Journal of General - Procedural Dermatology & Venereology Indonesia

Volume 1
Issue 1 *(August 2015 Edition)*

Article 4

8-31-2015

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Recommended Citation

Melly, Conny; Sularsito, Sri Adi; Sirait, Sondang Panjaitan; Rihatmadja, Rahadi; Widyasari, Indah; and Onmaya, Vini (2015) "A rare case of late onset reticulate acropigmentation of Kitamura without involvement of the palms and soles," *Journal of General - Procedural Dermatology & Venereology Indonesia*: Vol. 1: Iss. 1, Article 4.
DOI: 10.19100/jdvi.v1i1.5
Available at: https://scholarhub.ui.ac.id/jdvi/vol1/iss1/4

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Case Report

A rare case of late onset reticulate acropigmentation of Kitamura without involvement of the palms and soles

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Abstract

Background: Reticulate acropigmentations of Kitamura (RAPK) is an autosomal dominant inherited disorder characterized by pigmented, angulated, irregular freckle-like lesion with atrophy on the surface, arranged in a reticulate pattern on the dorsa of the hands and feet. It was first described by Kitamura and Akamatsu in Japan in 1943. The usual age of onset is the first and second decades of life. Palms and soles reveal pits and breaks in the epidermal ridge pattern. The histopathological examination show epidermal atrophy, digitate and filiform elongated rete ridges with clumps of heavy melanin pigmentation at their tips.

Case: A 59-year-old male presented with asymptomatic and progressive brownish-black discoloration in a reticulate pattern on the dorsal aspect of his hands and feet. The lesions initially appeared when the patient was 45 years old. It was not preceded by any erythema or inflammation. There was no similar case in the family. Laboratory findings were within normal limits.

Discussion: Skin biopsy taken from the dorsal of the hand and foot revealed hyperkeratosis, thinning of epithelium, filiform elongation of the rete ridges, increased melanocyte numbers in the basal layer, and lymphocyte infiltration in the dermis. Based on the clinical and histological findings he was diagnosed as RAPK. From some reports, sporadic cases without the involvement of other family members may occur, like our patient. Palms and soles involvement in RAPK is still debated, some considered it as a characteristic sign of this disorder while others refuted it.

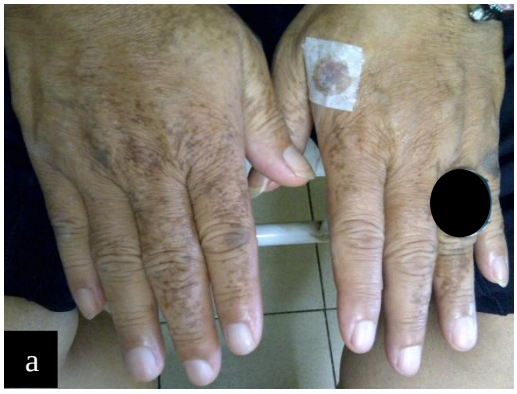
Keywords: *reticulate acropigmentation of Kitamura, histopathology, late onset, sporadic.*

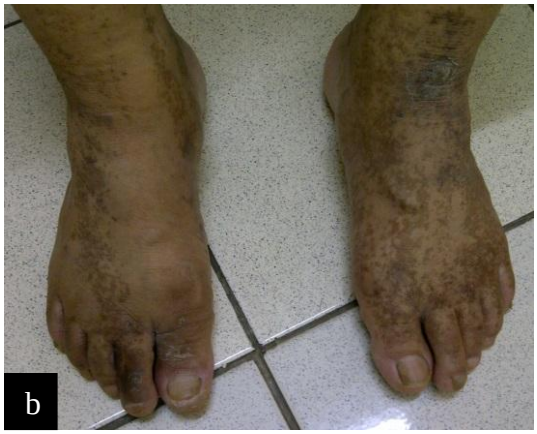
Introduction

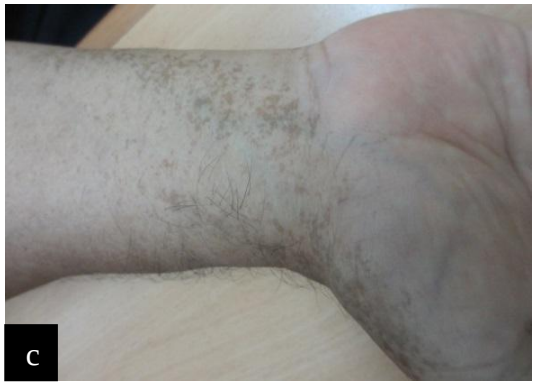
Reticulated acropigmentation of Kitamura (RAPK) is an autosomal dominant inherited dermatoses first reported in 1943 by Kitamura and Akamatsu in Japan. The majority of reported cases occur in Japanese patients, but the condition has also been recognized worldwide. We report a case of RAPK without the involvement of the palms and soles.

Case report

A 59-year-old male presented with symptomless and symmetrically progressive brownish-black discoloration, forming a reticulate pattern on the dorsal aspect of his hands and feet. The macules appeared ten years ago. It was not preceded by any inflammatory dermatoses. Over the years, the macules had progressed proximally. The lesion had never been treated. There was no history of any other cutaneous or systemic diseases. Similar disorder in the family was denied therefore we were not able to confirm it. On physical examination, the patient was in good health condition. Skin examination revealed reticulated brown-black pigmented macules on the dorsa of the hands and feet. Hair, facial skin, teeth, oral mucosa, and nails were normal.







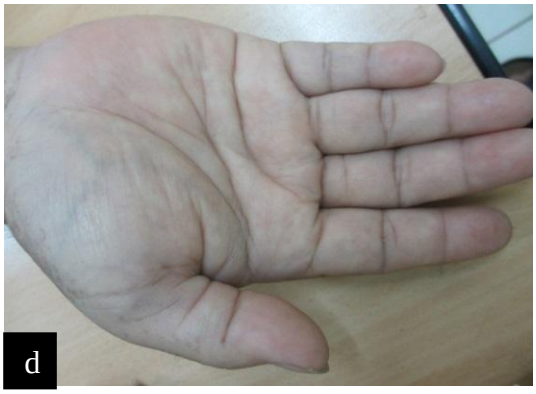
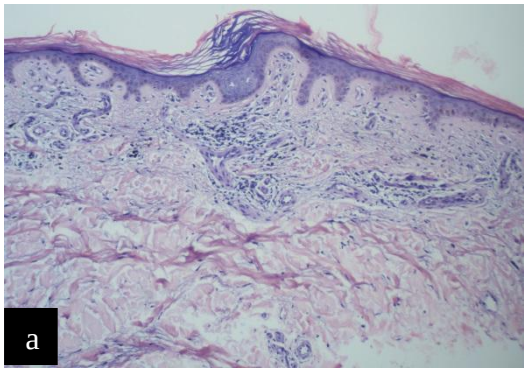
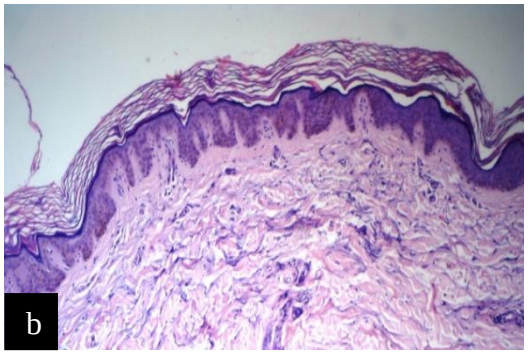


Figure 1. Reticulated hyperpigmented macules on (a) dorsa of the hands, (b) dorsa of the feet, (c) right forearm. No palmar pits or breaks in the epidermal ridge pattern (d)

Laboratory findings including complete blood count, liver and kidney functions were within normal limits. Skin biopsy from the dorsal of the hand and foot revealed hyperkeratosis, thinning of the epithelium, filiform elongation of the rete ridges, increased melanocyte numbers in the basal layer, and lymphocyte infiltration in the dermis. Based on the clinical and histological findings he was diagnosed as RAPK.





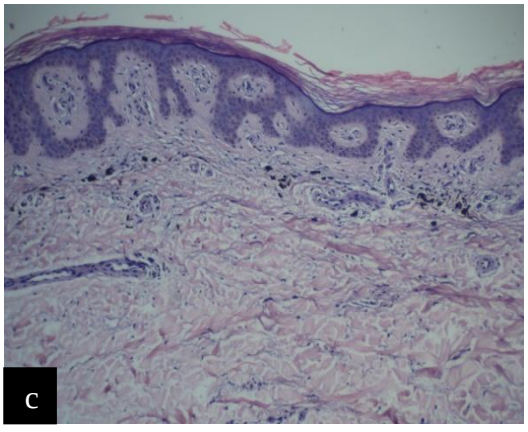


Figure 2. Skin biopsy taken from dorsum of the hand showed (a) epidermal atrophy. Skin biopsy taken from dorsum of the foot showed (b) increase melanin pigment in the basal layer, (c) filiform elongation of the rete ridges (HE 400x).

Discussion

Reticulate acropigmentation of Kitamura was first described by Akamatsu and Kitamura. About 100 cases have been reported, mostly in Asian ethnic groups. There is no sex predilection for RAPK. Many cases are familial, and the disorder is believed to be inherited as an autosomal dominant trait. Our patient was the only person affected in the family. It is very difficult to define the genetic background in our case, as we were unable to examine other family members. Hawsari et al[1] and Cox et al[2] also report a sporadic case of RAPK.

The cutaneous lesions of RAPK are asymptomatic. It has angular, irregular freckle-like lesion with atrophy on the surface, arranged in a reticulate pattern that develop on the dorsum of the hands and feet. It is usually manifest during childhood or in the first and second decades of life. The lesions are usually slowly darker over time. Sun exposure may aggravate the condition. The spots often increase in number and subsequently expand to proximal extremities and the trunk. Pits and breaks in the dermatoglyphics are found on the palms, soles and dorsal phalangeal surfaces.[3,4] In our patient palmar pits and breaks in the epidermal ridge pattern were absent.

The pathogenesis is unknown. It has been postulated that an increased number of activated melanocytes and accelerated transfer of melanosomes to keratinocytes are responsible for the pigmented lesions. The origin of epidermal atrophy remains unclear.[5] Kono et al.[6] reported a mutation in ADAM10 encoding a zinc metalloprotease, a disintegrin and metalloprotease domain-containing protein 10 (ADAM10) was identified in the RAPK family. ADAM10 is known to be involved in the ectodomain shedding of various substrates in the skin.

Histopathological examination in RAPK classically shows epidermal atrophy associated with club-like elongation of the rete ridges and excess of melanin in the basal layer.[1] In our patient, histopathologic examination from the hyperpigmented lesions shows epidermal atrophy, digitate and filiform elongated rete ridges with clumps of heavy melanin pigmentation at their tips.

Table 1. Genetic disease with reticulate hyperpigmentation.[6]

Disease	Inheritance (gene defect)	Distribution	Special features	Associated findings
Acropigmentation of Kitamura	AD	Acral	Pigmented atrophic macules	Palmar pits
Acropigmnetation of Dohi (dyschromatosis symmetrica hereditaria)	AD Males commonly affected	Acral	Hypopigmented and hyperpigmented macules without atrophy	Freckle like macules on the face
Dowling-Degos disease	AD	Flexural then generalized	Onset delayed, worsens in hot weather	Perioral pits, keratosis, epidermal cyst
Dyschromatosis universalis hereditaria	AD	Generalized	Reticulate pigmentation involving the whole body	Nail: pterygium, pigmentation of the palm, soles, and mucosa, rarely ocular, developmental defect
Dermatopathia pigmentosa reticularis	AD	Generalized with mucosal involvement	Hypopigmented macules, alopecia, onychodystrophy	Sweating disorder, loss of dermatoglyphics, acral non scarring blister palmar or plantar hyperkeratosis

*AD = Autosomal dominant

The diagnosis was made based on clinical and histopathological findings. There are no supportive laboratory studies. RAPK must be differentiated from several other causes of macular pigmentation.[7] In our patient, we did not find any hypopigmentation lesion or freckles on the face. Examination of mucosa, hair, and nail did not reveal any abnormality.

Unfortunately, there are no effective treatment options for RAPK. Treatment with topical retinoids has been unsuccessful.[3] Adapalene provides only temporary improvement. Kameyama et al.[8] reported transient improvement of a patient with RAPK after using 20% azelaic acid. Q-switched alexandrite laser can be considered as a treatment option. Farad et al.[9] successfully treated a patient with RAPK using a Q-switched alexandrite laser at 755 nm. The patient was almost recurrence-free after two years of follow-up. Unfortunately, our patient was lost to follow-up before receiving any treatment.

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