Multifocal eruptive cutaneous epithelioid angiomatous nodules

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INTRODUCTION

Cutaneous epithelioid angiomatous nodule (CEAN) is a recently described rare vascular proliferation. Although this neoplasm is more commonly reported as a solitary papule or nodule on the trunk or extremities, eruptive patterns have been reported. We report an eruptive, slowly progressive case of CEAN that shows some of the shared features of other cutaneous vascular proliferations. Although the diagnosis may be challenging, careful evaluation of clinical and histopathologic features should allow correct classification.

CASE REPORT

A 31-year-old African-American man presented with a 1-year history of multiple bumps on the right chest and right arm. The lesions were nontender but reported to be occasionally pruritic and bleed with mild trauma. Physical examination found multiple closely distributed pink-to-violaceous papules and nodules on the right lateral aspect of the chest with numerous interspersed hyperpigmented macules. The larger lesions had overlying hyperkeratotic scale. Similar macules and rare papules were also noted on the right arm (Fig 1). The patient denied any high-risk behaviors for HIV, was in a monogamous heterosexual relationship, and had no history of immunosuppression. He was otherwise healthy, and his review of systems was unremarkable. An HIV test within the last year was negative.

A skin biopsy was performed from a lesion on the right side of the chest. Examination of a hematoxylin-eosin stained specimen found epidermal hyperplasia overlying a well-circumscribed proliferation of epithelioid cells within the papillary dermis (Fig 2). These cells had pale staining cytoplasm, vesicular nuclei, and intracytoplasmic vacuoles (Fig 3). There was no nuclear atypia or abnormal mitoses. An associated mixed inflammation of lymphocytes, neutrophils, and eosinophils was present. Scattered within this intradermal collection were small channels lined by a single layer of plump endothelial cells. Extravasated red blood cells were also noted. Immunohistochemical staining for CD31 was positive in the vessel lining and in rare cells within the nodule (Fig 4, A), and factor VIII—related antigen highlighted a higher number of epithelioid cells (Fig 4, B). Human herpes virus 8 and Warthin-Starry stains were negative. A diagnosis of CEAN was made.

At his 1-month follow-up visit, the patient was noted to have new lesions unrelated to the biopsy site. He elected to have several of the largest lesions excised. Two months later, he had no evidence of recurrence.

DISCUSSION

First described by Brenn and Fletcher in 2004,1 CEAN is one of several cutaneous epithelioid neoplasms. CEAN is characterized by a well-circumscribed proliferation of epithelioid cells within the papillary dermis (Fig 2). These cells have pale staining cytoplasm, vesicular nuclei, and intracytoplasmic vacuoles (Fig 3). There was no nuclear atypia or abnormal mitoses. An associated mixed inflammation of lymphocytes, neutrophils, and eosinophils was present. Scattered within this intradermal collection were small channels lined by a single layer of plump endothelial cells. Extravasated red blood cells were also noted. Immunohistochemical staining for CD31 was positive in the vessel lining and in rare cells within the nodule (Fig 4, A), and factor VIII—related antigen highlighted a higher number of epithelioid cells (Fig 4, B). Human herpes virus 8 and Warthin-Starry stains were negative. A diagnosis of CEAN was made.

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Abbreviations used:

BA: bacillary angiomatosis
CEAN: cutaneous epithelioid angiomatous nodule
EH: epithelioid hemangioma
KS: Kaposi sarcoma
PyG: pyogenic granuloma

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vascular proliferations. There seems to be no sex or age predilection, with cases reported in patients 10 to 84 years old. In general, lesions present acutely, but 1 case reported a lesion present for more than 30 years. Although the original report found a predilection for the trunk, 2 subsequent publications reported a head and neck distribution. CEAN has also been reported on the extremities, mucosal surfaces, vulva, and penis. Most often, CEAN will present as a solitary erythematous-to-bluish papule. However, even the first case series had a single patient presenting with multiple lesions. Since then, several other publications have reported presentation with multiple lesions occurring at the same anatomic site. A PubMed review found only 1 report of a case with multiple lesions at different anatomic sites; however, never with multiple lesions simultaneously at each site. Our case presentation seems unusual because of its presentation in multiple anatomic sites simultaneously.

CEAN has been described as a dermal, well-circumscribed solid proliferation of plump epithelioid cells. The cells show abundant eosinophilic-to-clear cytoplasm often with vacuoles and vesicular chromatin with prominent nucleoli.

Although there may be mitotic figures, there are no abnormal mitoses or atypical nuclei. Intermixed within these epithelioid cells is a variable infiltrate composed of lymphocytes, eosinophils, and plasma cells. As in our case, extravasated red blood cells and epidermal hyperplasia may also be noted. Within the circumscribed nodule are focal or homogeneous channels lined by a single layer of endothelial cells. At the periphery, there may be dilated vessels and dermal fibrosis.

CEAN is part of the larger classification of cutaneous epithelioid vascular proliferations. This classification includes differential diagnoses of other benign neoplasms (such as epithelioid hemangioma [EH] and pyogenic granuloma [PyG]), vascular neoplasms with an infectious source (such as Kaposi sarcoma [KS] and bacillary angiomatosis [BA]), and malignant neoplasms such as epithelioid hemangioendothelioma and epithelioid angiosarcoma. CEAN is debated by some to be a variant of EH rather than a distinct entity. However, unlike EH, CEAN is unilobular, is more densely cellular than vasoformative, exhibits a more prominent central stromal component, and rarely extends into the subcutaneous tissue. PyG favors sites of trauma on the head and acral sites. Our patient had no preceding trauma and lesions only on the trunk and upper extremity. In addition, PyG often shows a multilobulated architecture and lacks the prevalent epithelioid appearance of its endothelial cells.

Multiple staining techniques, including immunohistochemical stains, may be used to further elucidate the diagnosis. Endothelial markers such as CD31, CD34, and factor VIII–related antigen highlight the epithelioid cells, although not all stains will necessarily be positive within a lesion. Since the original description by Brenn and Fletcher, D2-40 is found positive in the epithelioid cells of some but not in all specimens. Smooth muscle actin
highlights the pericytes lining the intralesional channels. Negative human herpes virus 8 and Warthin-Starry stains can help rule out KS and BA, respectively.

Although CEAN is thought to be a reactive process, it is unclear what the inciting event may be. Unlike pyogenic granulomas, which may be related to trauma, and KS and BA, which have an infectious etiology, these triggers do not have a clear role in formation of CEAN.

Because most cases report single lesions, excision is the most commonly reported treatment. However, in cases such as ours, excision of each lesion is not feasible. In addition, given our patient’s darker skin type, further consideration of possible posttreatment pigmentary changes must be made. Dastgheib et al reported a case of a woman with multiple lesions on the left arm. These were treated with topical and intralesional steroids (reported as ineffective) and cryotherapy and excision. Lesions were not reported to recur.

CEAN is a rare vascular neoplasm with some overlapping features with other cutaneous epithelioid vascular proliferations. However, close clinical and histopathologic evaluation, often aided by immunohistochemical staining, can clarify the diagnosis. We report an extensive case of CEAN that, unlike previous reports, affected multiple anatomic locations simultaneously.

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