



White network in fibroepithelioma of Pinkus

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INTRODUCTION

First described by Herman Pinkus in 1953 as a premalignant epithelial neoplasm from which a basal cell carcinoma (BCC) may arise,¹ fibroepithelioma of Pinkus (FEP) is viewed by most as a subtype of BCC,²⁻⁴ although some view it as a subtype of trichoblastoma.⁵ FEP classically appears clinically as a solitary skin-colored papule, most often on the lumbosacral region, having a benign appearance that is frequently misdiagnosed as a fibroma, dermal nevus, seborrheic keratosis, or even acrochordon. Histologically, FEP is characterized by anastomosing strands of basaloid epithelial cells embedded within a fibrous stroma. Frequently, FEPs are found in continuity with other histologic subtypes of BCC, such as nodular BCC.^{2,3} Dermatoscopic structures observed in FEP include shiny white structures (also known as *chrysalis* or *crystalline structures*), fine arborizing vessels, milialike cysts, and ulceration.⁶ Herein, an additional dermatoscopic finding that may be more specific for FEP, namely, *the white network*, is reported in 2 cases.

CASE 1

A 51-year-old woman presented with an asymptomatic lesion near her right antecubital fossa that was slowly growing for 2 years. Physical examination found a dome-shaped, well-circumscribed, smooth, pink papule with an area of hyperpigmentation at one pole. Dermatoscopically, a white network with variable-sized pink holes accentuated by small vessels was accompanied by larger-caliber vessels coursing parallel to the surface. In addition to the white network, short shiny white streaks were present in center of the lesion (Fig 1). A conspicuous irregularly outlined darkly pigmented island was observed at one pole. Based on the clinical and

Abbreviations used:

BCC: basal cell carcinoma
FEP: fibroepithelioma of Pinkus

dermatoscopic findings, diagnosis of congenital or Spitz nevus versus BCC was considered.

Excisional biopsy of the lesion found anastomosing cords of pink-to-blue hyperchromatic epithelial cells emanating from the epidermis surrounded by a fibrous stroma consistent with BCC of FEP type (Fig 2). A small nodular component surrounded by melanophages represented the pigmented portion of the lesion, showing the pigmented nodular component of the BCC. Melan-A stain was negative (Fig 2).

CASE 2

A 70-year-old man, while being examined for a wound check of a previous excision, was noted to have a well-circumscribed, oval, pink plaque on his back that appeared different than his seborrheic keratoses. Presumed to be a seborrheic keratosis, the lesion was not examined a year prior. Dermatoscopic examination during the current visit found a white network with a slight translucent inferior area that was accompanied by overlying larger-caliber parallel vessels and subtle thick short white streaks. The lesion was accentuated by ill-defined peripheral brown-gray pigment, comedolike openings, and polymorphous vessels (Fig 3).

Shave biopsy found anastomosing cords of pink and blue epithelial cells emanating from the epidermis with a deeper and adjacent component that consisted of nodular aggregations of basaloid

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Fig 1. Dermatoscopic image of case 1 shows honeycomb white network with variable-sized holes (gray circle) accompanied by darkly pigmented island at one pole. Larger-caliber vessels coursing parallel to the surface and short shiny white streaks oriented in an orthogonal fashion are present in the central portion of the lesion. Inset shows a well-circumscribed, dome-shaped papule with a focus of hyperpigmentation at the periphery.



Fig 3. Dermatoscopic image of case 2 shows a white network over a large area of the lesion (gray circle) accentuated by polymorphous vessels within the holes and semitranslucent area with arborizing vessels and thick short white streaks in lower third area of the lesions. Ill-defined peripheral brown-gray pigment and comedo-like openings are also present. Inset shows a well-circumscribed pink plaque.

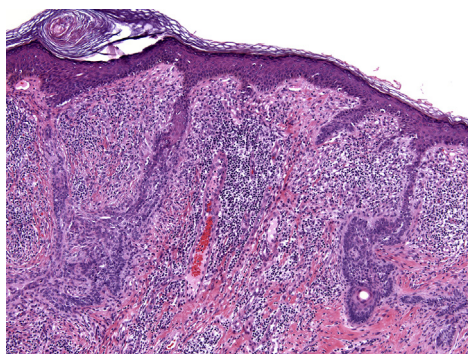


Fig 2. Thin elongated strands of interconnecting epithelial cells are emanating from the undersurface of the epidermis with thickened areas that consists of hyperchromatic basaloid cells within a fibrous inflamed stroma in case 1. (Hematoxylin-eosin stain; original magnification: $\times 100$.)

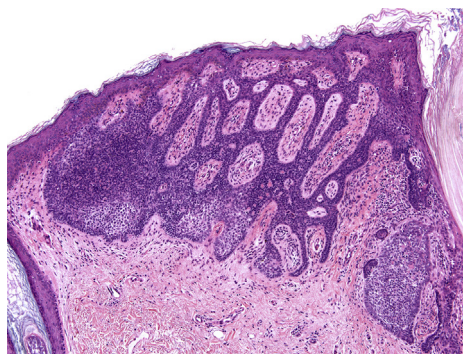


Fig 4. Thin elongated strands of interconnecting epithelial cells are emanating from the undersurface of the epidermis forming a fenestrated pattern of growth within a fibrous stroma in case 2. (Hematoxylin-eosin stain; original magnification: $\times 100$.)

hyperchromatic epithelial cells all within a fibrous stroma consistent with FEP and nodular BCC (Fig 4).

DISCUSSION

Because of its rarity and nonspecific clinical findings, FEPs are frequently mistaken for a variety of benign lesions as was the case for both lesions in this report. Given its unremarkable clinical appearance, the identification of more specific dermatoscopic structures would improve the recognition of this frequently misdiagnosed lesion. The 2 cases of FEP herein not only showed the well-established BCC dermatoscopic structures but also an additional finding of white network that has not been previously described. Histologically, the white network in FEP correlates with the regular anastomosing

network of thin strands of epithelial cells emanating from the undersurface of the epidermis. The white network, also referred to as *negative pigment network* and *reticular depigmentation*, is not a highly specific dermatoscopic structure, as it may be encountered in melanocytic nevi, particularly in Spitz nevi, dermatofibroma, and melanoma. In all these instances, the underlying histologic substrate of the white network corresponds to elongated rete ridges devoid of pigment.⁷⁻⁹ The white network has been best characterized in amelanotic or hypomelanotic Spitz nevi in which variable thickness and regularity of the white grid has been observed depending on the degree of epidermal hyperplasia, hypergranulosis, and hyperkeratosis.^{7,8} That white network observed in FEP should come as no surprise, as the anastomosing epithelial strands in FEP

are fundamentally similar to the anastomosing elongated epithelial invaginations in melanocytic lesions and dermatofibromas. The network may not be well defined, discontinuous, or absent in FEP if the anastomosing epithelial strands are irregular and vary in thickness, present in a patchy fashion, or present in the reticular dermis and not immediately beneath the epidermis.

In addition to the white network, the 2 current cases of FEP harbored better-known BCC dermatoscopic structures, specifically, shiny white streaks, arborizing vessels, large ovoid nests, and semitranslucency. Shiny white streaks need to be differentiated from white network in FEP, as both structures may be present concomitantly. White streaks are characterized by thick, short, shiny linear structures oriented in orthogonal or stellate manner, lacking a honeycomb network pattern. Stromal fibroplasia associated with BCC represents the histologic substrate for the white streaks observed in BCCs. The first case displayed prominent shiny short streaks and arborizing vessels more in the center of the lesion, whereas the second case displayed subtle short white streaks and prominent arborizing vessels near the inferior pole, indicating a presence of a nodular pattern of BCC, which was confirmed histologically. The nodular pattern that accompanied the classic fenestrated pattern of FEP in both cases likely contributed to the characteristic dermatoscopic findings of BCC. Parenthetically, the concomitant presence of white network and shiny white structures or streaks has been observed in dermatofibroma and Spitz nevi⁸; therefore, the presence of arborizing vessels may confer higher specificity for FEP than white streaks.

Although no single dermatoscopic structure is pathognomonic or highly specific, the dermato-

scopic presence of a white network only occurs in lesions with anastomosing, elongated strands of hyperplastic, nonhyperpigmented epidermis and, therefore, narrows the diagnostic possibilities to nevus, melanoma, dermatofibroma, and FEP. With additional corroborating BCC dermatoscopic structures such as arborizing vessels, the diagnosis of FEP can be established with more confidence. A larger series is needed to determine the frequency and the extent of white network observed in FEP.

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