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Title:

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Date:

2020-02-01

Citation:

Wang, C., Lee, S. H., Howard, A. & Foley, P. (2020). Coexisting median canaliform nail dystrophy and habit-tic deformity in a patient with atopic dermatitis. *Australasian Journal of Dermatology*, 61 (1), pp.e100-e101. <https://doi.org/10.1111/ajd.13084>.

Persistent Link:

<https://hdl.handle.net/11343/285950>

TITLE PAGE

Title: Coexisting Median Canaliform Nail Dystrophy and Habit-Tic Deformity in a Patient with Atopic Dermatitis

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Submitted as Case Letter

Word count: 580

Number of figures: 2

Number of tables: 0

Short running title: Coexisting MCND and habit-tic deformity

Keywords: median canaliform nail dystrophy, MCND, habit-tic deformity, atopic dermatitis

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No funding was required for this report

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/AJD.13084](https://doi.org/10.1111/AJD.13084)

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Disclosure and conflicts of interest for Professor Peter Foley are listed below:

A = advisory board

C = Consultant

I = Investigator (clinical trials)

R = Research grants

SP = Speaker's bureaux/honoraria

T = Travel grants

- Abbvie – A, I, R, SP, T
- Amgen – A, I, R
- Boehringer Ingelheim – I
- Celgene – A, I, R, SP
- Janssen – A, C, I, R, SP, T
- Lilly – A, I, C, R, SP, T
- Merck – A, I, R, SP, T
- Novartis – A, C, I, R, SP, T
- Pfizer – A, C, I, R, SP, T
- Sun Pharma – A, I, R, T
- UCB Pharma – A, I, C, SP
- Valeant – A, I, SP
- BMS – I, C
- Celtaxsys – I
- CSL – I
- Cutanea – I
- Dermira - I
- Galderma – A, C, I, R, SP, T
- Genentech – I
- GSK – A, I, SP
- Leo Pharma – A, C, I, SP, T
- Regeneron Pharmaceuticals Inc – I
- Roche – I, C, SP, T

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Article type : Case Letter

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MAIN TEXT

Median canaliform nail dystrophy and habit-tic deformity are nail abnormalities that may be on the same disease spectrum.^{1,2} However, coexistence of these two conditions is rarely observed. We describe a rare case of median canaliform nail dystrophy and habit-tic deformity coexisting in a patient with atopic dermatitis.

A 58-year-old man with lifelong atopic dermatitis attended the dermatology trials clinic for routine follow-up. His atopic dermatitis was managed on an investigational Janus Kinase inhibitor. His previous atopic dermatitis treatments included topical corticosteroids and phototherapy. His medical history included allergic rhinitis, allergic conjunctivitis, asthma and hypertension. The only medication in addition to the Janus Kinase inhibitor was perindopril.

On examination, his atopic dermatitis was reasonably well-controlled. Complete skin examination incidentally revealed a left thumbnail with transverse lines involving the midline nail plate, while his right thumb demonstrated a pronounced median longitudinal groove accompanied by transverse fissures, giving the appearance of a fir tree (figure 1). Nail

dystrophy in the setting of chronic paronychia were observed in other fingernails (figure 2). All nail changes were associated with macrolunulae and loss of cuticle. His toenails showed no abnormality. The remainder of the physical examination was unremarkable.

On further questioning, the patient was right-handed and these nail changes had developed prior to participation in clinical trials. He reported habitual cuticle manipulation due to itch from atopic dermatitis. He denied any mood disturbance. There was no family history of nail diseases.

A diagnosis of coexisting median canaliform nail dystrophy (right nail) and habit-tic deformity (left nail) was made. These were attributed to repetitive cuticle manipulation from pruritus secondary to atopic dermatitis.

Median canaliform nail dystrophy presents as a midline longitudinal groove with multiple transverse parallel lines, resulting in a fir tree appearance.² In contrast, habit-tic deformity is characterised by multiple transverse ridges and lack of longitudinal splitting seen in median canaliform nail dystrophy.³

Habit-tic deformity and median canaliform nail dystrophy are thought to be reactions exhibited by the nail plate in response to nail matrix trauma.² Habit-tic deformity is frequently observed in the setting of repeated manipulation of the proximal nail fold, while median canaliform nail dystrophy may not always have a clear cause.³ The mechanism behind median canaliform nail dystrophy is not fully understood, however presumably it arises from a temporary defect due to localised dyskeratosis in the nail matrix.⁵ An association between median canaliform nail dystrophy and macrolunulae supports the role of trauma in the pathogenesis of median canaliform nail dystrophy ; as more nail matrix lies outside of the proximal nail fold and thus is more susceptible to damage.^{1,2} Median canaliform nail dystrophy has also been associated with use of systemic retinoids and familial occurrence.^{4,5}

Coexistence of both conditions suggests the two have a similar pathogenesis and may be on the same disease spectrum. Manipulation of the cuticle in the setting of pruritus was the underlying precipitant in our case. Findings of macrolunulae, absence of cuticle and chronic paronychia correlated with this. Given our case and a previously published case both demonstrated median canaliform nail dystrophy and habit-tic deformity affecting the right and left thumbnail respectively,² it is possible that hand dominance may be a factor in the pathogenesis and co-existence of both conditions.

In summary, we report a case of median canaliform nail dystrophy and habit-tic deformity coexisting in a patient with atopic dermatitis in the setting of repetitive cuticle manipulation. Our case supports nail matrix trauma as a common mechanism for these two conditions that are likely on a disease spectrum.

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FIGURE LEGEND

Figure 1. Contrasting the clinical features of habit-tic deformity and MCND in our patient's left and right thumbnails respectively (close up view).

Figure 2. Coexisting MCND (right thumbnail), habit-tic deformity (left thumbnail) and nail dystrophy associated with chronic paronychia (other fingernails). There were associated macrolunulae and loss of cuticle, on a background of mild hand AD.

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