Intertriginous perifollicular elastolysis: A report of 2 cases

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INTRODUCTION

Elastic fibers, the most resilient elements of connective tissue, account for skin distensibility, flexibility, and integrity.[1,2] These fibers are predominantly comprised (90%) of elastin, a protein with intricate ultrastructure.[3] Dermatologic conditions characterized by elastic tissue anomalies exhibit increased, decreased, or abnormal structure of elastic tissue in the dermis, which alters skin distensibility, resulting in individual papules.[4] Perifollicular elastolysis is a rare disorder characterized by focal, marked decrease in elastic fibers within 1 to 3 mm of wrinkled folliculocentric papules.[5,6] Here we describe 2 cases of perifollicular elastolysis with an unique inframammary distribution.

CASE PRESENTATIONS

Case 1

A 37-year-old white woman without prior dermatologic history presented to our clinic for evaluation of similar skin lesions in her axillae, groin, and inframammary areas. The latter region was of greatest concern to her. Lesions began a few years prior as small bumps without symptoms. She did note, however, occasional pimples in these regions exacerbated by sweating. No treatments had been attempted. Family history, social history, and review of systems were noncontributory/negative.

Physical examination found numerous, monomorphic skin-colored folliculocentric less than 3-mm papules in the bilateral inframammary region (Fig 1) as well as in the inguinal, bilateral upper thigh, and mons pubis regions. Folliculitis was diagnosed initially without evidence of scarring, and she was started on a regimen of 5% benzoyl peroxide wash once daily. However, at her 3-month follow-up visit, she reported minimal improvement of the lesions under her breasts. Repeat examination continued to find scattered skin-colored folliculocentric papules. Two 4-mm punch biopsies were performed of representative papules from under the left and right breasts. Histopathologic examination found dilated infundibula with sparse perifollicular fibrosis (Fig 2). Elastic tissue staining (Vierhoff-van Gieson) showed an abnormal pattern of elastic fiber distribution within the papillary dermis, mainly in the papillary dermis around the dilated follicular infundibula with elastolysis (Fig 3). Overall, the clinicopathologic features were most consistent with perifollicular elastolysis. The patient was empirically treated with topical tretinoin 0.025% cream nightly, and she reported improvement in the appearance of the lesions after 3 months. In-person follow-up was deferred because of the COVID-19 pandemic.

Case 2

A 22-year-old white woman with history of psoriasis presented to our clinic for follow-up of her psoriasis and new complaint of white bumps under her breast, inner thighs, and axillae. The duration of these lesions was uncertain, but she did report they gradually increased in number since onset. Individual lesions were asymptomatic. Family history, social history, and review of systemics were noncontributory/negative.

Physical examination found erythematous plaques with mild micaceous scale of the upper and lower extremities accounting for 7% body surface area, attributable to chronic plaque psoriasis.

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Fig 1. Clinical photo of patient 1 shows numerous skin-colored folliculocentric papules in the bilateral inframammary region from a further distance.

Fig 2. Clinical photo of patient 2 shows close-up view of monomorphic small, skin-colored, and evenly distributed papules.

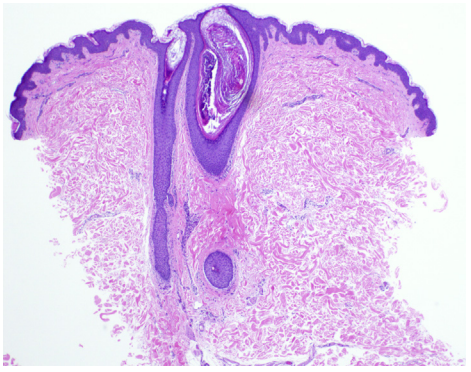

Fig 3. Histopathology. Dilated infundibula with sparse perifollicular fibrosis. (Hematoxylin-eosin stain; original magnification: ×4.)

Additionally, the bilateral inframammary region had monomorphic less than 3-mm, skin-colored, and evenly distributed papules (Fig 4). Acneiform papules and hyperpigmented macules were also present on the bilateral thighs and interspersed on the inframammary folds. A single 4-mm punch biopsy was performed of a papule under the right breast. Histopathology found patulous follicular infundibula associated with reduction in elastic fiber density and elastic fiber abnormalities centered around the follicle (clumping, thickening, and shortening/fragmentation of fibers). Overall, this finding was most consistent with a diagnosis of perifollicular elastolysis. Topical 5% benzoyl peroxide and clindamycin 1% solution were initiated for the active acneiform lesion eruption. The patient was lost to follow-up.

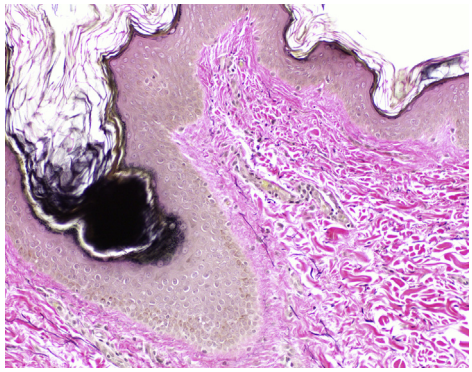

Fig 4. Histopathology. Elastic tissue staining shows an abnormal pattern of elastic fiber distribution and elastic fiber abnormalities centered around the dilated follicular infundibula. (Vierhoff-van Gieson stain; original magnification: ×20.)

DISCUSSION

Perifollicular elastolysis, also known as *papular acne scars* or *postacne anetoderma-like scars*, is a benign, acquired condition first described by Varadi et al[5] in 1970. Since then, it has often been reported as a rare condition, but it may be underreported.[6,7] These subtle changes may often be overlooked by clinicians or simply ignored by patients, whereas the focus is on treating active acne flares, dyspigmentation, and subsequent pitted scars. Perifollicular elastolysis is on a continuum with acne vulgaris. Some studies suggest that elastase-producing strains of *Staphylococcus epidermidis* and *Cutibacterium acne* (formerly *Propionibacterium acnes*) found in hair follicles are implicated in the etiopathogenesis.[5,6] However, in another study by Dick et al,[8] no elastase activity was noted in strains of *P acnes* and *S epidermidis* found on the skin surface of 10 patients with anetoderma-like scars from acne vulgaris. Instead, they suggest that tissue necrosis is caused by leukocytes involved in the inflammatory phase of the condition with regeneration consisting of collagenous scar formation devoid of elastin fibers. In either case, the observed histopathology demonstrates total or subtotal absence of elastic fibers surrounding hair follicles, paucity of inflammation, nonspecific vascular findings, and collagen irregularities.[4]

Table I. Major differential diagnoses and clinicopathologies characteristics

Differential diagnosis	Epidemiology	Clinical features	Histopathology	Treatment
Perifollicular elastolysis[5-7,9]	Uncommonly reported	1-3 mm, white/yellow or skin-colored, finely wrinkled, round follicular papules on neck, intertrigious regions, arms, and trunk	Abnormal pattern and distribution of elastic fibers around pilosebaceous follicles without inflammation	No clearly established treatment
Mid-dermal elastolysis[10,11]	White F > M, 30-50 y	Type I (most common): Well-demarcated wrinkled plaques on trunk and upper extremities Type II: Soft plaques with prominent perifollicular protrusions Type III: Reticular erythema variant	Band-like loss of mid-dermal elastic fibers	Sun protection and topical retinoids
White fibrous papulosis of neck[10,12]	Japanese M, Western European and Middle Eastern F 39-80 y	Multiple small pale-to-skin—colored, nonfollicular, firm papules on neck	Slight fibrosis in papillary dermis. Elastic tissue loss in papillary and mid-reticular dermis	No widely reported effective treatments established
Pseudoxanthoma elasticum-like papillary dermal elastolysis[13]	Postmenopausal, F, 63-80 y	Multiple white-yellow, soft, nonfollicular papules on neck and supraclavicular regions; often coalesce into cobblestone plaques	Band-like loss of elastic tissue in papillary dermis	Most case reports suggest topical retinoids are treatment of choice
Papular elastorrhexis[14]	F > M, 2nd decade of life	Asymptomatic, small, white, firm, nonfollicular papules on trunk and upper extremities	Fragmentation and loss of reticular dermis elastic tissue	Case reports of intralesional corticosteroids, but no established treatment
Lichen planopilaris, Frontal fibrosing alopecia[11,15]	F > M, 40-60 y	Cicatricial alopecia with perifollicular erythema and scaling; yellow or keratosis-pilaris-like facial papules	Perivascular and perifollicular lymphocytic infiltrate in reticular dermis, absence of arrector pili muscles and sebaceous glands, and mucinous perifollicular fibroplasia in upper dermis without interfollicular mucin	Wide array of anti-inflammatory treatments, including hydroxychloroquine, doxycycline, intralesional/topical corticosteroids
Primary milia of children and adults[11]	Children and adults of all ages, M = F	Small, white, firm, spherical papules	Small epidermoid cyst arising from a vellus hair follicle	De-roof, curettage, cryotherapy, and topical retinoids for widespread lesions
Anetoderma[11]	Slightly F > M, children and adults, mostly in 2nd decade	Skin-colored or bluish-white wrinkled macules or patches with central depression ("buttonhole sign"); may progress to sac-like patches	Elastic stains may show marked reduction and fragmentation of elastic fibers in papillary and mid-reticular dermis	Treatment of triggering underlying conditions, excision of solitary lesions

Continued

Table I. Cont'd

Differential diagnosis	Epidemiology	Clinical features	Histopathology	Treatment
Upper dermal elastolysis[10]	Rarely reported	2- to 5-mm yellow papules on neck and trunk	Complete loss of elastic fibers in papillary dermis (mid dermis intact); ± elastophagocytosis	No clearly established treatment given rarity of reports

The differential diagnosis of perifollicular elastolysis can be broad, including clinically similar conditions or those with decreased elastic tissue on histopathology. A thorough differential diagnosis is presented in Table I.[9-15] Perifollicular elastolysis was diagnosed on account of follicular involvement. The lack of inflammation on pathology findings ruled out lichen planopilaris. Clinical appearance and pathology findings similarly ruled out milia or disorders on the keratosis pilaris spectrum.

Perifollicular elastolysis occurs on the upper back, upper chest, or upper arms and presents as 1- to 3-mm round-to-oval papules that are white, yellow or skin-colored.[4,7] In our cases, the patients uniquely presented with lesions on or near the breasts. To our knowledge, this is the first report of perifollicular elastolysis on the breast or in intertriginous distribution. However, we imagine this finding may be underreported. Clinician awareness of lesions in this area of the body is important to keep this condition (and other elastolysis disorders) in the differential diagnosis.

Although many patients undergo acne-related treatment for this condition, the papules are recalcitrant. Some investigators suggest this condition is untreatable.[7] It is important for the clinician to recognize, diagnose, and, perhaps most importantly, counsel patients on the etiology of this condition and its lack of response to treatment, thus preventing unnecessary frustration and expense related to futile management strategies.

CONCLUSION

Perifollicular elastolysis is rarely reported and may uncommonly present in inframammary folds. Clinicopathologic correlation is most helpful for diagnosis. Patient counseling on the lack of adequate treatment options is important to prevent frustration and unnecessary expenditure.

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