

## SHORT COMMUNICATION

## Dermoscopic Characteristics of Acquired Melanocytic Naevus in Childhood Affecting the Acral Region

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Dermoscopic findings in melanocytic naevus show characteristic patterns depending on age of onset and location (1, 2). On the trunk and extremities, a globular pattern is characteristic in both acquired melanocytic naevus (AMN) of childhood and in small-sized congenital melanocytic naevus (CMN), whereas a reticular pattern is common in melanocytic naevus in adulthood. Individual AMN on the back rarely change their dermoscopic patterns during adolescence (3) but the situation for AMN of the acral region has not been fully explored. We report here the results of dermoscopic analysis of acral AMN in children.

## MATERIALS AND METHODS

We retrospectively examined the dermoscopic features of AMN located on acral volar skin in patients aged  $\leq 10$  years who visited the Department of Dermatology, Shinshu University Hospital, Matsumoto, Japan, between January 2001 and September 2009. Based on the patient's medical history, we collected acral pigmented skin lesions presenting at least 4 months after birth, excluding those present at birth. All subjects and/or their families provided informed consent to participate in this study. Each dermoscopic image was evaluated independently by 2 expert dermoscopists (AM and HK) and classified into the following dermoscopic patterns: parallel furrow (PFP), lattice-like, fibrillar, homogeneous, globular, reticular, transition, globulostreak-like and crista dotted patterns. Biopsy was performed in 6 lesions, which were used to make a histopathological diagnosis.

## RESULTS

A total of 56 lesions in 52 Japanese patients were eligible. All of the lesions were diagnosed as acral AMN according to medical history, size and dermoscopic features. The mean age of the patients was 6.0 years old (range 1–10 years old) and the female/male ratio was 28:24. The mean and median sizes of the lesions were 4.6 and 4.6 mm, respectively (range 1.2–11.0 mm). The palmoplantar ratio was 9:47. The ages at which the lesions were first noted were as follows: 3 lesions (5%)  $< 1$  year old, 22 lesions (39%) 1–3 years old, 20 lesions (36%) 4–6 years old, 8 lesions (15%) 7–10 years old. For 3 lesions (5%) the age of onset was unknown, but they appeared  $\geq 4$  months after birth. None of the patients had a previous history of malignant melanoma or other skin cancers.

The dermoscopic patterns of acral AMN in childhood are summarized in Table I. The most prevalent pattern in our series was the PFP (41 lesions, 73%), among which

28 lesions (50%) showed PFP alone and 12 lesions (21%) were combined with the crista dotted pattern (i.e. “peas-in-a-pod” pattern). The “peas-in-a-pod” pattern was not observed in the lesions first noticed after 7 years of age.

Furthermore, we histopathologically evaluated 6 lesions, as follows: “peas-in-a-pod”, 3; double-dotted variant of PFP, 1; fibrillar pattern, 1; and non-typical pattern, 1 lesion. In the “peas-in-a-pod” pattern, melanin granules were observed not only in the cornified layer on the crista profunda limitans (CPL), but also in that on the crista profunda intermedia (CPI) (Fig. 1).

## DISCUSSION

Under dermoscopic observation, acral AMN in childhood frequently showed a combination of PFP and crista dotted pattern (21%), reported previously as the “peas-in-a-pod” pattern (4). We reported previously that this pattern accounted for 37.5% of acral CMN, and others showed that it was present in 14% of acral AMN (4, 5). It is notable that the “peas-in-a-pod” pattern is observed in early onset melanocytic naevus in the acral region, in both congenital and acquired types, which suggests that AMN with the “peas-in-a-pod” pattern shares the same characteristics with CMN.

The crista dots seen in “peas-in-a-pod” and crista dotted patterns were attributable to melanin granules within the cornified layers on the CPI (see Fig. 1b). The aggregation of melanins in the surface ridges is one of the most important signs of early melanoma in the acral region (6). However, “peas-in-a-pod” and crista dotted patterns are dermoscopically distinguishable from parallel ridge pattern, a pattern specific for melanoma. In “peas-in-a-pod” and crista dotted patterns, melanin deposition is limited close to the eccrine pores, whereas in the parallel ridge pattern it is entirely distributed in the lines of ridges. In common acral AMN, melanin granules are distributed in

Table I. Frequency of dermoscopic patterns of acral acquired melanocytic naevus in children (n = 56)

Dermoscopic pattern	n (%)
Parallel furrow pattern	28 (50)
Parallel furrow + crista dotted pattern (“peas-in-a-pod” pattern)	12 (21)
Fibrillar pattern	8 (14)
Non-typical pattern	6 (11)
Lattice-like pattern	1 (2)
Parallel furrow + reticular pattern	1 (2)

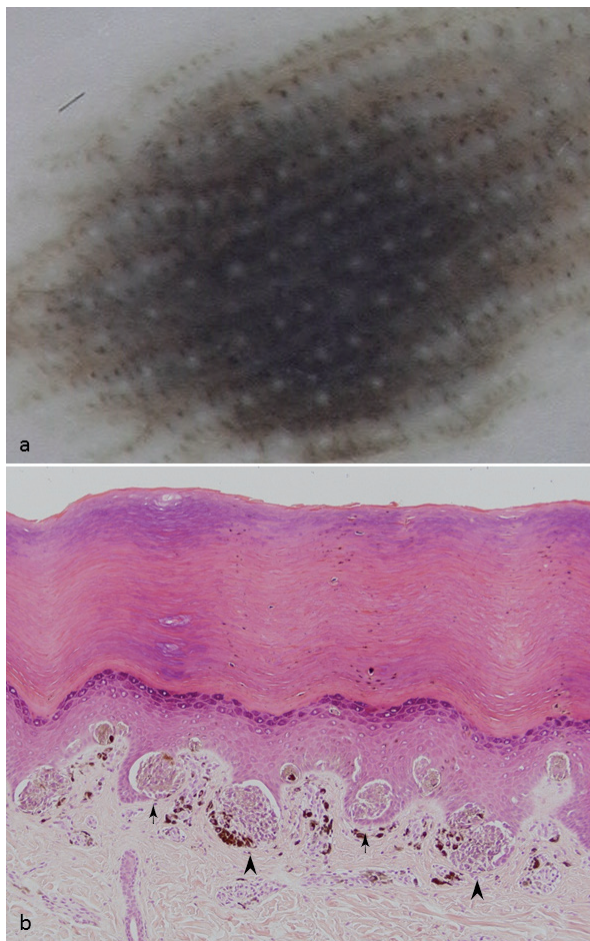


Fig. 1. Dermoscopic and histopathological images. (a) A dark-brown macule, 4 × 6.9 mm in size, located on the sole of a 9-year-old girl. "Peas-in-a-pod" pattern, a combination of the parallel furrow (double dotted line variant in this lesion) and the crista dotted pattern, was observed by dermoscopy. (b) The lesion was histopathologically a compound naevus. Junctional melanocytic nests were observed both in the crista profunda intermedia (arrow) and crista profunda limitans (arrowsheads). The cornified layer contained melanin granules both in the furrows and ridges (H&E ×100).

the cornified layer on the CPL and are hardly detected under the surface ridges even when proliferation of melanocytes is prominent in CPI (6, 7). Thus, melanocytic naevus exhibiting the "peas-in-a-pod" and crista dotted patterns differs from general AMN at the dermoscopic level as well as the histopathological level.

In our series, 73% of the lesions exhibited PFP, while the lattice-like pattern (LLP) was observed in only 2%. In our previous work, acral CMN showed a similar tendency: 63% of acral CMN presented the PFP with no cases of the LLP (4). In acral AMN, the most prevalent pattern is PFP (42%–59%), followed by LLP (7–27%) and the fibrillar pattern (6–21%) (8–11). The infrequency of LLP seems to be a characteristic finding commonly seen in acral CMN and AMN in childhood. Transverse ridge, a cross between the CPL and the CPI, is found in the plantar epidermis by scanning electron microscopy. In the arched area where the LLP is prevalent, the transverse

ridges are lower in height and thicker in width than those in the weight-bearing area (12). The lower frequency of LLP in both acral CMN and AMN in childhood may be due to anatomical differences in the basal surface of the plantar epidermis between children and adults.

In conclusion, acral AMN in childhood has the same dermoscopic characteristics as reported earlier for acral CMN: a high frequency of occurrence of "peas-in-a-pod" pattern and low frequency of the LLP. The dots comprising the crista dotted pattern correspond to melanin granules in the cornified layer of the surface ridges.

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