A Tale of a Double-Nailed Toe

Anissa Zaouak Sarra Boufarguine Houda Hammami Samy Fenniche

Research Unit “Genodermatoses and Cancers” LR12SP03, Dermatology Department, Habib Thameur Hospital, Tunis, Tunisia

Question

A 77-year-old female patient was referred to our department for a slowly growing, painful, hard projection on her right fifth toe. There was a history of trauma preceding the appearance of the plantar mass. Physical examination revealed a well-defined keratotic plaque on her plantar right toe mimicking nail structure (Fig. 1). No bone abnormality was radiologically detected in our

patient. Mycological examination of her toe nails confirmed the diagnosis of onychomycosis. Fungal culture revealed trichophyton rubrum. Dermoscopic findings revealed thickening of the nail plate with yellow-brown chromonychia, longitudinal striae of various colors along with scaling, and dryness of the adjacent skin (Fig. 2).

What is your diagnosis?

Fig. 1. A well-defined keratotic plaque on the plantar right toe mimicking nail structure.

Fig. 2. Thickening of the nail plate with yellow-brown chromonychia, longitudinal striae of various colors along with scaling, and dryness of the adjacent skin.

Answer

An X-ray of the foot focusing on the fifth toe was performed. Apart from the toe deformity, there was no evidence of exostosis. The nail-like structure was then completely excised, and histopathological findings revealed a fully developed nail unit with the nail matrix and the nail bed.

Onychoheterotopia is an extremely rare condition in which the nail apparatus grows outside the normal nail unit of the foot or hand [1]. Its pathogenesis remains undetermined. Onychoheterotopia rarely develops on the sole or foot as in our case. It could be congenital or acquired. Congenital onychoheterotopia was reported in relationship to other congenital conditions such as congenital palmar nail syndrome and Pierre Robin syndrome. In addition, it has most often been observed on the palmar aspect of the hand [1]. The acquired variety of onychoheterotopia, as in our case, usually develops either after a single trauma or after chronic repetitive injuries, which lead to both splitting and implantation of the germinal matrix or heterotopic inoculation of the oncocytes [2]. The continuous growth of the nail plate outside the dorsal aspect of the distal extremities is the primary characteristic of onychoheterotopia. Our case of ectopic plantar nail appeared as a keratotic prominence with an intradermic implanted base and a well-defined horizontal orientation just as a normal nail. Ectopic foot nails may lead to an impairment of the foot function, difficulty in walking, and cosmetic disfigurement [3]. Diagnosis is often based on histopathologic examination of the nail tissue. Histologically, the ectopic nail resembles nail tissue. This includes the presence of keratotic squamous epithelium in a fully developed nail unit including a corneous nail plate and nail matrix. The presence of a nail bed is not necessarily required [4].

Differential diagnosis includes a foreign body, teratoma, hamartoma, cutaneous horn, or subungual exostosis [5]. Performing X-ray imaging of the foot focusing on the ectopic nail is important to rule out the diagnosis of exostosis before performing a surgical excision of the nail-like structure. In our case, the combination of a careful medical history taking, dermatological examination, dermoscopic findings, histopathological findings, and radiological findings allowed us to confirm the diagnosis of acquired onychoheterotopia and to rule out other possible diagnoses.

Treatment as in our patient relies mainly on surgical excision of the hyperkeratotic lesion with its base implantation into the sub-

cutis. Treatment of the ectopic nail with cryotherapy could also be an alternative [6].

Our case of ectopic nail is unusual because of its plantar location and its late onset. Ectopic nail formation should be included in the differential diagnosis when evaluating a distal toe mass, especially in the case of a previous distal toe trauma.

Statement of Ethics

The patient gave her informed consent to use her photos and describe the details of her case.

Disclosure Statement

The authors declare that they have no conflicts of interest to disclose.

Funding Sources

The authors did not receive any funding.

Author Contributions

Anissa Zaouak, Sarra Boufarguine, and Houda Hammami participated in drafting the work. Samy Fenniche approved the final version of the manuscript.

Keywords

Onychoheterotopia · Ectopic foot nails · Plantar location

References

- 1 Riaz F, Rashid RM, Khachemoune A: Onychoheterotopia: pathogenesis, presentation, and management of ectopic nail. *J Am Acad Dermatol* 2011;64:161–166.
- 2 Chatterjee K, Chaudhuri A, Chatterjee G: Onychoheterotopia: a unique case. *Indian J Dermatol* 2013;58:150–151.
- 3 Ena P, Ena L, Ferrari M, Mazzarello V: Ectopic foot nails: clinical and dermoscopic features, treatment and outcome in 20 Cases. *Dermatology* 2015;231:298–303.
- 4 Ena P, Mazzarello V, Dessy L: Ectopic plantar nail: a report of two cases. *Br J Dermatol* 2003;149:1071–1074.
- 5 Goikoetxea X, Etxebarria I, Careaga M: Post-traumatic ectopic nail: case report. *J Hand Surg Am* 2006;31:819–821.
- 6 Meher S, Mishra TS, Sasmal PK, Rout B, Sharma R: Post-traumatic ectopic nail: a case report and review of literature. *J Clin Diagn Res* 2016;10:PD01–PD02.