A rare case of verrucous psoriasis in young female: A case report and review of clinicohistologic presentation and variable therapeutic response

John Moesch, BA,* Jessica Mercer, MD,** Jennifer B. Sissom, PA-C,*** Jonathan S. Weiss, MD****

*Medical student, 4th year, Philadelphia College of Osteopathic Medicine, Suwanee, GA
**Board-certified dermatopathologist, Gwinnett Dermatology, PC, Snellville, GA
***Physician assistant, Gwinnett Dermatology, PC, Snellville, GA
****Board-certified dermatologist, Gwinnett Dermatology, PC, Snellville, GA

Abstract
We present a case of verrucous psoriasis (VP) in a young female. VP is a rare clinicohistologic variant of psoriasis. A PubMed search of VP yielded only 12 relevant articles. Our patient represents the first known case of VP in a child. In this report we discuss salient features of her history, physical exam, and treatment. After presenting her case, we provide a literature review on potential etiologies, clinical presentations, and treatments for verrucous psoriasis.

Introduction
Psoriasis is a common, chronic, immune-mediated disorder that results in epidermal hyperproliferation. In addition to the most typical presentation of erythematous plaques surmounted by micaceous scale with a predilection for the scalp, lower back, and extensor surfaces of the limbs, several distinct clinical variants include erythrodermic, guttate, and pustular psoriasis. One particularly rare clinicohistologic variant is verrucous psoriasis (VP), which has engendered far less documentation in the medical literature. A PubMed search of VP yielded only 12 relevant articles.

VP most commonly presents clinically as a wart-like lesion.¹ Histopathologic assessments reveal a combination of verruca and psoriasis, including localized hyperkeratosis with parakeratosis, hypogranulosis, Munro’s microabscesses, papillomatosis, dilated capillaries in dermal papillae, and perivascular lymphocytes.² While the case we present describes a usual clinicopathologic representation of this rare form of psoriasis, it is unique because it’s the first documented case of VP in a child. After discussing the case, we will review previous case reports of VP focusing on suggested etiologies, unusual presentations, and treatments.

Case report
A 14-year-old Hispanic female presented to the office with the chief complaint of a large, pruritic lesion on her right medial forehead that had been present and enlarging for more than a month. Her primary care physician had prescribed a six-week course of griseofulvin for presumed tinea capitis. No biopsy or culture was performed, and no improvement ensued. The patient reported no previous dermatologic disease. Review of systems and medical and social histories were unremarkable. On presentation to our office, she was taking no medications.

Cutaneous exam revealed a hypertrophic plaque with verrucous scale located on the right medial forehead (Figure 1). A 2-cm verruca vulgaris was also noted on the right thumb. A shave biopsy of the forehead lesion revealed hyperkeratosis with neutrophils within mounds of parakeratosis, digitated and psoriasiform epidermal hyperplasia, mild spongiosis, dilated blood vessels at the tips of dermal papillae, and superficial perivascular mixed inflammatory-cell infiltrate (Figures 2, 3). Clinical and histopathological observations were consistent with verrucous psoriasis.

The patient was prescribed clobetasol propionate 0.05% foam twice daily for five days and fluocinolone acetonide 0.01% topical solution thereafter until her return appointment. She was also advised to use 3% salicylic acid shampoo. The patient returned to the office 10 days later with significant improvement (Figure 4). She had applied clobetasol propionate 0.05% foam twice daily for two days and then fluocinolone acetonide topical solution for seven days. She had used the shampoo three times the first week and two days during the week she came back to the office.

Discussion
Verrucous psoriasis is an infrequent phenomenon in dermatology. There are a limited number of case reports, and this variant of psoriasis does not appear in the majority of currently published general dermatologic textbooks. While the exact
Table 1. VP clinical presentations and treatments

<table>
<thead>
<tr>
<th>Case</th>
<th>Sex</th>
<th>Age at diagnosis</th>
<th>Lesion localization</th>
<th>Lesion type</th>
<th>Successful treatments</th>
<th>Failed treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nakamura, et al.³</td>
<td>M</td>
<td>60</td>
<td>Trunk, extremities, fingers</td>
<td>Erythematous papules, plaques</td>
<td>Topical corticosteroids, 2% coal tar ointment, PUVA (ineffective on papules but effective on plaques), cryosurgery (resolved papules)</td>
<td>None</td>
</tr>
<tr>
<td>Kawtar, et al.⁴</td>
<td>F</td>
<td>43</td>
<td>Thigh, fingers, perianal area</td>
<td>Verrucous plaques</td>
<td>No treatment reported</td>
<td>No treatment reported</td>
</tr>
<tr>
<td>Scavo, et al.⁵</td>
<td>M</td>
<td>44</td>
<td>Trunk, glans penis, external auditory canals, scalp, toes, fingernails</td>
<td>Erythematous-desquamative plaques</td>
<td>Lesion regression 2 weeks after stopping interferon treatment for HCV, plus emollients and systemic antihistamines</td>
<td>None</td>
</tr>
<tr>
<td>Curtis, et al.⁶</td>
<td>M</td>
<td>46</td>
<td>Trunk, extremities, face, scalp, genital area</td>
<td>Verrucous plaques manifesting as erythroderma</td>
<td>Moderate improvement with ustekinumab</td>
<td>Topical keratolytics, high-potency topical steroids, acitretin (3 mos), methotrexate (6 mos), etanercept (4 mos), adalimumab (3 mos), infliximab (2 mos)</td>
</tr>
<tr>
<td>Emel, et al.⁷</td>
<td>F</td>
<td>22</td>
<td>Upper and lower back</td>
<td>Symmetric, annular, erythematous plaques with verrucous, papulovesicular plaques</td>
<td>Healing of lesions after 15 days of 5% crude coal tar, moderate-potency topical steroid ointment</td>
<td>None</td>
</tr>
<tr>
<td>Monroe, et al.⁸</td>
<td>F</td>
<td>84</td>
<td>Posterior arm, lumbarosacral back, thigh, distal leg, chest, abdomen</td>
<td>Verrucous papules, plaques</td>
<td>Initial resolution of extremity and chest lesions with topical flucinonide and keratolytic agents, urea and salicylic acid, but flares ultimately continued on extremities and trunk even with topical steroid treatment</td>
<td>None</td>
</tr>
<tr>
<td>Munoz, et al.⁹</td>
<td>M</td>
<td>60</td>
<td>Extremities, trunk</td>
<td>Erythematous lesions covered by thick, adherent scales</td>
<td>Resolution of lesions after two months of oral etretinate</td>
<td>Topical steroids and topical vitamin D3 with PUVA</td>
</tr>
<tr>
<td>Hall, et al.¹⁰</td>
<td>M</td>
<td>44</td>
<td>Frontal scalp, trunk, extremities</td>
<td>Verrucous papule</td>
<td>No successful treatment reported</td>
<td>Topical salicylic acid</td>
</tr>
<tr>
<td>Katayama, et al.¹¹</td>
<td>M</td>
<td>55</td>
<td>Trunk, extremities</td>
<td>Verrucous scale on erythematous plaque</td>
<td>Marked improvement with adalimumab</td>
<td>Numerous topical psoriasis agents</td>
</tr>
<tr>
<td>Current case</td>
<td>F</td>
<td>14</td>
<td>Right medial forehead</td>
<td>Hypertrophic verrucous plaque with scale</td>
<td>Clobetasol propionate 0.05%, fluocinolone acetonide 0.01%, 3% salicylic acid shampoo</td>
<td>None</td>
</tr>
</tbody>
</table>

evitability of VP is presently unknown, there are a handful of theories as to the cause. Khalil et al. suggested that repeated trauma in an individual with preexisting psoriasis may result in lesions of VP.⁰ This case report also proposed pulmonary dysfunction and phlebitis as predisposing conditions to VP due to the anoxic conditions in the peripheral tissues and circulation. Based on comorbidities present in their patients, other authors have postulated diabetes mellitus, autoimmune hepatitis, and chronic hepatitis C treated with interferon as conditions contributing to the pathogenesis of VP.¹³ Since our patient had a verruca vulgaris on the right thumb, we considered the possibility of super-infection of the psoriatic plaque with human papillomavirus (HPV) as the cause of our patient’s VP. We subsequently performed immunohistochemical staining for HPV in our patient’s forehead tissue, and the results were negative.

Most reported cases of VP presented as clinical and histological hybrids of psoriasis and verruca vulgaris. However, there have been several reports of histologically confirmed VP with unusual clinical presentations. For example, one case of histologic VP presented clinically as widespread hypertrophic verrucous plaques on a broad, inflamed erythematous background. Prior to biopsy, the differential diagnosis included T-cell lymphoma, Darièr’s disease, verrucous carcinoma, and pityriasis rubra pilaris.⁶ We compiled a list of all known published case reports of VP and their documented clinical presentations and treatments (Table 1). Interestingly, this investigation revealed that all patients previously diagnosed with VP were adults. This makes our
finding in a 14-year-old the first known case of VP reported in a child.

Treatment of VP has proved challenging in the majority of previously reported cases. Attempted therapies have included both topical and systemic agents used in other variants of psoriasis. After review, we found that most patients’ VP improved with either topical or intralesional steroids, which holds true for our patient. Combination topical therapies have been successful in some patients. One patient with annular VP responded to a combination of 5% crude coal tar and moderately potent steroid ointment. Another report showed healing of VP plaques on the chest and extremities with a combination of topical fluocinonide, urea, and salicylic acid. Systemic agents, specifically biologics, have variable success in the treatment of VP. The erythrodermic variant of VP discussed earlier was recalcitrant to varying combinations of acitretin (50 mg daily), high-potency topical steroids, methotrexate (15 mg weekly), and multiple biologics (etanercept, adalimumab, and infliximab). The patient finally showed signs of moderate improvement on 45 mg ustekinumab every 12 weeks after nine months of treatment. Another case showed remarkable improvement of a VP plaque after treatment with adalimumab. Similar to the biology, results with methotrexate have not been consistent. In one case report, the addition of methotrexate to topical and intraluminal steroids caused significant regression of VP lesions. The only retinoid that produced good treatment results with VP was oral etretinate, reported in the case of a male from Japan. However, this drug is banned in the United States. Other oral retinoids, specifically acitretin, did not produce results in cases we reviewed; however, a report of a case that was diagnosed as verrucous carcinoma and treated successfully with acitretin was argued by others to have been a case of VP. This suggests that acitretin could be a viable treatment for VP in some cases. Any therapeutic results reported in VP need to be interpreted with caution given the small sample size and varying clinical scenarios.

Conclusion

VP is a rare and distinctive variant of psoriasis that presents with overlapping clinical and histological features. The literature on VP is lacking, and while further research is desirable to delineate the specific etiology, the likelihood of such research is remote given the rarity of the condition. The limited numbers of published case reports have suggested some potential treatments for VP. Our patient, representing a typical clinicopathologic presentation of localized VP in a child, showed excellent response to treatment with topical steroids and 3% salicylic acid shampoo. At this point, it is difficult to know whether cases of VP represent unique pathophysiologic circumstances resulting in common clinical presentations or whether this rare histopathologic variant of psoriasis has unifying etiologic factors among patients in whom it presents. Further case series may help to uncover the answers to this question.

References


Correspondence: John Moesch, BA; johnmoe@pcom.edu