Images in Dermatology

Pigmented nodule on the dorsum of the foot

Lester Juay, MBBS (Hons), MRCP, MMed Int Med. Ellie Choi, MBBS, MRCP, MMed Int Med.
Justin Wong, MBBS, MRCPath, FRCPPath, and Nisha Suyien Chandran, MRCP, MMed, MBBS

Singapore

Key words: adnexal tumor; pigmented; poroma.

From the Division of Dermatologya and Department of Pathology, National University Hospital.b
Funding sources: None.
Correspondence to: Lester Juay, MBBS (Hons), MRCP, MMed Int Med, National University Hospital, 5 Lower Kent Ridge Road, Singapore 119074. E-mail: lester_juay@nuhs.edu.sg.
JAAD Case Reports 2021;13:49-51.
A 76-year-old Asian man was seen as an inpatient dermatologic referral for a pigmented nodule presenting over the dorsum of the left foot. He reported a 20-year history of a slowly expanding lump, which was otherwise asymptomatic. On examination, there was a soft, pigmented, fleshy, nonulcerated nodule attached to the dorsum of the left foot (Figs 1 and 2). The nodule was nontender. Regional lymph nodes were not palpable. A punch biopsy of the nodule revealed an epidermal proliferation consisting of anastomosing cords of basaloid small polygonal cells with ductal structures (Fig 3, A and B).

Question 1: What is the most likely diagnosis?

A. Nodular melanoma
B. Basal cell carcinoma
C. Intradermal melanocytic nevus
D. Pigmented poroma
E. Pigmented seborrheic keratosis

Answers:
A. Nodular melanoma — Incorrect. This man reported a history of a slowly-growing lump over 2 decades, which is inconsistent with the natural history of melanomas. The histology of a melanoma should show atypical melanocytes without maturation, with frequent mitoses and possible lympho-vascular invasion.
B. Basal cell carcinoma — Incorrect. While basal cell carcinomas are often pigmented in the Asian population, histology would reveal a basaloid proliferation of tumor cells, demonstrating peripheral palisading and retraction clefting, within a fibro-myxoid stroma.
C. Intradermal melanocytic nevus — Incorrect. The histology of an intradermal melanocytic nevus should show nests and cords of melanocytes within the papillary dermis, extending deeper, and demonstrating maturation with descent.
D. Pigmented poroma — Correct. Poromas are benign adnexal tumors arising from the acrosyringium (intraepidermal portion) of the eccrine sweat duct. Dermoscopic features of poromas include white interlacing areas around vessels, milky-red globules, and poorly-visualized vessels. The classic findings of cells containing ample pink cytoplasm, with small, round-to-oval nuclei, dispersed chromatin, and small nucleoli should cue one in to the diagnosis of a poroma. In this case, pigment was observed within the ductal structures of the poroma. The pigmented variant of poroma is more commonly seen in the nonwhite population, on in nonacral sites.1
E. Pigmented seborrheic keratosis — Incorrect. While seborrheic keratoses tend to be pigmented in the Asian skin, with their histology showing a basaloid proliferation, the presence of ductal structures on histology would argue against the diagnosis of a seborrheic keratosis. Pseudohorn cysts were absent in this specimen.

Question 2: Which histologic stain would be positive on this specimen?

A. Melan-A
B. Ber-EP4
C. Alcian blue
D. Carcinoembryonic antigen
E. Sox10

Answers:
A. Melan-A — Incorrect. The melan-A stain, also known as the MART-1 stain, is positive in melanocytes but typically negative in tumors of epithelial or mesenchymal derivation.
B. Ber-EP4 — Incorrect. The Ber-EP4 stain is a monoclonal antibody directed toward epithelial-glycoprotein-adhesion-molecules and is highly sensitive and specific for basal cell carcinoma.2
C. Alcian blue — Incorrect. Alcian blue stains acid mucopolysaccharides, which are not found in poromas. Poroid cells may appear to have a faint pink cytoplasm, which reflects glycogen accumulation.
D. Carcinoembryonic antigen — Correct. Carcinoembryonic antigen stains the ducts of sweat glands and its neoplasms. It is also usually positive when used on adenocarcinomas.
E. Sox10 — Incorrect. Sox10 is a neural crest transcription factor, which stains melanomas, myoepitheliomas, and some malignant peripheral nerve sheath tumors.

Question 3: Which of the following has been described in association with the development of poromas?

A. Radiation exposure
B. Basal cell carcinoma
C. Nevus comedonicus
D. CYLD gene mutation

E. Adolescence

Answers:

A. Radiation exposure – Correct. There are reports of development of poromas following long-term radiation exposure. A case published in 1989 involved a 70-year-old man developing 7 poromas over his previous irradiated right lower limb over a span of 37 years.

B. Basal cell carcinoma – Incorrect. Poromas have been found to occur in patients with hypohidrotic ectodermal dysplasia and Bowen disease; however, an association with basal cell carcinomas remains to be established.

C. Nevus comedonicus – Incorrect. The poroma has been found as a secondary tumor on a nevus sebaceous. There has been no known association between the poroma and nevus comedonicus.

D. CYLD gene mutation – Incorrect. Mutations in the CYLD lysine 63 deubiquitinase (CYLD) gene have been implicated in Brooke-Spiegler syndrome, which is associated with multiple adnexal tumors such as trichoepitheliomas, cylindromas, and spiradenomas. CYLD gene mutation has not been identified in poroma formation.

E. Adolescence – Incorrect. Poromas tend to occur in the middle-aged-to-elderly populations.

Conflicts of interest

None declared.

REFERENCES

1. Hu SCS, Chen GS, Wu CS, Chai CY, Chen WT, Lan CCE. Pigmented eccrine poromas: expression of melanocyte stimulating cytokines by tumor cells does not always result in melanocytic colonization. J Eur Acad Dermatol Venereol. 2008;22(3):303-310.

2. Sunjaya AP, Sunjaya AF, Tan ST. The use of BEREP4 immunohistochemistry staining for detection of basal cell carcinoma. J Skin Cancer. 2017:2692604.

3. Sawaya JL, Khachemoune A. Poroma: a review of eccrine, apocrine, and malignant forms. Int J Dermatol. 2014;53(9):1053-1061.

4. Ullah K, Pichler E, Fritsch P. Multiple eccrine poromas arising in chronic radiation dermatitis. Acta Derm Venereol. 1989;69(1):70-73.

5. Shalom A, Schein O, Landi C, Marghoob A, Carlos B, Scope A. Dermoscopic findings in biopsy-proven poromas. Dermatolog Surg. 2012;38(7 Pt 1):1091-1096.