

- 2015 Oct 5;95(7):858-859. doi: 10.2340/00015555-2022.
11. Noda K, Sugiura K, Kono M, Akiyama M. Porokeratotic eccrine ostial and dermal duct nevus with a somatic homozygous or monoallelic variant of connexin 26. *J Dermatol Sci* 2015 Oct;80(1):74-6. doi: 10.1016/j.jdermsci.2015.07.003.
12. Takeichi T, Sugiura K, Chao-Kai Hsu CK, Tanahashi K, Takama H, Michael A Simpson, MA, McGrath JA, Akiyama M. Novel indel mutation of STS underlies a new phenotype of self-healing recessive X-linked ichthyosis. *J Dermatol Sci* 2015 Sep;79(3):317-9. doi: 10.1016/j.jdermsci.2015.07.001.
13. Muro Y, Sugiura K, Nara M, Sakamoto I, Suzuki N, Akiyama M. High incidence of cancer in anti-small ubiquitin-like modifier activating enzyme antibody-positive dermatomyositis. *Rheumatology (Oxford)*, 2015 Sep;54(9):1745-7. doi: 10.1093/rheumatology/kev247.
14. Tanahashi K, Sugiura K, Akiyama M. Topical minoxidil improves congenital hypotrichosis caused by LIPH mutations. *Br J Dermatol* 2015 Sep;173(3):865-6. doi: 10.1111/bjd.13790.
15. Sugiura K, Nakasuka A, Kono H, Kono M, Akiyama M. Impetigo herpetiformis with IL36RN mutations in a Chinese patient: A founder haplotype of c.115+6T>C in East Asia. *J Dermatol Sci* 2015 Sep;79(3):319-20. doi: 10.1016/j.jdermsci.2015.06.003.
16. Kono M, Sukanuma M, Takama H, Zarzoso I, Saritha M, Bodet D, Aboobacker S, Kaliaperumal K, Suzuki T, Tomita Y, Sugiura K, Akiyama M. Dowling-Degos disease with mutations in POFUT1 is clinicopathologically distinct from reticulate acropigmentation of Kitamura. *Br J Dermatol* 2015 Aug;173(2):584-6. doi: 10.1111/bjd.13702.
17. Miyake T, Umemura H, Doi Y, Kousogabe J, Tsuji K, Hamada T, Sugiura K, Aoyama Y, Akiyama M, Iwatsuki K. A case of annular pustular psoriasis with heterozygous IL36RN mutation. *Eur J Dermatol* 2015 Jul-Aug;25(4):349-50.
18. Sugiura K, Arima M, Matsunaga K, Akiyama M. The novel GJB3 mutation p.Thr202Asn in the M4 transmembrane domain

- underlies erythrokeratoderma variabilis. *Br J Dermatol* 2015 Jul;173(1):309-11. doi: 10.1111/bjd.13641.
19. Aizu T, Matsui A, Takiyoshi N, Akasaka E, Kaneko T, Nakano H, Sugiura K, Akiyama M, Sawamura D. Elderly-onset generalized pustular psoriasis without previous history of psoriasis vulgaris. *Case Rep Dermatol* 2015 Jul 29;7(2):187-93. doi: 10.1159/000438505.
20. Sugiura K, Akiyama M. Update on autosomal recessive congenital ichthyosis: mRNA analysis using hair samples is a powerful tool for genetic diagnosis *J Dermatol Sci* 2015 Jul;79(1):4-9. doi: 10.1016/j.jdermsci.2015.04.009.
- Review
21. Ohno Y, Nakamichi S, Ohkuni A, Kamiyama N, Naoe A, Tsujimura H, Yokose U, Sugiura K, Ishikawa J, Akiyama M, Kihara A. Essential role of the cytochrome P450 CYP4F22 in the production of acylceramide, the key lipid for skin permeability barrier formation. *Proc Natl Acad Sci U S A* 2015 Jun 23;112(25):7707-12. doi: 10.1073/pnas.1503491112.
22. Nanbu Ai, Sugiura K, Kono M, Muro Y, Akiyama M. Annular elastolytic giant cell granuloma successfully treated with minocycline hydrochloride. *Acta Derm Venereol* 2015 Jun 24;95(6):756-7. doi: 10.2340/00015555-2056.
23. Ito T, Aoshima M, Sugiura K, Fujiyama N, Ito N, Sakabe JI, Akiyama M, Maekawa M, Tokura Y. Pustular psoriasis like lesions associated with hereditary lactate dehydrogenase M-subunit deficiency without interleukin-36 receptor antagonist mutation: Long-term follow-ups of two cases. *Br J Dermatol* 2015 Jun;172(6):1674-6. doi: 10.1111/bjd.13590.
24. Himoto T, Tanaka N, Saito A, Muro Y, Sugiura K, Tani J, Miyoshi H, Morishita A, Yoneyama H, Haba R, Masaki T. Diversity of humoral responses to the centromere proteins among HCV-related chronic liver disease, PBC and AIH patients. *Clin Res Hepatol Gastroenterol* 2015 Apr;39(2):222-9. doi: 10.1016/j.clinre.2014.08.004.
25. Shibata A, Tanahashi K, Sugiura K, Akiyama M. TRPS1 haploinsufficiency results in increased STAT3 and SOX9 mRNA expression in hair follicles

in trichorhinophalangeal  
syndrome. Acta Derm Venereol  
2015 Apr 28;95(5):620-621. doi:  
10.2340/00015555-1948.

## 2.学会発表

### H.知的財産権の出願・登録状況

#### 1.特許取得

なし。

#### 2.実用新案登録

なし。

#### 3.その他

なし。

III. 研究成果の刊行に関する一覧表

雑誌

発表者氏名	論文タイトル名	発表誌名	巻号	ページ	出版年
Kono M, Yokoyama N, Ogawa Y, Takama H, Sugiura K, Akiyama M.	Unilateral generalized linear porokeratosis with nail dystrophy.	J Dermatol	43(3)	286-7.	2016
Tanahashi K, Sugiura K, Sato T, Akiyama M.	Noteworthy clinical findings of harlequin ichthyosis: Digital autoamputation caused by cutaneous constriction bands in a case with novel ABCA12 mutations.	Br J Dermatol	174(3)	689-91.	2016
Takeichi T, Sugiura K, Tso S, Simpson MA, McGrath JA, Akiyama M.	Bi-allelic nonsense mutations in <i>ABHD5</i> underlie a mild phenotype of Dorfman-Chanarin syndrome.	J Dermatol Sci	81(2)	134-6.	2016
Ogawa M, Sugiura K, Yokota K, Muro Y, Akiyama M.	Anti-transcription intermediary factor 1- $\gamma$ antibody-positive clinically amyopathic dermatomyositis complicated by interstitial lung disease and breast cancer.	J Eur Acad Dermatol Venerol	30(2)	373-5.	2016
Nin-Asai R, Muro Y, Sekiya A, Sugiura K, Akiyama M.	Serum thymus and activation-regulated chemokine (TARC/CCL17) levels reflect the disease activity in a patient with bullous pemphigoid.	J Eur Acad Dermatol Venerol	30(2)	327-8.	2016
Shibata A, Sugiura K, Suzuki A, Ichiki T, Akiyama M.	Apparent homozygosity due to compound heterozygosity of one point mutation and an overlapping exon deletion mutation in <i>ABCA12</i> .	J Dermatol Sci	80(3)	196-202.	2015
Muro Y, Sugiura K, Akiyama M.	What are the "True" Pathogenic Anti-desmoglein Antibodies?	Acta Derm Venereol	95(7)	872-4.	2015
Sugiura K, Endo K, Akasaka T, Akiyama M.	Successful treatment with infliximab of sibling cases with generalized pustular psoriasis caused by deficiency of interleukin-36 receptor antagonist.	J Eur Acad Dermatol Venerol	29(10)	2054-6.	2015

Sugiura K, Akiyama M.	Lamellar ichthyosis caused by a previously unreported homozygous ALOXE3 mutation in East Asia.	Acta Derm Venereol	95(7)	858-9.	2015
Noda K, Sugiura K, Kono M, Akiyama M.	Porokeratotic eccrine ostial and dermal duct nevus with a somatic homozygous or monoallelic variant of connexin 26.	J Dermatol Sci	79(3)	317-9.	2015
Muro Y, Sugiura K, Nara M, Sakamoto I, Suzuki N, Akiyama M.	High incidence of cancer in anti-small ubiquitin-like modifier activating enzyme antibody-positive dermatomyositis.	Rheumatology (Oxford)	54(9)	1745-7.	2015
Tanahashi K, Sugiura K, Akiyama M.	Topical minoxidil improves congenital hypotrichosis caused by LIPH mutations.	Br J Dermatol	173(3)	865-6.	2015
Sugiura K, Nakasuka A, Kono H, Kono M, Akiyama M.	Impetigo herpetiformis with IL36RN mutations in a Chinese patient: A founder haplotype of c.115+6T>C in East Asia.	J Dermatol Sci	79(3)	319-20.	2015
Kono M, Suganuma M, Takama H, Zarzoso I, Saritha M, Bodet D, Aboobacker S, Kaulaperumal K, Suzuki T, Tomita Y, Sugiura K, Akiyama M.	Dowling-Degos disease with mutations in POFUT1 is clinicopathologically distinct from reticulate acropigmentation of Kitamura.	Br J Dermatol	173(2)	584-6.	2015
Miyake T, Umemura H, Doi Y, Kurosogabe J, Tsujikawa K, Hamada T, Sugiura K, Aoyama Y, Akiyama M, Iwatsuki K.	A case of annular pustular psoriasis with heterozygous IL36RN mutation.	Eur J Dermatol	25(4)	349-50.	2015
Sugiura K, Arima M, Matsunaga K, Akiyama M.	The novel GJB3 mutation on p.Thr202Asn in the M4 transmembrane domain underlies erythrokeratoderma variabilis.	Br J Dermatol	173(1)	309-11.	2015

Aizu T, Matsui A, Takiyoshi N, Akasaka E, Kaneko T, Nakano H, Sugiura K, Akiyama M, Sawamura D.	Elderly-onset generalized pustular psoriasis without previous history of psoriasis vulgaris.	Case Rep Dermatol	7(2)	187-93.	2015
Ohno Y, Nakamichi S, Ohkuni A, Kamiyama N, Naoe A, Tsujimura H, Yokose U, Sugiura K, Ishikawa J, Akiyama M, Kihara A	Essential role of the cytochrome P450 CYP4F2 in the production of acylceramide, the key lipid for skin permeability barrier formation.	Proc Natl Acad Sci U S A	112(25)	7707-12.	2015
Nanbu Ai, Sugiura K, Kono M, Muro Y, Akiyama M.	Annular elastolytic giant cell granuloma successfully treated with minocycline hydrochloride.	Acta Derm Venereol	95(6)	756-7.	2015
Himoto T, Tanaka N, Saito A, Muro Y, Sugiura K, Tani J, Miyoshi H, Morishita A, Yoneyama H, Hababa R, Masaki T.	Diversity of humoral responses to the centromere proteins among HCV-related chronic liver diseases, PBC and AIH patients.	Clin Res Hepatol Gastroenterol	39(2)	222-9	2015
Shibata A, Tanahashi K, Sugiura K, Akiyama M.	<i>TRPS1</i> haploinsufficiency results in increased <i>SAT3</i> and <i>SOX9</i> mRNA expression in hair follicles in trichorhinophalangeal syndrome.	Acta Derm Venereol	95(5)	620-1.	2015

#### IV. 研究成果の刊行物・別刷



LETTER TO THE EDITOR

## Unilateral generalized linear porokeratosis with nail dystrophy

Dear Editor,

Porokeratosis is a disorder of abnormal keratinization characterized clinically by well-defined annular lesions with hyperkeratotic ridges. Here, we report a case of unilateral generalized linear porokeratosis with dystrophy of the toenail.

A 36-year-old man showed unilateral, brownish-red plaques and round macules on the right side of his trunk and the right extremities, with slight itching (Fig. 1a). The eruptions had been present since childhood. At elementary school age, toenail dystrophy occurred after the appearance of cutaneous hyperkeratotic lesions. The lesions consisted of multiple pigmented hyperkeratotic and verrucous papules and plaques with a sharply demarcated border in a linear distribution. The lesions were distributed along the lines of Blaschko (Fig. 1a). Some of the macules had coalesced, and in some parts of the lesions, annular macules with hyperkeratotic rims were also seen. The linear lesions on the right leg were connected to the lesions in the toes. The nail of the right first toe was dystrophic and showed irregular grooving and pterygium (Fig. 1b,c). No bony abnormality of the affected toe was detected by X-ray examination (Fig. 1d). The patient had no cutaneous lesions on the hands. No nail dystrophy was seen on any finger. There were no mucosal or visceral abnormalities. He had neither immunosuppression nor any systemic disease associated with porokeratosis. He had no family history of porokeratosis.

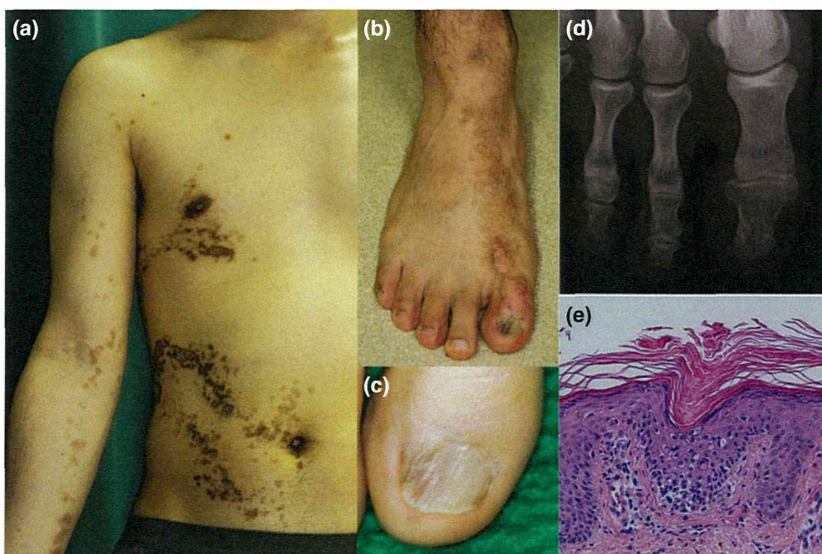
Skin biopsies were taken from affected sites of the abdomen and the leg. Cornoid lamellae were found in the interfollicular epidermis (Fig. 1e).

From these clinical and histopathological findings, this case was diagnosed as linear porokeratosis.

Two forms of linear porokeratosis exist. In the rare generalized form, the lesions are multiple, and they affect several extremities and involve the trunk. Unilateral generalized linear porokeratosis is extremely rare.<sup>1</sup>

Nail involvement in linear parakeratosis is rare. To date, there have been only a few case reports of onychodystrophy in linear porokeratosis.<sup>2,3</sup> In one case, there was bony narrowing of the digits.<sup>3</sup> Six main variants of porokeratosis have been described.<sup>4</sup> In those variants, nail involvement was reported not only in linear porokeratosis, but also in porokeratosis of Mibelli<sup>4</sup> and porokeratosis plantaris palmaris et disseminata.<sup>5</sup> Though the exact pathogenesis of dystrophic nail is not yet understood, it is possible that nail changes occur through the involvement of the nail matrix and nail bed by atypical hyperproliferative keratinocytes, ultimately resulting in destruction of the whole nail.<sup>2</sup> Cases with nail involvement in linear porokeratosis are not as rare as those in the other porokeratosis variants. We speculate that this is because many cases of linear porokeratosis involve the distal portions of the extremities.

Local porokeratosis can be treated by topical therapy, such as with 5-fluorouracil, vitamin D<sub>3</sub> analogs, imiquimod or tretinoin creams.<sup>4</sup> For generalized porokeratosis, topical therapies may show variable effectiveness, but they are not practical. Therefore, systemic retinoids were anecdotally used for diffuse porokeratosis.<sup>1</sup> Our patient declined etretinate, the only internal retinoid available in Japan.



**Figure 1.** Unilateral generalized linear porokeratosis with nail dystrophy. The clinical and histopathological features of the current case. (a) A clinical photograph indicating the distribution pattern of the lesions. (b) A clinical photograph of the continuous linear lesion from the right dorsum of the foot to the toenail. (c) Nail dystrophy and pterygium on the right hallux next to the lesion. (d) An X-ray photograph of the affected toe shows no bony abnormalities. (e) A microphotograph of hyperkeratosis and a cornoid lamella in the interfollicular epidermis (hematoxylin–eosin stain, original magnification  $\times 200$ ).

Correspondence: Michihiro Kono, M.D., Ph.D., Department of Dermatology, Nagoya University Graduate School of Medicine, 65 Tsurumai-cho, Showa-ku, Nagoya 466-8550, Japan. Email: miro@med.nagoya-u.ac.jp

To our knowledge, this case is the first report of unilateral generalized linear porokeratosis with nail dystrophy.

**CONFLICT OF INTEREST:** None declared.

Michihiro KONO,<sup>1</sup> Nozomi YOKOYAMA,<sup>1</sup> Yasushi OGAWA,<sup>1</sup> Hiromichi TAKAMA,<sup>2</sup> Kazumitsu SUGIURA,<sup>1</sup> Masashi AKIYAMA<sup>1</sup>

<sup>1</sup>Department of Dermatology, Nagoya University Graduate School of Medicine, Nagoya, and <sup>2</sup>Takama Dermatology Clinic, Kasugai, Japan

## REFERENCES

- 1 Hong JB, Hsiao CH, Chu CY. Systematized linear porokeratosis: a rare variant of diffuse porokeratosis with good response to systemic acitretin. *J Am Acad Dermatol* 2009; **60**: 713–715.
- 2 Kohara Y, Takeo T, Oshima Y, Akita Y, Tamada Y, Watanabe D. Linear porokeratosis with nail dystrophy. *Eur J Dermatol* 2011; **21**: 625–626.
- 3 Tseng SS, Levit EK, Ilarda I, Garzon MC, Grossman ME. Linear porokeratosis with underlying bony abnormalities. *Cutis* 2002; **69**: 309–312.
- 4 Kaniakakis J. Porokeratoses: an update of clinical, aetiopathogenic and therapeutic features. *Eur J Dermatol* 2014; **24**: 533–544.
- 5 Itin PH. Porokeratosis plantaris, palmaris et disseminata with multiple filiform hyperkeratoses and nail dystrophy (in German). *Hautarzt* 1995; **46**: 869–872.