vascular endothelial injury and tissue hypoxia. The roles of cytokines and neuropeptides such as endothelin – 1 which are normally involved in wound healing, have been suggested [5]. Other injected drugs [14] such as bromocriptine, ergot, bleomycin, mepivacaine [15] and vitamin K have also been implicated in causing the disease, further bolstering the possibility of tissue trauma being the initial event.

The Mayo clinic classification, categorizes morphea/localized scleroderma into 5 types [16] but recently Laxer and Zulian proposed more comprehensive classification which also includes mixed morphea, when combination of two or more previous types is present [17]. Linear scleroderma is the most common type [3] in children (65%) and is characterized by linear plaques, longitudinal on limbs and transverse on the trunk. It may result in atrophy of soft tissue, muscles, periosteum, bone and occasionally synovium. Plaque morphea (26%) is the benign type which is confined to the dermis with few discrete lesions in one or two anatomic sites. Morphea en plaque is a type of plaque morphea characterized by round circumscribed areas of induration with a waxy center surrounded by a halo termed as 'lilac ring'. The other categories are generalized morphea involving three or more anatomic areas, bullous morphea and deep morphea involving subcutaneous tissue.

Extracutaneous manifestations include arthritis, CNS vasculitis, restrictive lung disease and pericarditis [18] and are seen most commonly with pansclerotic and linear scleroderma.

The differential diagnosis of morphea includes lichen sclerosis et atrophicus, lupus panniculitis, lipodystrophy and eosinophilic fasciitis. If clinically difficult to distinguish any or all of these from morphea, a biopsy offers confirmatory evidence. Morphea is considered a chronic but benign disease and is seemingly resistant to present known therapy. Topical steroids and calcipotriene had been used. Systemic treatments with methotrexate, oral steroids, D- penicillamine and vitamin D have been tried in extensive localized scleroderma [13]. Phototherapy with ultraviolet rays [19], intralesional corticosteroids and physiotherapy are other modalities of treatment. In very few cases localized scleroderma may progress into a systemic disease [20].

We believe that our patient developed morphea subsequent to vaccine induced trauma based on temporal, anatomical factors and the lack of any other identified trauma. Our patient developed morphea on her right thigh, in an area of prior vaccination administration. The lesions in our patient have progressed locally despite treatment but the child remains otherwise well with no systemic symptoms or signs since diagnosis was made 1 year ago. Post vaccination morphea is rare and there are nine reported cases in literature. It may also occur after other traumatic events. The benefits of vaccinating the child far exceed the risk of morphea from vaccination.

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