

H&E, original magnification  $\times 40$  (inset in bottom left corner, original magnification  $\times 400$ ).

A biopsy was performed of a verrucous papule on the plantar surface of the left foot in a 25-year-old man. The best diagnosis is:

- a. epidermolytic hyperkeratosis
- b. keratoacanthoma
- c. molluscum contagiosum
- d. myrmecia
- e. warty dyskeratoma

PLEASE TURN TO PAGE 235 FOR DERMATOPATHOLOGY DIAGNOSIS DISCUSSION

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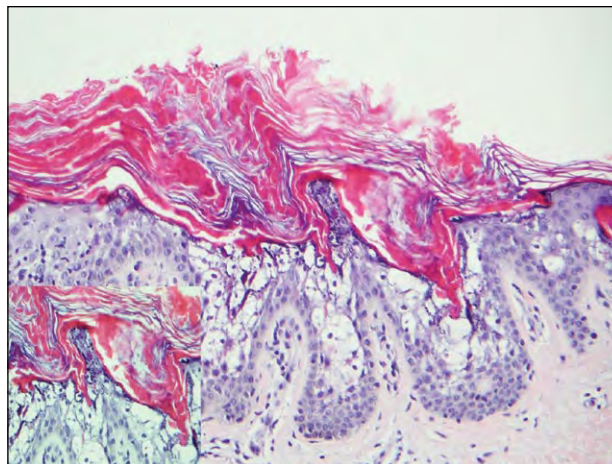
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## Myrmecia

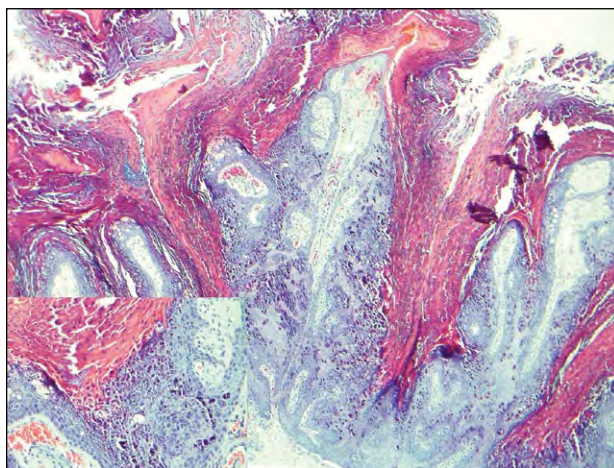
**M**yrmecia, named after the bulldog ant because of its clinical resemblance to an ant hill, is a plantar wart caused by *human papillomavirus 1* infection. Histologic examination typically reveals an endophytic growth pattern with multiple deep acanthotic extensions of the epidermis that grow inward. Characteristic eosinophilic keratohyalin granules and conspicuous intranuclear inclusions with clear spaces around pyknotic nuclei also can be observed (Figure 1).

Epidermolytic hyperkeratosis represents an epithelial histologic process that may appear in many different congenital and acquired disorders. In its inherited form, epidermolytic hyperkeratosis may be widespread, as in bullous congenital ichthyosiform erythroderma, an autosomal-dominant disorder caused by keratin 1 and 10 gene mutations, or it can be focal in epidermal nevi and palmoplantar keratoderma. Epidermolytic hyperkeratosis also is noted incidentally in several acquired conditions, including seborrheic keratosis, actinic keratosis, squamous cell carcinoma in situ, invasive squamous cell carcinoma, melanocytic nevi, epidermal cysts, and pilar cysts.<sup>1</sup> Epidermolytic hyperkeratosis is histologically defined by a prominent granular cell layer containing coarse and irregular eosinophilic keratohyalin granules that represent dense abnormal aggregates of keratin filaments.<sup>2,3</sup> The suprabasal cells contain eosinophilic intracytoplasmic inclusions and have ill-defined cell borders that break down and cause variably sized perinuclear clear

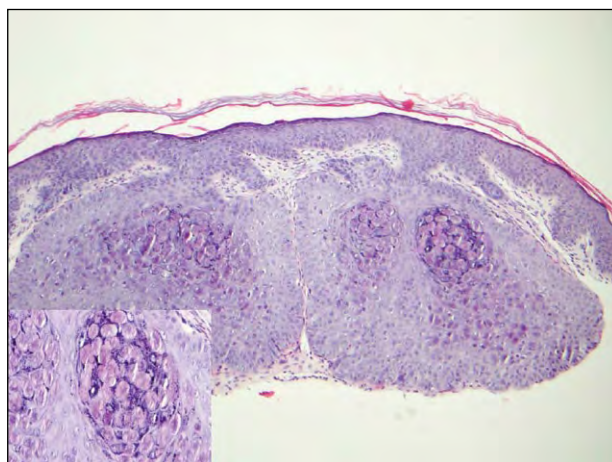
spaces, giving the appearance of keratinocyte nuclei floating freely within variably sized intraepidermal vesicles.<sup>1</sup> These histologic features can be mistaken for the granular layer changes and the clear spaces of myrmecia (Figure 2).



**Figure 2.** Epidermolytic hyperkeratosis reveals a prominent granular cell layer containing coarse and irregular keratohyalin granules and ill-defined cell borders with variably sized perinuclear clear spaces, giving the appearance of keratinocyte nuclei floating freely within variably sized intraepidermal vesicles (H&E, original magnification  $\times 200$  [inset in bottom left corner, original magnification  $\times 400$ ]).

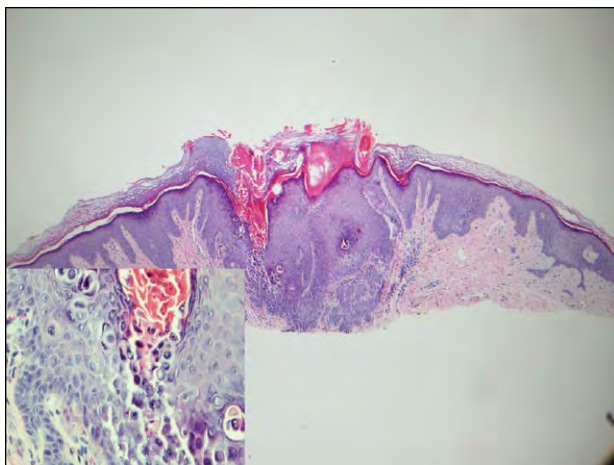


**Figure 1.** Endophytic growth pattern, eosinophilic keratohyalin granules, and conspicuous intranuclear inclusions with clear spaces around pyknotic nuclei (H&E, original magnification  $\times 40$  [inset in bottom left corner, original magnification  $\times 400$ ]).

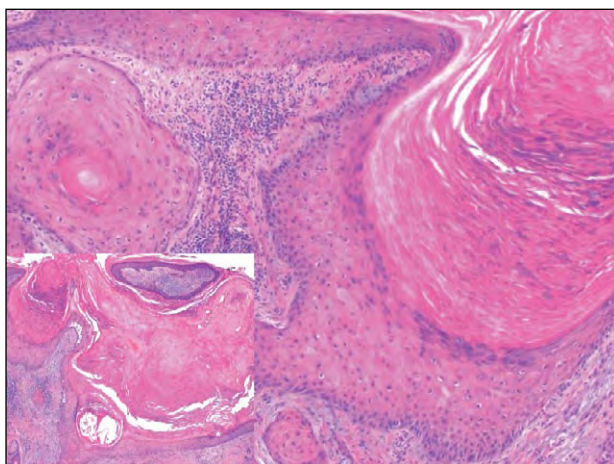


**Figure 3.** Molluscum contagiosum presents as a cup-shaped hyperplastic invagination. The cells of the spinous layer reveal numerous cytoplasmic eosinophilic inclusion bodies called Henderson-Patterson bodies (H&E, original magnification  $\times 200$  [inset in bottom left corner, original magnification  $\times 400$ ]).

Molluscum contagiosum (MC) is an infection of the skin and mucous membranes that is caused by a poxvirus. Clinically, the lesions present as shiny, dome-shaped, umbilicated papules. Histologically, the architecture of MC may mimic myrmecia, showing a cup-shaped hyperplastic invagination;



**Figure 4.** Warty dyskeratoma also presents as a cup-shaped invagination. The epidermis reveals suprabasilar clefting (acantholysis) with numerous acantholytic and dyskeratotic cells (H&E, original magnification  $\times 40$  [inset in bottom left corner, original magnification  $\times 400$ ]).



**Figure 5.** Keratoacanthoma reveals a crateriform exo-endophytic tumor, the walls of which are lined by mature, eosinophilic, keratinizing, well-differentiated, squamous epithelia (H&E, original magnification  $\times 200$  [inset in bottom left corner, original magnification  $\times 20$ ]).

however, in MC the cells of the spinous layer reveal numerous cytoplasmic; eosinophilic; and later, as they mature, basophilic inclusion bodies called Henderson-Patterson bodies, which eventually empty into a central crater, giving the characteristic histologic appearance of MC (Figure 3).

Warty dyskeratomas, also called isolated dyskeratosis follicularis, usually are solitary papules or nodules with an umbilicated or porelike center that often present on the head and neck.<sup>4</sup> Histologically, warty dyskeratomas present as cup-shaped invaginations that extend into the underlying dermis. Centrally, the depression is filled with a keratinous plug. The epidermis reveals suprabasilar clefting (acantholysis) with numerous acantholytic and dyskeratotic cells.<sup>5,6</sup> The suprabasal acantholysis gives the impression of clear spaces that also may be confused with myrmecia (Figure 4).

Keratoacanthoma is a low-grade malignancy thought to originate in the follicular infundibulum.<sup>7</sup> It commonly presents as a rapidly growing, flesh-colored, umbilicated nodule with a central, keratin-filled crater that may spontaneously regress within 4 to 6 months. Histologic examination usually reveals a crateriform exo-endophytic tumor, the walls of which are lined by mature, eosinophilic, keratinizing, well-differentiated, squamous epithelia (Figure 5).

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