

# Blue nodule on the finger



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**Key words:** blue nevus; homogeneous blue pigmentation; melanoma; pencil-core granuloma.

### Abbreviations used:

HBP: homogeneous blue pigmentation

### CLINICAL PRESENTATION

A 67-year-old woman sought treatment for a painful nodule on the perionychium of the right second finger that had rapidly enlarged over the previous year. The patient reported that the point of a lead pencil had become lodged in her skin at the age of 10 years. The nodule was blue-gray in color, 9.6 mm in maximum diameter, and unattached to the subcutaneous tissue (Fig 1).



**Fig 1.** Clinical image of the pencil-core granuloma on the right second finger.

### DERMOSCOPIC APPEARANCE

Dermoscopic examination found homogeneous blue pigmentation (HBP) over the lesion. Several dotted vessels were observed in the lesion center under higher magnification (Fig 2).

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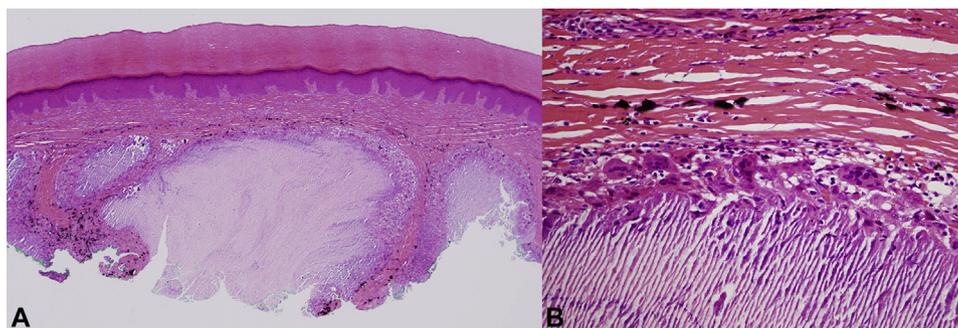
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**Fig 2.** Dermoscopic image of the pencil-core granuloma on the right second finger. Arrows indicate dotted vessels. (Original magnification:  $\times 10$ .)

### HISTOLOGIC DIAGNOSIS

Histologic findings confirmed a diagnosis of pencil-core granuloma (Fig 3).



**Fig 3.** Histopathologic features of the pencil-core granuloma. **A**, a nodular eosinophilic structureless material is located in the middle dermis and subcutaneous tissue. The eosinophilic material is stained dark brown by the von Kossa reaction (not shown). The number of microvessels in the papillary dermis was increased. **B**, deposition of black substances (graphite) and infiltration of multinucleated giant cells admixed with lymphocytes are observed at the periphery of the nodule. (**A** and **B**, Hematoxylin-eosin stain; original magnifications: **A**,  $\times 20$ ; **B**,  $\times 400$ .)

**KEY MESSAGE**

This case displayed HBP by dermoscopy that resembled a blue nevus. HBP generally corresponds to dermal melanin granules of melanocytic tumors, such as blue nevus, but is also observed in hemangioma, dermatofibroma, and other nonmelanocytic tumors.<sup>1</sup> Histopathologic examination found that the HBP in this case was caused by the dermal deposition of graphite and graphite accumulation within macrophages. Several cases of pencil-core granuloma have been reported to exhibit HBP on dermoscopy,<sup>2</sup> with a history of embedded pencil-tip graphite at the site representing a clue for correct diagnosis. However, melanoma could not be completely excluded in this case because of the dermoscopic finding of dotted vessels and the rapid size increase of the tumor. Close attention is necessary for nodular melanoma, as it frequently shows a symmetrical pigmentation pattern without pigment network.<sup>2</sup> Pencil-core granulomas may suddenly develop long after the initial trauma, presumably because of delayed granulomatous reactions towards the graphite, clay, wax, and other components of pencil cores.<sup>3</sup>

**REFERENCES**

1. Longo C, Scope A, Lallas A, et al. Blue lesions. *Dermatol Clin*. 2013;31(4):637-647.
2. Menzies SW, Moloney FJ, Byth K, et al. Dermoscopic evaluation of nodular melanoma. *JAMA Dermatol*. 2013;149(6):699-709.
3. Terasawa N, Kishimoto S, Kibe Y, Takenaka H, Yasuno H. Graphite foreign body granuloma. *Br J Dermatol*. 1999;141(4):774-776.