

Verrucous sarcoidosis associated with human papillomavirus infection: A case report

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Key words: cutaneous sarcoidosis; human papillomavirus; immunocompromised district; sarcoidosis; verrucous sarcoidosis; verruca vulgaris.

Verrucous sarcoidosis (VS) is a rare variant of cutaneous sarcoidosis that most often appears on the lower extremities. It could represent a localized hypertrophic response over an area with underlying noncaseating sarcoidal granulomas or a response secondary to a viral wart overlying a sarcoidal plaque. A case of annular VS on the face is reported in the setting of widespread background cutaneous papular and plaque sarcoidosis.

CASE REPORT

A 51-year old African-American woman with a history of pulmonary sarcoidosis for more than a decade presented for evaluation of a facial rash. The rash had been present for several years and failed to respond to hydrocortisone 2.5% cream twice daily during this period. A laceration on the nasal bridge induced by blunt trauma from the nose pad of her eyeglasses occurred immediately before the appearance of expanding verrucous papillomatous changes in this area. She had no personal or family history of warts.

An annular plaque with verrucous surface features and central clearing was present on the bridge of the nose (Fig 1, A and B). Numerous skin-colored to violaceous papules and plaques, all demonstrating a smooth surface, were distributed on the forehead, temples, chin, and cheeks (Fig 1, A and B).

Abbreviations used:

HPV: human papillomavirus
 PCR: polymerase chain reaction
 VS: verrucous sarcoidosis

A 4-mm punch biopsy specimen from a dermal plaque on the right cheek showed sarcoidal granulomas. Periodic acid-Schiff and Acid-Fast Bacilli stains showed no offending organisms, and no polarizable foreign material was present. A 4-mm punch biopsy from the verrucous lesion on the bridge of the nose demonstrated hyperkeratosis, acanthosis, hypergranulosis, and papillomatosis with parakeratosis overlying digitate projections of epithelium. Mild vacuolization of the granular layer was noted between the projections. Sarcoidal granulomas, composed of histiocytes including scattered multinucleated giant cells, were present in the underlying dermis surrounded by a few scattered lymphocytes (Fig 2, A and B).

Sections from the punch biopsy of the verrucous lesion were sent for DNA quality assessment by β -globin reference gene polymerase chain reaction (PCR). DNA quality assessment was positive, and human papillomavirus (HPV) typing by PCR using the nested primer system was performed.¹ HPV-PCR product was detected by the nested

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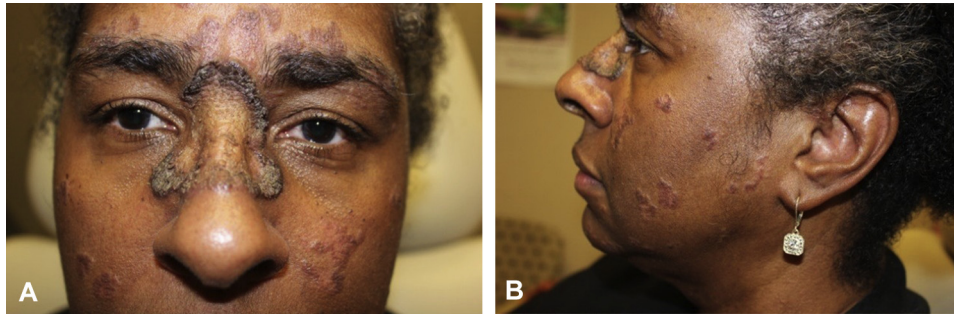


Fig 1. **A**, An annular verrucous plaque with central clearing slowly expanded over several years after blunt trauma to the bridge of the nose. **B**, Scattered 1- to 8-mm hyperpigmented dermal papules and plaques without scaling on the cheeks.

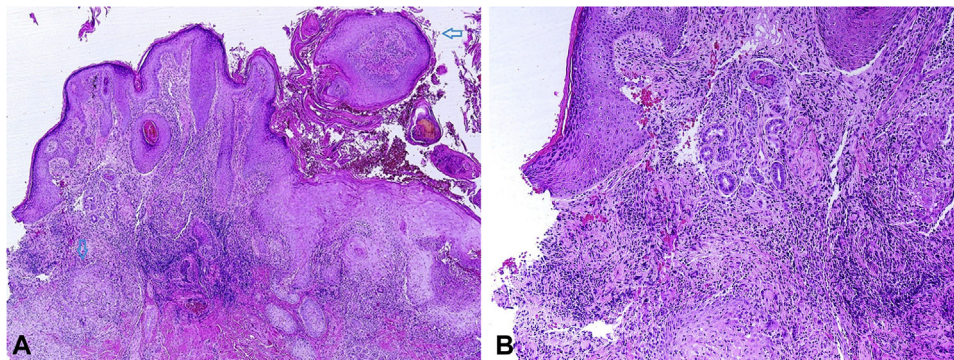


Fig 2. **A**, Epidermis shows papillomatous architecture with hyperkeratosis and acanthosis. Parakeratosis overlies digitate projections (*left pointing arrow*) of epithelium. Hypergranulosis with vacuolization presents between the projections. A sarcoidal granuloma (*downward arrow*) is noted in the upper dermis. **B**, Sarcoidal granulomas with multinucleated giant cells are surrounded by a sprinkling of lymphocytes. (**A** and **B**, Hematoxylin-eosin stain; original magnifications: **A**, $\times 40$; **B**, $\times 100$.)

forslund antonsson primer (FAP) system in DNA extracted from the tissue sample, and the HPV-PCR product obtained from the sample was cloned and sequenced. The National Center for Biotechnology Information Basic Local Alignment Search Tool (NCBI BLAST) analysis of the sequence information obtained from the clones found the presence of HPV type candidate FA14 (Fig 3, A-C).

Imiquimod 5% cream 3 times a week was initiated but then discontinued because of severe irritation after 2 weeks. The cutaneous sarcoidosis was treated with hydroxychloroquine, 200 mg orally twice a day. Three months later, the patient returned after being lost to follow-up. The original annular verrucous lesion expanded, and 2 new annular verrucous lesions appeared overlying areas in which previous sarcoidal papules and plaques had been present (Fig 4, A-C). Despite the new and expanding verrucous lesions, the background smooth-surfaced sarcoidal papules and plaques had improved 80% to 90% since her previous visit. Treatment with imiquimod 5% cream was restarted

once weekly to verrucous areas, and hydroxychloroquine was continued.

DISCUSSION

Sarcoidosis is known as one of the great imitators, with skin findings occurring in 20% to 35% of cases. In some cases, skin lesions are the only manifestation of sarcoidosis.^{2,3} These cutaneous findings are classified as specific when they are associated with cutaneous granulomas (Table D). The maculopapular form is the most common specific dermatologic manifestation of sarcoidosis.³ Nonspecific dermatologic manifestations of sarcoidosis are not associated with granulomas (see Table I).^{3,4} Erythema nodosum is the most common nonspecific dermatologic manifestation of sarcoidosis.^{3,4}

VS is a rare, specific form of cutaneous sarcoidosis usually occurring in association with severe pulmonary disease.^{4,5} It most commonly affects the lower extremities.^{4,6} The differential diagnoses for verrucous sarcoidosis include verruca vulgaris, hypertrophic lichen planus, prurigo nodularis, and

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