Honeycomb-like cavities in a single fingernail plate

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A 78-year-old white woman presented with a 7-month history of pain with palpation of her right third fingertip. She was initially diagnosed with chronic paronychia, and she received 16 weeks of fluconazole, as well as daily vinegar soaks for 3 months. Her symptoms persisted. During a subsequent visit, a thickened yellow nail plate of the affected digit was noted (Fig 1, A). An en face dermoscopic examination found honeycomb-like cavities (Fig 1, B). An ultrasound examination found no mass or focal fluid collection in the soft tissue or nail bed. The nail plate was removed and histologically examined (Fig 2). The periodic acid–Schiff testing was negative.
Question 1: What is the correct diagnosis?

A. Tinea unguium
B. Onychomatricoma
C. Subungual exostosis
D. Onychopapilloma
E. Glomus tumor

Answers:

A. Tinea unguium — Incorrect. Tinea unguium represents an infection of the nail plate by a dermatophyte. It typically presents with onycholysis and subungual hyperkeratosis. The PAS would be positive.

B. Onychomatricoma — Correct. Onychomatricoma is a rare benign fibroepithelial tumor that is distinguished by clinical features that may include (1) splinter hemorrhages in the proximal nail plate, (2) a thickened yellow nail plate, and (3) a longitudinal overcurvature.1,2

C. Subungual exostosis — Incorrect. Subungual exostosis is often caused by trauma and observed on the great toe. It is a bony proliferation that presents as a painful subungual nodule with associated elevation of the nail plate.

D. Onychopapilloma — Incorrect. An onychopapilloma is a benign tumor of the nail bed and matrix. It typically presents with distal subungual keratosis and/or longitudinal erythronychia. It does not present with honeycomb-like cavities.

E. Glomus tumor — Incorrect. A glomus tumor is a neoplasm that arises from a thermoregulatory glomus body, an arteriovenous shunt, found in greater concentration on the digits. A glomus tumor presents as a tender blue-red subungual papule in a young adult.

Question 2. Which of the following dermoscopic features is considered pathognomonic of the diagnosis above?

A. Honeycomb-like (woodworm-like) cavities
B. Salmon patches (oil drop changes)
C. Dark dots
D. Nail plate thickening
E. Parallel grey bands

Answers:

A. Honeycomb-like (woodworm-like) cavities — Correct. A review of imaging features of an onychomatricoma reports that honeycomb-like cavities are present in 70% of 61 reported cases of onychomatricoma.3 Histologically, an onychomatricoma has 2 distinct zones: a proximal zone with deep epithelial invagination (Fig 2) and a distal zone with epithelial digitations in the matrix epithelium. Findings in the distal zone, which represents the lunula on surface anatomy, is responsible for the characteristic honeycomb-like perforations on the distal nail plate (Fig 1).2 These cavities at the distal nail plate are considered pathognomonic.3,4 The stroma is typically composed of a superficial cellular layer of fibrillary collagen and a deep layer of fibroblasts and thicker collagen.5 The superficial cellular layer expresses CD34, but not CD99.6

B. Salmon patches (oil drop changes) — Incorrect. These are irregular patches of orange-yellow discoloration that may be observed in fingernails of psoriasis patients.

C. Dark dots — Incorrect. The cavities observed in an onychomatricoma may contain yellow debris or red/black pigment. Dark dots are only visible in 10% of patients.3

D. Nail plate thickening — Incorrect. Nail plate thickening is observed in 52% of cases. However, this is observed in multiple other nail disorders, such as onychopapilloma and onychomycosis. Onychomycosis has been associated with onychomatricoma. It had been argued that an onychomatricoma may represent either a true tumor or a reactive hyperplasia against onychomycosis. Furthermore, the cavities from the onychomatricoma may facilitate the growth of fungal organisms.

E. Parallel grey bands — Incorrect. Longitudinal parallel bands represent tumor digitations observed in the nail plate.3 These bands are frequently white or yellow. They are rarely grey.

Question 3. Which of the following statements is true regarding this diagnosis?

A. The incidence of onychomatricoma is greater in men than in women
B. Surgical excision is not recommended
C. Surgical excision, including the removal of the normal nail matrix proximal to the tumor, is the treatment of choice

D. The lesion is typically painful

E. Onychomatricoma is a tumor of the nail bed

F. Onychomatricoma is exclusively seen in adults

**Answers:**

A. The incidence of onychomatricoma is greater in men than in women — Incorrect. The approximate gender ratio is 1:1, and it is thought that the tumor has no gender predilection.

B. Surgical excision is not recommended — Incorrect. Although no case of malignant transformation has been reported, complete excision of an onychomatricoma is recommended. One case of local recurrence has been reported after an excision.

C. Surgical excision, including the removal of the normal nail matrix proximal to the tumor, is the treatment of choice — Correct. Complete excision, as well as surgical removal of the normal nail matrix proximal to the tumor, is recommended to prevent recurrence.

D. The lesion is typically painful — Incorrect. Pain with nail compression is only observed in 30% of cases. Inflammation of the proximal nail fold is more commonly observed in long-lasting tumors.

E. Onychomatricoma is a tumor of the nail bed — Incorrect. Onychomatricoma is a rare benign tumor arising from the nail matrix.

F. Onychomatricoma is exclusively seen in adults — Incorrect. A sporadic pediatric case has been reported in a 4-year-old Pakistani girl with a coinfection with Trichophyton interdigitale.

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