Verruciform Xanthoma of the Earlobe in an Immunosuppressed Patient

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Practice Points
• Verruciform xanthoma clinically resembles verruca, condyloma acuminatum, verrucous carcinoma, or squamous cell carcinoma.
• Most lesions present on the oral mucosa or genitalia but rarely may present on other sites.
• The exact etiology of verruciform xanthoma remains unclear.
• Histologically, foamy histiocytes are present.

Verruciform xanthoma (VX) is an uncommon, benign, mucocutaneous lesion of uncertain etiology. Originally thought to be limited to the oral mucosa, its occurrence in other mucosal and nonmucosal sites also has been documented. Histologically, VX is characterized by subepithelial foamy histiocytes associated with papillomatosis, parakeratosis, and dyskeratosis. Subepithelial foamy cells are lipid-containing, non-Langerhans cell histiocytes. A variety of etiologies have been proposed without much consensus, including infectious (bacterial, viral, and fungal), degenerative, reactive/reparative, inflammatory, metabolic, reactive/multifactorial, and immunosuppressive factors. Verruciform xanthoma of the external ear is exceedingly rare. Herein, we report a rare case of VX occurring on the earlobe at a piercing site in an immunosuppressed patient and provide a discussion of the possible pathogenetic mechanism(s).

external ear is extremely rare. Two cases involving the helix and the posterior pinna or postauricular area of the ear have been previously reported.28,29 Herein, we report a rare case of VX occurring on the earlobe at a piercing site in an immunosuppressed patient.

Case Report
A 76-year-old woman presented with a skin growth over a piercing site on the right earlobe that had been present for several years. The patient’s medical history was remarkable for discoid lupus erythematosus, rheumatoid arthritis, and renal transplant at 9 years of age with retransplant 5 years prior to presentation. She also had undergone bilateral knee replacement. Her blood lipid profile was within reference range. Two months prior to presentation, the lesion was injected with intralesional steroids at another clinic. Clinical examination showed a 4-mm, flesh-colored, verrucous, keratotic lesion with no evidence of ulceration or bleeding. A shave biopsy was performed and sent for pathologic examination with a clinical impression of verruca versus benign keratosis.

A shave specimen measuring 4 × 4 mm was received in a fixative. Microscopic examination revealed a lesion with typical verrucous architecture (Figure 1); however, on higher magnification, characteristic features of VX were readily identified, including papillomatosis associated with confluent parakeratosis and dyskeratosis involving the crevices between the verrucous digitations and extending into the stratum malpighii (Figure 2). Xanthoma cells (foamy histiocytes) were noted within expanded dermal papillae between elongated rete ridges (Figure 3). Additional supportive features included neutrophils at the junction of the stratum corneum and stratum malpighii with loss of the granular layer (Figure 4) and a mild perivascular lymphocytic infiltrate at the base of the lesion.

Immunoperoxidase studies revealed that xanthoma cells stained positive for CD68 (Figure 5) and negative for S-100 protein and CD1a. Interestingly, the CD1a stain showed absence of positively staining Langerhans cells in the lesional epidermis, while the adjacent uninvolved epidermis showed retention of the normal Langerhans cell population.

Comment
Verruciform xanthoma was first described in the right axillary region of an 8-year-old girl by Sachs1 in 1903 in association with a set of abnormalities that would later be known as CHILD syndrome (congenital hemidysplasia with ichthyosiform nevus and limb defects), which is caused by a mutation in the NAD(P) dependent steroid dehydrogenase–like gene, NSDHL.39-42 Many other lesions were subsequently reported in the oral cavity until occurrence in extraoral locations was documented. The majority of extraoral lesions were reported in the anogenital region, with a few cases described elsewhere on the skin. Cutaneous VX lesions may present in association with preexisting or concomitant conditions or may arise de novo in normal skin.26,27,43 Clinically, cutaneous VX resembles verruca, squamous cell carcinoma, or verrucous carcinoma.44

The origin of the subepithelial foam cells has been established to be non–Langerhans cell histiocytes3,8 with accumulated lipid1; however, the etiology and pathogenetic mechanism still are being debated. Over the years, a variety of etiologies have been proposed based on clinical, histologic,
immunophenotypic, ultrastructural, and molecular findings including infectious (bacterial, viral, fungal), degenerative, reactive/ reparative, inflammatory, metabolic processes, reactive/ multifactorial, and immunosuppressive factors, without much consensus.

Two cases of VX occurring in the external ear have been reported. A 79-year-old man presented with VX on the helix of the left ear in association with actinic keratosis. Regarding the causal relationship between the 2 conditions, the authors doubted the assumption made by Neville that VX is a reactive lesion arising from degeneration of the overlying epidermis. The second case described a 22-year-old man with VX presenting on either the posterior pinna or the postauricular area of the ear (the authors did not specify). This lesion had the configuration of an epidermoid cyst with its lining showing the characteristic changes of VX; the authors called it cystic VX. In contrast, our case involved an immunosuppressed 76-year-old woman with a lesion located over a piercing site on the right earlobe. The pathogenesis in our case may have included several contributory traumatic, infectious, and immunosuppressive factors, as well as a multifactorial etiology. According to Mohsin et al, the lesion may have been caused by repeated microtrauma at the piercing site. Occurrence at this site and concomitant immunosuppression may have resulted in repeated clinical or subclinical infections. Furthermore, the role of immunosuppression in the development of VX through a decrease in Langerhans cells has been suggested. Verruciform xanthoma has been described in immunocompromised individuals, including bone marrow transplant recipients, patients with chronic graft-versus-host disease, renal transplant recipients, and human immunodeficiency virus–positive patients. It has been postulated that reduced epidermal Langerhans cell density and function as a consequence of immunosuppression results in increased products of keratinocyte damage, thus prompting dermal dendrocytes to phagocytose them and transform into foam cells. Microscopic lichenoid destruction of the basal keratinocytes may also be implicated. In human immunodeficiency virus–positive patients, increased levels of various cytokines (eg, tumor necrosis factor α, IL-1, and IL-6) are thought to play a role in epidermal proliferation and lipid metabolism, thus possibly predisposing the patient to the formation of VX. In our case, a multifactorial etiology seems to be evident, combining the factors of epithelial damage due to repeated microtrauma, increased frequency of clinical/subclinical infection, and decreased ability to clear epithelial debris.
Conclusion
As in other instances of VX, our case demonstrates an architecture identical to commonly observed verruca on scanning magnification, emphasizing a need for examination with high-power magnification.

REFERENCES
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