

CASE REPORT



Work-induced dermatopathology: unraveling median canaliform dystrophy of Heller in carpet weaving

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ABSTRACT

A 60-year-old woman, a rural carpet weaver with no specific medical history, presented with a 10-year history of thumb nail dystrophy. This rare condition, known as Heller's canaliform dystrophy (HCD), is characterized by a central longitudinal depression with parallel transverse ridges resembling a fir branch. In this case, it was symmetrically present on both thumb nails with macro-lunula. Notably, there was no paronychia, subungual hyperkeratosis, or pain. Similar findings were observed on the right big toe nail. HCD is often underdiagnosed, and its diagnosis is clinical. Unlike most cases in the literature where it accompanies psychological issues, here, the dystrophy was linked to the patient's occupation, prompting consideration of it as an occupational pathology. The patient wasn't bothered aesthetically, leading to therapeutic abstention. This case emphasizes the potential association between occupational factors and HCD, urging further discussion and research within the dermatological community.

KEYWORDS

Nail dystrophy; Soleonychia; Nevus striatus unguis; Nail trauma

ARTICLE HISTORY

Received 2 January 2024;
Revised 22 March 2024;
Accepted 28 March 2024

Introduction

Median canaliform dystrophy of Heller (MCDH) is a rare nail anomaly clinically presenting as a central or paramedian groove or a fissure with multiple transverse lines. The exact etiopathogenesis is challenging to determine, but self-inflicted trauma within the context of stress or obsessive-compulsive disorder is reported in most cases [1].

Heller first described this condition in 1928. Repetitive trauma to the cuticle and proximal nail fold is a proposed cause, but a significant number of MCDH cases are idiopathic. In this report, we present a case of MCDH induced by the patient's profession [2].

Case Presentation

A 60-year-old woman of rural origin, a carpet weaver, with no specific medical history particularly related to dermatological conditions, psychiatric disorders, or medication use. She was referred due to nail dystrophy on her thumbs evolving over the last 10 years. Clinical examination revealed the presence of a central longitudinal depression traversed by parallel transverse ridges resembling a fir branch. These lesions were symmetrically present on both thumb nails and were associated with macro-lunula (Figure 1). There were no signs of paronychia, subungual hyperkeratosis. Examination of the toenails revealed a similar appearance on the right big toenail, while the other nails appeared entirely normal. The examination of the skin showed no remarkable findings. Based on this presentation, a diagnosis of Heller's canaliform dystrophy was established. Given the absence of aesthetic discomfort, therapeutic abstention was recommended.



Figure 1. Fir-tree-like appearance with macro-lunula.

Discussion

The MCDH is a rare acquired condition that affects both sexes equally [1]. The precise mechanism behind MCDH is not yet fully understood, but there are several proposed hypotheses regarding its pathophysiology. One of the leading theories relates to keratinocyte adhesion; as a matter of fact, a lack of proper adhesion between keratinocytes at the level of the nail matrix leads to reduced resistance and, consequently, the formation of grooves [2]. Although not well-established, some research has suggested that certain individuals may be more predisposed to this condition due to their genetic background [3], while others have suggested that inflammatory processes within the nail matrix may be linked to the development of this condition, as Inflammation might disrupt the normal keratinocyte adhesion and lead to the formation of longitudinal grooves or canals [4]. Certain risk factors have been incriminated in the absence of adhesion and reduction resistance of the nail matrix as some medications, particularly oral retinoids, or repeated self-inflicted trauma due to habits such as repetitive cuticle manipulation. In our patient, the fact that only the nails solicited by her during her work are affected (Figure 2), i.e., the nails of the two thumbs and the big toe, suggests that nail dystrophy was secondary to chronic local microtrauma caused by her occupation in manually crafting carpets. This aligns with the potential role of occupational trauma in MCDH development, although documented cases specifically linked to occupations are scarce due to the rarity of MCDH. Our patient's case presentation, which involved the thumbs and big toe, all used extensively in carpet crafting, strongly suggests a connection between her work and the development of MCDH in these specific nails.



Figure 2. The use of both thumbs and big toes in carpet weaving.

The diagnosis of MCDH is primarily clinical, by identifying a longitudinal median furrow that starts below the cuticle and ends at the free edge of the nail, often accompanied by parallel transverse ridges, giving a characteristic fir-tree-like appearance. Nail involvement is frequently bilateral and symmetrical; macro-lunula is often associated with and reflects the chronic trauma of the nail.

In terms of therapy, various treatments have been attempted, including topical tacrolimus, retinoids, notably tazarotene, and intralesional injection of triamcinolone [5]. These medications are believed to stimulate cell turnover and keratinization in the nails, potentially improving their structure. Nevertheless, these treatments often yield modest and unsatisfactory results. On the other hand, one of the primary strategies in managing MCDH is to protect the nails to prevent further damage. This can be achieved by applying dressings, adhesive tapes, or specialized nail protectors to minimize direct trauma to the nails. Our patient was not bothered by the aesthetic aspect but wanted to be ensured of the benignity of the lesions. After reassuring her, an abstention therapeutic was recommended besides hygienic-dietary rules.

Conclusions

This case presentation highlights a potential association between MCDH and occupational trauma, specifically in the context of our patient's manual carpet crafting profession. As far as our knowledge extends, this is the first observation to have incriminated the professional origin as a potential risk factor in the development of MCDH. We believe this finding underscores the importance of considering occupational factors in the evaluation of dermatopathological conditions, particularly those affecting the nails. We warmly encourage the dermatological scientific community to initiate a discussion by sharing any similar cases or offering insights into potential avenues of research and prevention.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Disclosure statement

No potential conflict of interest was reported by the authors.

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