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Case Presentation

Verruciform xanthoma

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Abstract

A 50-year-old man presented with a several month history of a polypoid papule on the scrotum. A dense accumulation of macrophages with foamy cytoplasm was exhibited in the biopsy specimen leading to a diagnosis of verruciform xanthoma.

Case synopsis

A 50-year-old man presented for evaluation of an asymptomatic lesion on his left scrotum present for several months. Physical exam revealed a 4 mm x 2 mm pink, verrucous, filiform papule on otherwise normal skin of his left scrotum (Figure 1). The patient reported a similar lesion on his right nostril that was removed in the otolaryngology department, but no records were available for review. He had no known history of sexually transmitted infections or prior genital lesions. The lesion was removed by shave biopsy for therapeutic purposes and sent for histopathologic examination. Hematoxylin-eosin staining revealed a polypoid lesion with hyperkeratosis, parakeratosis, and a papillomatous proliferation of epidermal cells without atypia. A dense accumulation of macrophages with foamy cytoplasm and lipid-laden vacuoles was present throughout the papillary dermis (Figures 2 and 3). Shave biopsy was sufficient for removal of the lesion, and the area healed without event or recurrence.

Figure 1. A 4 mm x 2 mm pink, verrucous, filiform papule on otherwise normal skin of scrotum

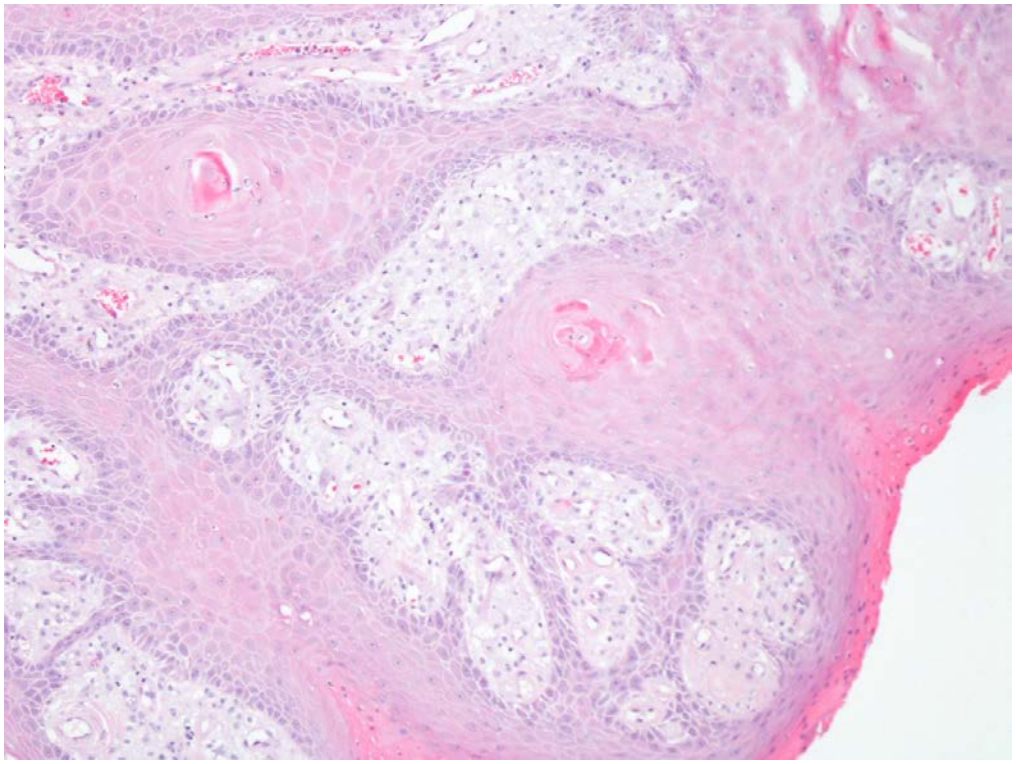

Figure 2. Hematoxylin-eosin staining revealed a polypoid lesion with hyperkeratosis, parakeratosis, and a papillomatous proliferation of epidermal cells without atypia. (H&E 40X)

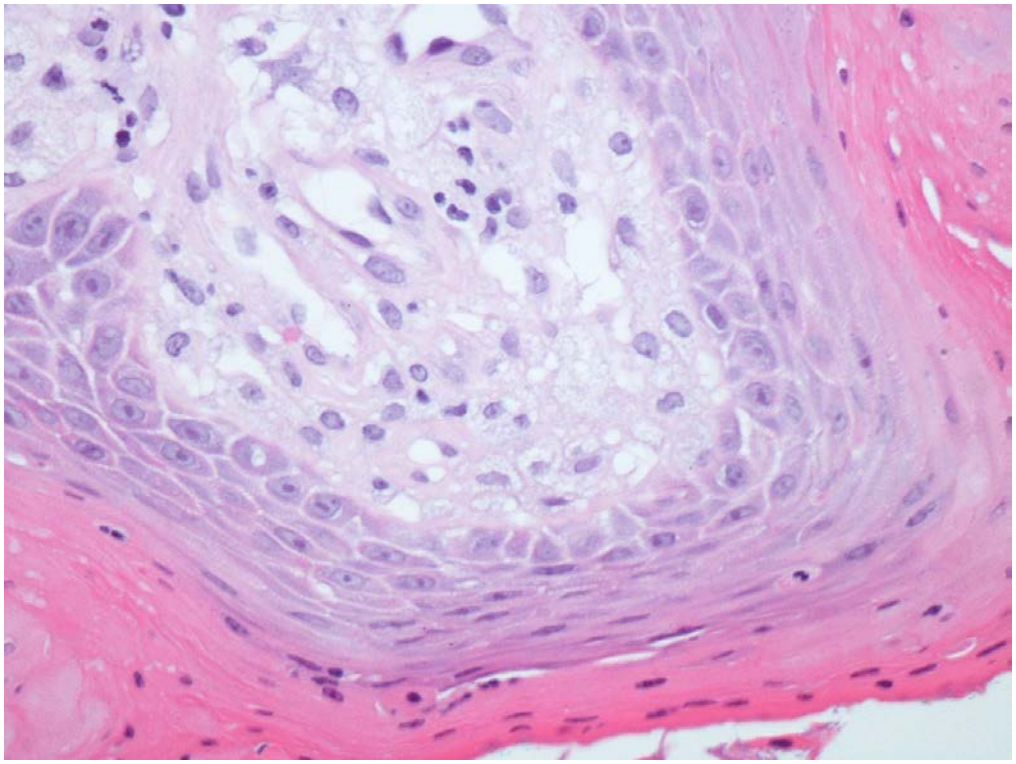

Figure 3. A dense accumulation of macrophages with foamy cytoplasm and lipid-laden vacuoles was present throughout the papillary dermis. ((H&E 400X)

DISCUSSION

Verruciform xanthoma (VX) is a benign, typically solitary, mucocutaneous growth that presents as an asymptomatic, planar, or verrucous papule or plaque of variable color [1]. It is sometimes pedunculated. VX primarily occurs on oral mucosa, but has been reported on many areas, notably the esophageal mucosa and anogenital areas, including penile and labial mucosa and the scrotum [2]. Although VX can occur in any age and race, most reported patients are middle-aged and Caucasian. It has a slight 1:1.1 male: female predominance and is not typically associated with hyperlipidemia [1]. Histology examination is necessary to confirm the diagnosis of VX because it can mimic condyloma acuminatum, verruca vulgaris, seborrheic keratosis, squamous cell

carcinoma, or verrucous carcinoma. Histopathology of VX shows hyperkeratosis, focal parakeratosis, acanthosis without atypia, papillomatosis, and accumulation of the xanthoma-characteristic foamy macrophages with lipid-containing vacuoles [3]. In contrast to other xanthomas, foam cells in VX are notably localized to the papillary dermis.

The etiology of VX is not fully characterized, but most reports suggest that foam cells accumulate as a part of a reaction pattern to an inciting event of epidermal keratinocyte damage with subsequent keratinocyte lipid release and its uptake by dermal histiocytes [2]. Keratinocyte damage has been attributed to a wide variety of instigators including recurrent cutaneous irritation or trauma, bacterial colonization, and inflammatory damage. Human papillomavirus (HPV) has been suggested as a potential precipitating agent owing to the condylomatous nature of VX lesions and because HPV 6a, 16, 28, and other subtypes have been found present in lesions [4]. One group argues that a setting of localized lymphedema and a secondary HPV infection are both necessary factors for VX pathogenesis [5]. However, HPV is not detected in most VX cases and no consistent association between VX and lymphedema or HPV has been established [2,6]. Independent of the source of epidermal damage, ultrastructural data has demonstrated lipid accumulation coincident with basilar keratinocyte and basement membrane degeneration [3,6]. Limited biochemical characterization has revealed that basal cell expression of monocyte chemoattractant protein-1 contributes to the localization of macrophages at these damaged sites ahead of their lysosomal engulfment of lipids [7].

VX also has been described in the setting of other dermatologic diseases with multiple reports of coexisting dystrophic epidermolysis bullosa (DEB), graft-versus-host disease, lichen sclerosus, and congenital hemidysplasia with icthyosiform erythroderma and limb defects (CHILD) syndrome [8]. In contrast to the smaller, solitary lesions typical of sporadic VX, lesions presenting in the setting of CHILD syndrome and DEB have been reported as multifocal or confluent verrucous plaques covering large distinct body areas, often in an epidermal nevus-like pattern [9]. The *NSDHL* gene mutated in CHILD syndrome encodes an enzyme involved in cholesterol biosynthesis and the resulting pathologic elevations in sterol intermediates may facilitate lipid accumulation and VX formation [10]. Somatic mutations in this gene have been reported in a few cases of sporadic VX, suggesting its potential broader functional role in VX pathogenesis.

With respect to our patient, no inciting cause for epidermal damage was readily evident and excision of the lesion was curative, as in most cases of VX. VX recurrence is extremely rare, but has been reported in cases of particularly extensive skin involvement [6].

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